



FACT SHEET

**The United States Environmental Protection Agency (EPA)
Proposes To Reissue
A National Pollutant Discharge Elimination System (NPDES) Permit to:**

**City of Priest River
P.O. Box 415
Priest River, Idaho 83856**

NPDES Permit Number: ID-002080-0

Public Notice Start Date: August 19, 2011

Public Notice Expiration Date: September 19, 2011

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The EPA Proposes To Reissue NPDES Permit

The EPA proposes to reissue the NPDES permit to 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 each facility.

This Fact Sheet includes:

- information on public comment, public hearing, and appeal procedures
- a listing of proposed effluent limitations, and other conditions for each facility
- a map and description of the discharge locations
- technical material supporting the conditions in the permit

State Certification for Facilities that Discharge to State Waters

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

Idaho Department of Environmental Quality
Coeur d'Alene Regional Office
2110 Ironwood Parkway
Coeur d'Alene, ID 83814
ph: (208) 769-1422
fx: (208) 769-1404

Public Comment

Persons wishing to comment on, or request a Public Hearing for the draft permit for this facility may do so in writing by the expiration date of the Public Comment period. A request for a Public Hearing must state the nature of the issues to be raised as well as the requester's name, address and telephone number. All comments and requests for Public Hearings must be in writing and should be submitted to the EPA as described in the Public Comments Section of the attached Public Notice.

After the Public Notice expires and all comments have been considered, the EPA Region 10's Director for the Office of Water and Watersheds will make a final decision regarding permit reissuance. 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 comments are received, the EPA will address the comments and issue the permit. In such a case, the permit will become effective at least 30 days after the issuance date unless an appeal is submitted to the Environmental Appeals Board within 30 days.

Documents are Available for Review.

The draft permit and fact sheet are posted on the Region 10 website at <http://yosemite.epa.gov/r10/WATER.NSF/NPDES+Permits/DraftPermitsID>. Copies may also be requested by writing to the EPA at the Seattle address below, by e-mailing washington.audrey@epa.gov, or by calling Audrey Washington at 206-553-0523 or (800) 424-4372 ext 0523 (within Alaska, Idaho, Oregon, & Washington). Copies may also be inspected and copied at the offices below between 8:30 a.m. and 4:00 P.M., Monday through Friday, except federal holidays. In Seattle, visitors report to the 12th floor Public Information Center.

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, OWW-130
Seattle, Washington 98101
(206) 553-0523 or
Toll Free 1-800-424-4372 (within Alaska, Idaho, Oregon and Washington)

EPA Idaho Operations Office
1435 North Orchard Street
Boise, Idaho 83706
(208) 378-5746

Idaho Department of Environmental Quality
Coeur d'Alene Regional Office
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City of Priest River

For technical questions regarding the permit or fact sheet, contact John Drabek at the phone number or e-mail address at the top of this fact sheet. Those with impaired hearing or speech may contact a TDD operator at 1-800-833-6384 and ask to be connected to the appropriate phone number. Persons with disabilities may request additional services by contacting John Drabek.

TABLE OF CONTENTS

I.	FACILITY INFORMATION	5
A.	Facility Description	5
B.	Compliance History	6
II.	RECEIVING WATER	7
A.	Water Quality Standards	7
B.	Water Quality Limited Segment and TMDL	7
III.	EFFLUENT LIMITATIONS	8
A.	Basis for Permit Effluent Limits	8
B.	Proposed Effluent Limitations	8
IV.	MONITORING REQUIREMENTS	9
A.	Basis for Effluent and Surface Water Monitoring Requirements	9
B.	Effluent Monitoring Requirements	9
C.	Surface Water Monitoring Requirements	12
V.	SLUDGE (BIOSOLIDS) REQUIREMENTS	12
VI.	OTHER PERMIT CONDITIONS	13
A.	Quality Assurance Plan Implementation	13
B.	Operation and Maintenance Plan Implementation	13
C.	Sanitary Sewer Overflows and Proper Operation and Maintenance	13
D.	Additional Permit Provisions	14
VII.	OTHER LEGAL REQUIREMENTS	14
A.	Endangered Species Act	14
B.	Essential Fish Habitat	15
C.	State Certification	15
D.	Permit Expiration	15
VIII.	DEFINITIONS AND ACRONYMS	15
IX.	REFERENCES	16
	Appendix A – Location Map and Discharge to Pend Oreille River	17
	Appendix B – Basis for Effluent Limitations	20
A.	Technology-Based Effluent Limits	20
B.	Water Quality-Based Effluent Limits	21
C.	Facility-Specific Water Quality-based Limits	23

City of Priest River

APPLICANT

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

Facility Name: City of Priest River, Wastewater Treatment Plant

Mailing Address: P.O. Box 415, Priest River, Idaho 83856

Facility Address: 401 Railroad Avenue, Priest River, Idaho 83856

Contact: Jack V. Johnson, (208) 448-2385

I. FACILITY INFORMATION

A. Facility Description

The City of Priest River owns, operates and has maintenance responsibility for a publicly owned treatment works (POTW) that treats domestic sewage and commercial wastewater discharge (facility). The facility treats wastewater that is primarily from local residents and commercial establishments through a separate sanitary sewer system. There are no significant industrial dischargers to the facility.

Primary treatment consists of screening. Secondary treatment is biological using the activated sludge process in two aeration basins in series where wastewater is vigorously mixed with air and microorganisms acclimated to the wastewater in a suspension for several hours. This suspended growth process is designed to remove biodegradable organic material and organic nitrogen-containing material by converting ammonia nitrogen to nitrate. The microbial growth is suspended in the aerated water mixture where the air is pumped in to allow oxygen transfer. The suspended growth process speeds up the work of aerobic bacteria and other microorganisms that break down the organic matter in the sewage by providing a rich aerobic environment where the microorganisms suspended in the wastewater can work more efficiently. The microorganisms grow in number and the excess biomass is removed by settling in the secondary clarification tanks. Now activated with millions of additional aerobic bacteria, some of the biomass is used again by returning it for mixing with incoming wastewater. The remaining biomass is sent to one of three clarifiers, followed by ultraviolet disinfection, with an existing chlorination system used only as a backup; discharge is then through Outfall 001. The current permit allows discharge from a second Outfall 002 downstream of the disinfection system only when effluent exceeds the capacity of the Outfall 001 discharge pipe during peak treatment plant inflows. Discharges are anticipated at once per year.

Aerobically settled solids are removed from the treatment system and processed on site.

The current service population is estimated to be 1,800 people. The facility has a design flow rate of 0.50 mgd.

The average inflow and infiltration is 30,000 gallons per day. To address this, the City conducts a sewer upgrade and replacement program as street paving projects are accomplished.

City of Priest River

Permit History

The facility's previous permit became effective on January 5, 2002. A complete application for permit reissuance was submitted to the EPA on November 8, 2006. Since the permit was not reissued before the expiration date of January 2, 2007, the permit was administratively extended under 40 CFR 122.6.

B. Compliance History

A review of the discharge monitoring reports (DMRs) from February 2006 to December 2010 found the following violations, all from discharges through Outfall 001:

BOD₅

BOD₅ Violations in December 2006 of the average weekly mass limit of 188 lb/day, with a discharge of 363 lb/day; and of the average monthly mass limit of 125 lb/day, with a discharge of 309.8 lb/day.

TSS

TSS violations in May 2008 of the average monthly concentration limit of 30 mg/L, with a discharge of 33.2 mg/L; and of the average weekly concentration limit of 45 mg/L, with a discharge of 55 mg/L.

pH

Violations of the minimum limit of 6.5, with a discharge of 6.0 in February 2006, 6.2 in August 2007, and 6.3 in September 2007.

E. coli

Violations of the instantaneous *E. coli* limit of 406 #/100ml, with discharges of 1600 #/100ml in February 2006, June and September 2007, and February 2009.

Violation of the instantaneous *E. coli* limit of 406 #/100ml, with a discharge of 1413 #/100ml in August, 2010.

Violation of the instantaneous *E. coli* limit of 406 #/100ml with a discharge of 980 #/100ml in November, 2010.

Violations of the monthly geometric average *E. coli* limit of 126 #/100ml with a discharge of 150.6 #/100ml in February 2009, and a discharge of 160.5 #/100ml in October 2010.

Chlorine

A violation of the monthly average total residual chlorine limit of 0.5 mg/L, with a discharge of 0.53 mg/L in June 2007.

A violation of the weekly average chlorine limit of 0.75 mg/L, with a discharge of 1.12 mg/L in December 2006.

TSS Removal

A violation of the percent TSS removal requirement of 85%, with an 81.3% removal in May 2008.

City of Priest River

II. RECEIVING WATER

The treated effluent from the facility is discharged continuously through Outfall 001 to the Pend Oreille River downstream of the confluence with the Priest River, which is identified in the *Idaho Water Quality Standards and Wastewater Treatment Requirements at IDAPA 58.01.02.110.05*. The discharge is in the Pend Oreille Lake Subbasin, HUC 17010214, (P-1, Pend Oreille River – Pend Oreille Lake to Albeni Falls Dam). The beneficial use classifications are: cold-water biota, primary contact recreation, aesthetics; wildlife habitats; and domestic, agricultural and industrial water supply. Outfalls 001 and 002 are both located at latitude 48° 10.51' N and longitude 116° 53.36' W.

A. Water Quality Standards

Section 301(b)(1)(C) of the CWA requires the development of limitations in permits necessary to meet water quality standards by July 1, 1977. Federal regulations at 40 CFR 122.4(d) require that the conditions in NPDES permits ensure compliance with the water quality standards of all affected States. A State's water quality standards are composed of use classifications, numeric and/or narrative water quality criteria, and an anti-degradation policy. The use classification system designates the beneficial uses (such as drinking water supply, contact recreation, and aquatic life) that each water body is expected to achieve. The numeric and/or narrative water quality criteria are the criteria deemed necessary by the State to support the beneficial use classification of each water body.

B. Water Quality Limited Segment and TMDL

A water quality limited segment (WQLS) is any waterbody where it is known that water quality does not meet applicable water quality standards or is not expected to meet applicable water quality standards. In accordance with section 303(d) of the Clean Water Act, States must identify waters not achieving water quality standards in spite of application of technology-based controls in National Pollutant Discharge Elimination System (NPDES) permits for point sources. Such waterbodies are known as water quality limited segments (WQLSs), and the list of such waterbodies is called the "303(d) list." Once a water body is identified as a WQLS, the States are required under the Clean Water Act to develop a total maximum daily load (TMDL).

A TMDL is a determination of the mass or concentration of a pollutant from point, nonpoint, and natural background sources that may be discharged to a water body without causing the water body to exceed the water quality criterion for that pollutant (including a margin of safety). The TMDL documents the amount of a pollutant a water body can assimilate without violating a state's water quality standards and allocates that load to known point sources and nonpoint sources.

The segment of the Pend Oreille River to which the City of Priest River discharges was identified on the State of Idaho 303(d) list because it did not attain the state water quality standards for temperature and phosphorus. A TMDL has not been developed for either of these pollutants.

City of Priest River

III. EFFLUENT LIMITATIONS**A. Basis for Permit Effluent Limits**

In general, the CWA requires that the limits for a particular pollutant be the more stringent of either technology-based effluent limits or water quality-based limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards of a waterbody are being met and they may be more stringent than technology-based effluent limits. The basis for the proposed effluent limits in the draft permit are provided in Appendix B of this document.

B. Proposed Effluent Limitations

The previous permit included the following effluent limits and monitoring requirements:

Table 1: Effluent Limitations and Monitoring Requirements from the Previous Permit - Outfall 1						
Parameter	Units	Monthly Avg.	Daily Max	Instantaneous Maximum Limit	Sample Frequency	Sample Type
Flow	MGD	---	---	---	Continuous	Recording
Biochemical Oxygen Demand (BOD ₅)	mg/l	30	45	---	weekly	8-Hour Composite
	lbs/day	125 ¹	188 ¹	---		
Total Suspended Solids (TSS) ²	mg/l	30	45	---	weekly	8-Hour Composite
	lbs/day	125 ¹	188 ¹	---		
Temperature	°C	---	---	---	monthly	Grab
Total Ammonia	mg/l	---	---	---	monthly	Grab
E. coli Bacteria ²	colonies/100 ml	126	---	406	5/month	Grab
Total Residual Chlorine (prior to June 30, 2002) ³	mg/L	---	---	2.0	5/week (Mon-Fri)	Grab
Total Residual Chlorine (after June 30, 2002) ³	mg/L	0.5	0.75	---	5/week (Mon-Fri)	Grab
pH	su.	6.5 – 9.0			5/week (Mon-Fri)	Grab
¹ The mass-based limits for BOD5 and TSS and flow monitoring apply to the total combined loading and flow from Outfalls 001 and 002. ² The average monthly E. coli counts must not exceed a geometric mean of 126/100 ml based on a minimum of five samples taken every three to five days over a thirty-day period. ³ When the facility expansion including the ultraviolet disinfection system becomes operational, the facility will only be required to monitor for total residual chlorine when the back-up system is being used.						

Monitoring for Outfall 2 included all the monitoring for Outfall1 except for temperature and ammonia.

The following summarizes the proposed effluent limitations that are in the draft permit:

City of Priest River

1. There must be no discharge of any floating solids, visible foam in other than trace amounts, or oily wastes that produce a sheen on the surface of the receiving water.
2. Table 2 below presents the proposed effluent limitations.

Table 2				
Effluent Limitations, Outfalls 001 and 002				
Parameters	Average Monthly Limit	Average Weekly Limit	Minimum Percent Removal ¹	Maximum Daily Limit
BOD ₅	30 mg/L	45 mg/L	85%	--
	125 lbs/day ²	188 lbs/day ²		--
TSS	30 mg/L	45 mg/L	85%	--
	125 lbs/day ²	188 lbs/day ²		--
<i>E. coli</i> Bacteria	126 colonies /100mL ³	--	--	406 colonies /100mL ⁴
Total Residual Chlorine ⁵	0.5 mg/L	0.75 mg/L	--	--
	2.1 lbs/day	3.1 lbs/day ²	--	--
pH	6.5 – 9.0 standard units			

1. Percent removal is calculated using the following equation: $((\text{influent} - \text{effluent}) / \text{influent}) \times 100$, this limit applies to the average monthly values.
2. Loading limits are calculated by multiplying the concentration in mg/L by the design flow of 0.5 mgd and a conversion factor of 8.34 lbs/gallon.
3. The monthly average for *E. coli* is the geometric mean based on at least five samples taken every three to five days during the month.
4. This is an instantaneous limit, applicable to each grab sample without averaging.
5. Total residual chlorine limits apply only when the back-up chlorination system is used.

IV. MONITORING REQUIREMENTS

A. Basis for Effluent and Surface Water Monitoring Requirements

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

B. Effluent Monitoring Requirements

Parameters

BOD₅, TSS, *E. coli*, Flow and Total Residual Chlorine

The permit requires monitoring BOD₅, TSS, *E. coli*, flow, pH and total residual chlorine to determine compliance with the effluent limits; it also requires monitoring of the influent for BOD₅ and TSS to calculate monthly removal rates. Monitoring of total

City of Priest River

residual chlorine is only required when the back-up chlorination system is used. Monitoring of Outfall 002 is only required when discharges occur through that outfall.

Ammonia

Monitoring for ammonia is again required over the life of the reissued permit with a frequency of once per month. Ammonia is a parameter commonly monitored for POTWs to determine performance and will determine impacts to the Pend Oreille River. Ammonia does not have a reasonable potential to violate the water quality standards of the Pend Oreille River and a limit is not required.

Total Phosphorus

Total Phosphorus monitoring has not been required. Effluent monitoring is required once per week and ambient monitoring is required quarterly to characterize discharges and to determine reasonable potential to violate water quality standards. Monitoring will also insure no increase in the phosphorus loading to the Pend Oreille River.

Total Nitrogen

Total nitrogen has been identified by IDEQ as a potential nutrient of concern in the Pend Oreille River. The Clean Water Act Section 401 Certification dated July 1, 2011 requires effluent monitoring once per week and ambient monitoring quarterly to characterize discharges and to determine reasonable potential to violate water quality standards. Any monitoring requirement in a 401 Certification must become a condition in the NPDES permit pursuant to Section 401(d). The permit requires once per week effluent monitoring and once per quarter ambient monitoring consistent with the IDEQ 401 certification.

Temperature

The existing permit only required temperature monitoring by grab sampling and only five times per week. The proposed permit requires continuous monitoring to better characterize discharges. The permit also requires once per quarter ambient monitoring to determine if Priest River has a reasonable potential to violate water quality standards. Both are required by the IDEQ 401 Certification. Any monitoring requirement in a 401 Certification must become a condition in the NPDES permit pursuant to Section 401(d).

Application Form 2A Monitoring

The City of Priest River WWTP is a minor NPDES facility (i.e., <1 MGD design flow). Monitoring for reapplication is required over a three-year period as required in NPDES Application Form 2A Effluent Testing Data.

Frequency

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples can be used for averaging if they are conducted using the EPA approved test methods (generally found in 40 CFR 136) and if the Method Detection Limits (MDLs) are less than the effluent limits.

Table 3 presents the effluent monitoring requirements for the permittee in the draft

City of Priest River

permit. Each of the effluent monitoring requirements from the previous permit was evaluated to determine whether the requirements should be continued, updated or eliminated.

The sampling location must be after the last treatment unit and prior to discharge to the receiving water. If no discharge occurs during the reporting period, “no discharge” shall be reported on the DMR.

Table 3
Effluent Monitoring Requirements, Outfalls 001 and 002¹

Parameter	Unit	Sample Location	Sample Frequency	Sample Type
Flow	mgd	Effluent	Continuous	Recording
BOD ₅	mg/L	Influent and Effluent ²	1/week	8-hour composite
	lbs/day	Effluent	1/week	Calculation
	% Removal	---	---	Calculation
TSS	mg/L	Influent and Effluent ²	1/week	8-hour composite
	lbs/day	Effluent	1/week	Calculation
	% Removal	---	---	Calculation
pH	standard units	Effluent	5/week	Grab
<i>E.coli</i> Bacteria	colonies/100 ml	Effluent	1/week	Grab
Total Residual Chlorine ³	mg/L	Effluent	5/week (Mon-Fri)	Grab
	lbs/day			
Total Ammonia Nitrogen	mg/L	Effluent	1/ month	8-hour composite
Temperature ⁴	°C	Effluent	Continuous	Recording
Total Phosphorus	mg/L	Effluent	1/week	8-hour composite
Total Nitrogen	mg/L	Effluent	1/week	8-hour composite
NPDES Application Form 2A Effluent Testing Data	mg/L	Effluent	1 each in 2 nd , 3 rd , & 4 th years of the permit	See footnote 5

1. Monitoring of Outfall 002 is only required when that Outfall is used for discharge. The mass-based limits for BOD₅ and TSS and flow monitoring apply to the total combined loading and flow from Outfalls 001 and 002.
2. Influent and effluent composite samples shall be collected during the same 8-hour period.
3. Monitoring for chlorine only required when the back-up chlorination system is used.
4. The temperature sample type for Outfall 2 is grab.
5. For Effluent Testing Data, in accordance with instructions in NPDES Application Form 2A, Part B.6.

C. Surface Water Monitoring Requirements

Ambient ammonia, flow, temperature and pH measured downstream of Albeni Falls were used for the reasonable potential calculations for the permit reissuance. The City of Priest River outfall is upstream of Albeni Falls. To be more representative of the area of the discharge the permit requires surface water monitoring in the Pend Oreille River downstream of the confluence of the Priest River and the Pend Oreille River and above the influence of the facility's discharge. Table 4 presents the receiving water monitoring requirements for the permittee in the draft permit. Monitoring frequency is quarterly for the life of the permit.

Table 4			
Receiving Water Monitoring Requirements			
Parameter	Method	Units	ML
Flow	estimate	mgd	---
Total Phosphorus	grab	mg/L	0.01
Total Nitrogen	grab	mg/L	0.10
Total Ammonia as N	grab	mg/L	0.10
Temperature	grab	°C	0.1
pH	grab	standard units	0.1

V. SLUDGE (BIOSOLIDS) REQUIREMENTS

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

In the absence of a sludge-only permit, sludge management and disposal activities at each facility continue to be subject to the national sewage sludge standards at 40 CFR Part 503 and any requirements of the State's biosolids program. Since the 40 CFR Part 503 regulations are self-implementing, the permittees must comply with them whether or not a permit has been issued.

The proposed permit requires the permittee to submit a biosolids permit application (NPDES Form 2S) before sewage sludge is removed from the lagoon. The application is required by 40 CFR 122.21(a)(i), 122.21(a)(ii)(H), and 122.21(c)(2). The regulations require 180 days so the EPA has time to evaluate the information, ask for additional information and prepare the permit.

City of Priest River

VI. OTHER PERMIT CONDITIONS**A. Quality Assurance Plan Implementation**

The federal regulation at 40 CFR 122.41(e) requires the permittee to develop procedures to ensure that the monitoring data submitted to the EPA are accurate and to explain data anomalies if they occur. The permittee is required to develop or update and implement a Quality Assurance Plan within 90 days of the effective date of the final permit. The Quality Assurance Plan shall consist of standard operating procedures that the permittee must follow for collecting, handling, storing and shipping samples, laboratory analysis and data reporting. The plan shall be retained on site and be made available to the EPA and IDEQ upon request.

B. Operation and Maintenance Plan Implementation

The permit requires the Permittee to properly operate and maintain all facilities and systems of treatment and control. Proper operation and maintenance is essential to meeting discharge limits, monitoring requirements, and all other permit requirements at all times. The Permittee is required to develop and implement an operation and maintenance plan for its facility within 180 days of the effective date of the final permit. The plan shall be retained on site and made available to the EPA and IDEQ upon request.

C. Sanitary Sewer Overflows and Proper Operation and Maintenance

Untreated or partially treated discharges from separate sanitary sewer systems are referred to as sanitary sewer overflows (SSOs). SSOs may present serious risks of human exposure when released to certain areas, such as streets, private property, basements, and receiving waters used for drinking water, fishing and shellfishing, or contact recreation. Untreated sewage contains pathogens and other pollutants, which are toxic. SSOs are not authorized under this permit. Pursuant to the NPDES regulations, discharges from separate sanitary sewer systems authorized by NPDES permits must meet effluent limitations that are based upon secondary treatment. Further, discharges must meet any more stringent effluent limitations that are established to meet the EPA-approved state water quality standards.

The permit contains language to address SSO reporting and public notice and operation and maintenance of the collection system. The permit requires that the permittee identify SSO occurrences and their causes. In addition, the permit establishes reporting, record keeping and third party notification of SSOs. Finally, the permit requires proper operation and maintenance of the collection system. The following specific permit conditions apply:

Immediate Reporting – The permittee is required to notify the EPA of an SSO within 24 hours of the time the permittee becomes aware of the overflow. (See 40 CFR 122.41(l)(6))

Written Reports – The permittee is required to provide the EPA a written report within five days of the time it became aware of any overflow that is subject to the immediate reporting provision. (See 40 CFR 122.41(l)(6)(i)).

Third Party Notice – The permit requires that the permittee establish a process to notify specified third parties of SSOs that may endanger health due to likelihood of human exposure or of unanticipated bypasses and upsets that exceed any effluent limitation in the permit or that may endanger health due to a likelihood of human exposure. The permittee is required to

City of Priest River

develop, in consultation with appropriate authorities at the local, county, and/or state level, a plan that describes how, under various overflow (and unanticipated bypass and upset) scenarios, the public, as well as other entities, would be notified of overflows that may endanger health. The plan should identify all overflows that would be reported, to whom, and the specific information that would be reported. The plan should include a description of lines of communication and the identities of responsible officials. (See 40 CFR 122.41(l)(6)).

Record Keeping – The permittee is required to keep records of SSOs. The permittee must retain the reports submitted to the EPA and other appropriate reports that could include work orders associated with investigation of system problems related to a SSO, that describes the steps taken or planned to reduce, eliminate and prevent reoccurrence of the SSO. (See 40 CFR 122.41(j)).

Proper Operation and Maintenance – The permit requires proper operation and maintenance of the collection system. (See 40 CFR 122.41(d) and (e)). SSOs may be indicative of improper operation and maintenance of the collection system. The permittee may consider the development and implementation of a capacity, management, operation and maintenance (CMOM) program.

The permittee may refer to Guide for Evaluating Capacity, Management, Operation, and Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems (EPA 305-B-05-002). This guide identifies some of the criteria used by the EPA inspectors to evaluate a collection system's management, operation and maintenance program activities.

Owners/operators can review their own systems against the checklist (Chapter 3) to reduce the occurrence of sewer overflows and improve or maintain compliance.

D. Additional Permit Provisions

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

VII. OTHER LEGAL REQUIREMENTS

A. Endangered Species Act

The Endangered Species Act requires federal agencies to consult with National Oceanic and Atmospheric Administration Fisheries (NOAA) and the U.S. Fish and Wildlife Service (FWS) if their actions could adversely affect any threatened or endangered species. The EPA has determined that there are no listed species under the jurisdiction of NOAA in the vicinity of the discharge; therefore, the issuance of this proposed permit will have no effect on listed species.

FWS listed Bull Trout as threatened in the vicinity of the outfall in Pend Oreille River. A biologic assessment conducted in September, 2001 for the existing permit found discharges from the facility had no effect on listed Bull Trout. The assessment identified specific threats to bull trout populations in the area and presented recommended actions to address these

City of Priest River

threats. None of the identified threats or actions include the discharges from the facility. Therefore, the EPA again concludes as it did in the previous permit discharges from the facility will have no effect on any listed species under the jurisdiction of either NOAA or FWS.

B. Essential Fish Habitat

Essential fish habitat (EFH) includes the waters and substrate (sediments, etc.) necessary for fish to spawn, breed, feed, or grow to maturity. The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) requires the EPA to consult with NOAA Fisheries when a proposed discharge has the potential to adversely affect (reduce quality and/or quantity of) EFH. The EFH regulations define an adverse effect as any impact which reduces quality or quantity of EFH and may include direct (e.g. contamination or physical disruption), indirect (e.g. loss of prey, reduction in species' fecundity), site specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

The area of the discharge is designated critical habitat for Bull Trout as stated in 50 CFR Part 17 Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for Bull Trout in the Coterminous United States; Final Rule, October 18, 2010.

None of the identified threats to habitat identified in the biological assessment include the discharges from Priest River. The EPA again determines, as it did for the existing permit, that issuance of this permit has no affect on EFH.

C. State Certification

Section 401 of the CWA requires the EPA to seek State certification before issuing a final permit. As a part of the certification, the State may require more stringent permit conditions or additional monitoring requirements to ensure that the permit complies with State water quality standards.

D. Permit Expiration

The permit will expire five years from the effective date of the permit.

VIII. DEFINITIONS AND ACRONYMS

1Q10	1 day, 10-year low flow
7Q10	7 day, 10-year low flow
AML	Average Monthly Limit
BOD ₅	Biochemical oxygen demand, five-day
°C	Degrees Celsius
cfs	Cubic feet per second
CFR	Code of Federal Regulations
CV	Coefficient of Variation
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved oxygen

City of Priest River

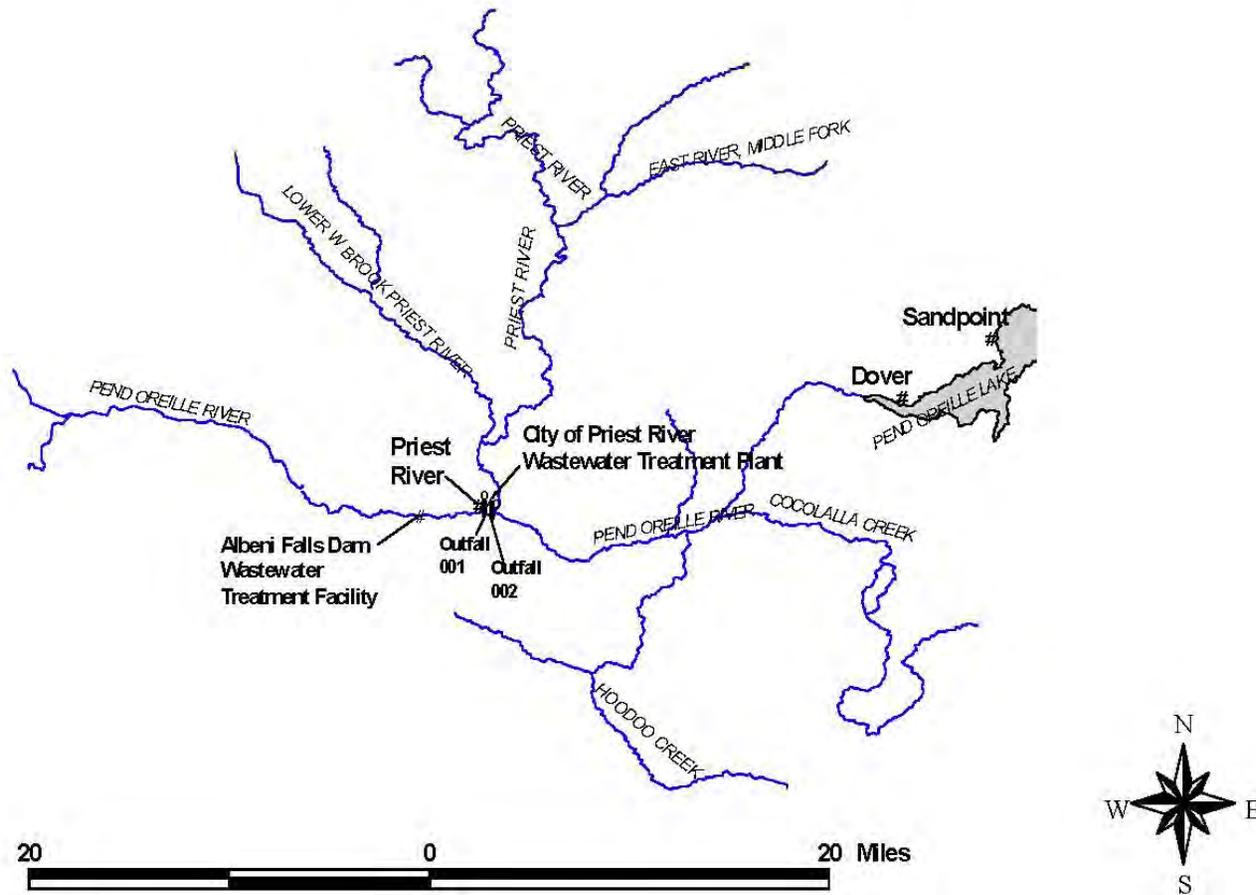
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
lbs/day	Pounds per day
LTA	Long Term Average
mg/L	Milligrams per liter
ml	milliliters
µg/L	Micrograms per liter
mgd	Million gallons per day
MDL	Maximum Daily Limit or Method Detection Limit (depending on the context)
NOAA	National Oceanographic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
OWW	Office of Water and Watersheds
O&M	Operations and maintenance
POTW	Publicly owned treatment works
QAP	Quality assurance plan
RP	Reasonable Potential
RPM	Reasonable Potential Multiplier
s.u.	Standard Units
TMDL	Total Maximum Daily Load
TRE	Toxicity Reduction Evaluation
TSD	Technical Support Document (EPA, 1991)
TSS	Total suspended solids
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UV	Ultraviolet radiation
WLA	Wasteload allocation
WQBEL	Water quality-based effluent limit
WWTP	Wastewater treatment plant

IX. REFERENCES

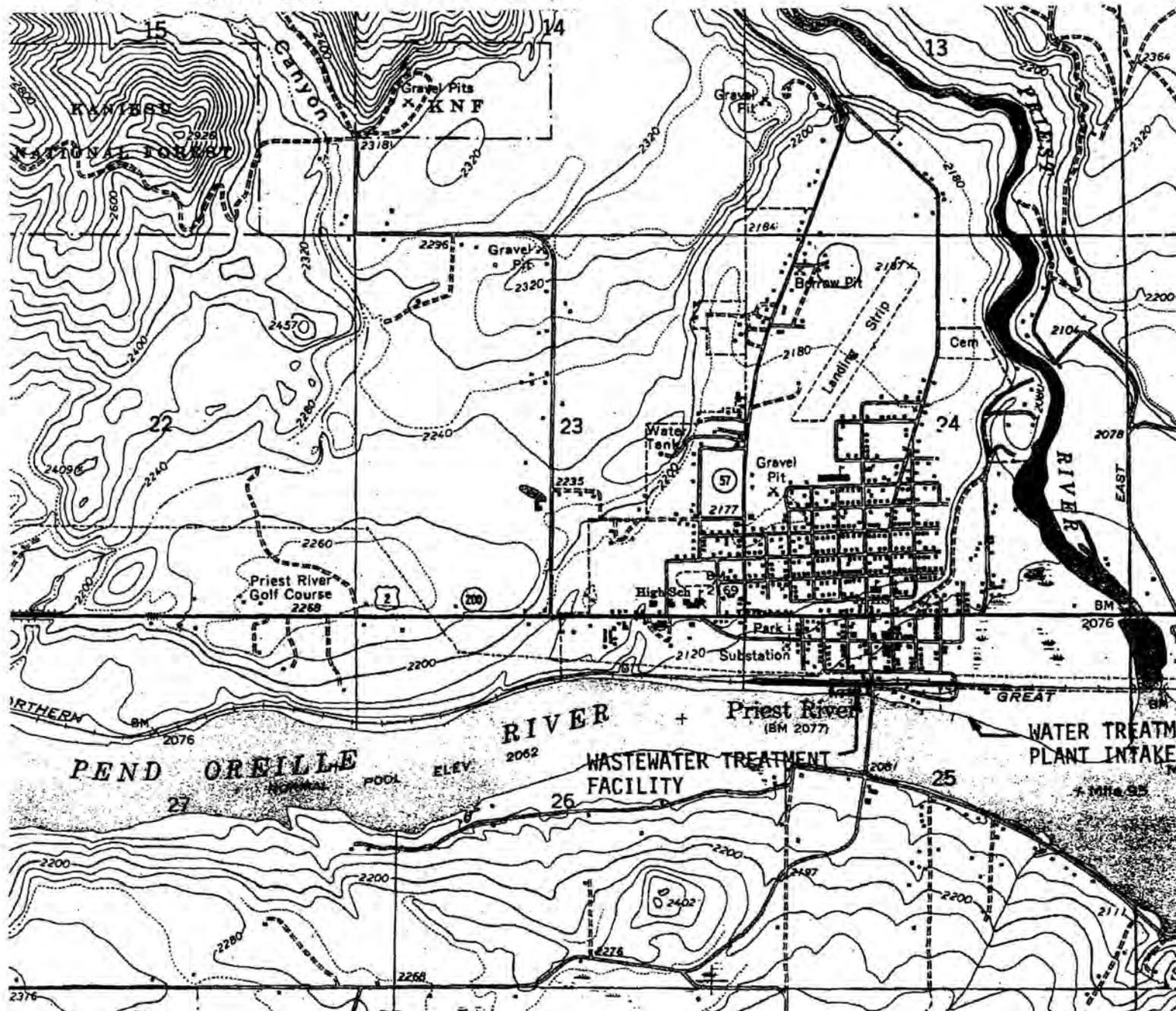
1. City of Priest River, ID, NPDES permit, effective January 5, 2002 to January 5, 2007.
2. Idaho Administrative Procedures Act (IDAPA), 2006. Section 58, Water Quality Standards and Wastewater Treatment Requirements. Idaho Department of Environmental Quality Rules, Title 01, Chapter 02.
3. U.S. EPA, 1973. *Water Quality Criteria 1972* (EPA R3-73-033).
4. EPA. 1991. Technical Support Document for Water Quality-based Toxics Control. US Environmental Protection Agency, Office of Water, EPA/505/2-90-001.
5. EPA, 1996. U.S. EPA NPDES Permit Writer's Manual, US Environmental Protection Agency, Office of Water, EPA-833-B-96-003.
6. EPA, 2001. Biological Evaluation for Reissuance of NPDES Permits for Facilities in the Pend Oreille Watershed, Idaho

Appendix A – Location Map and Discharge to Pend Oreille River

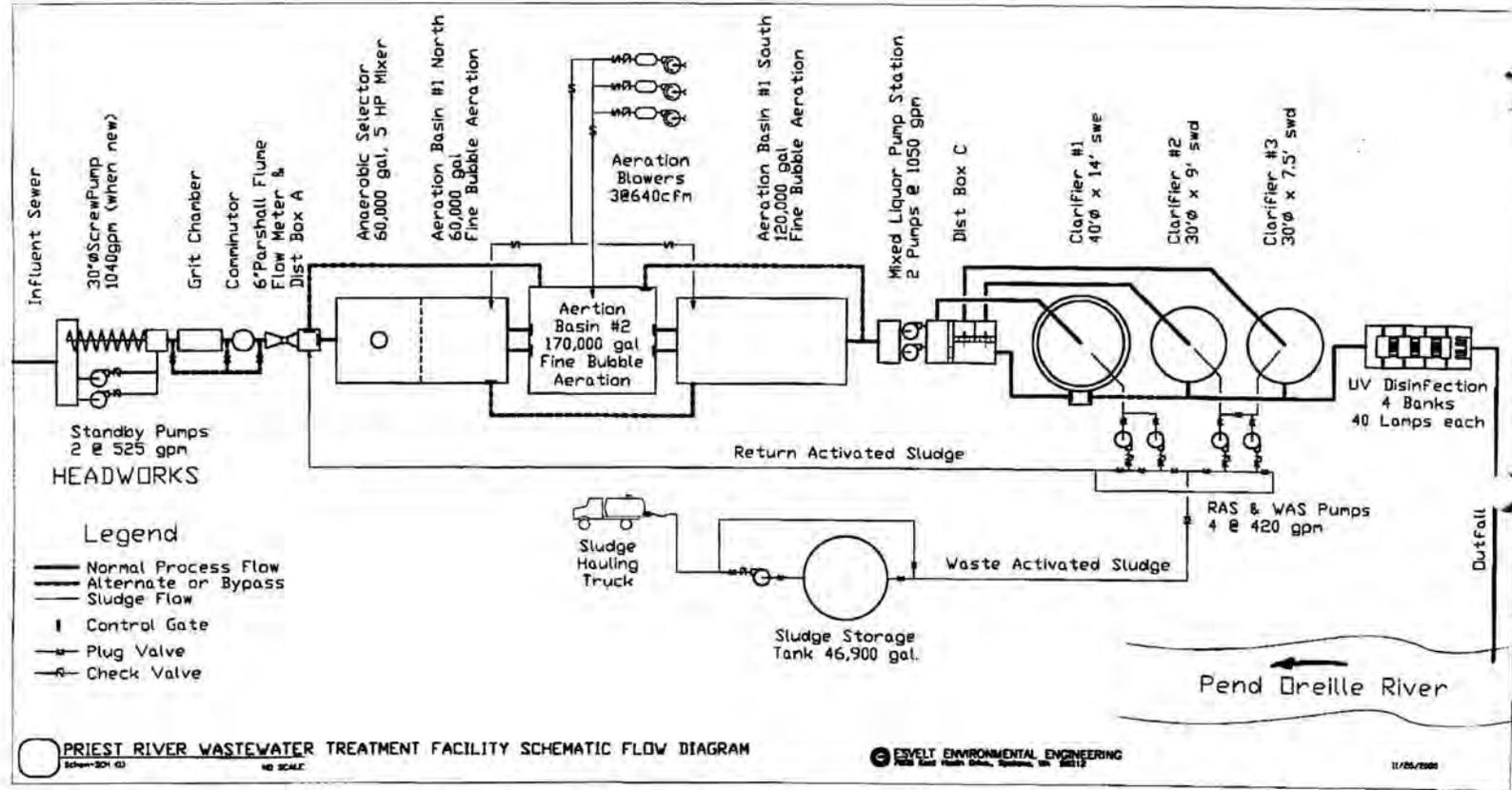
City of Priest River Wastewater Treatment Plant and Outfall Locations



PRIEST RIVER WASTEWATER TREATMENT FACILITY ID-002080-0



PRIEST RIVER WASTEWATER TREATMENT FACILITY ID-002080-0



ATTACHMENT B.3. PROCESS FLOW DIAGRAM SCHEMATIC

Appendix B – Basis for Effluent Limitations

The following discussion explains in more detail the statutory and regulatory basis for the technology and water quality-based effluent limits in the draft permit. Part A discusses technology-based effluent limits, Part B discusses water quality-based effluent limits in general, and Part C discusses facility specific water quality-based effluent limits.

A. Technology-Based Effluent Limits

The CWA requires POTWs to meet requirements based on available wastewater treatment technology. Section 301 of the CWA established a required performance level, referred to as “secondary treatment,” which all POTWs were required to meet by July 1, 1977. The EPA has developed and promulgated “secondary treatment” effluent limitations, which are found in 40 CFR 133.102. These technology-based effluent limits apply to all POTWs and identify the minimum level of effluent quality attainable by application of secondary treatment in terms of BOD₅, TSS, and pH. The limits established in the current permit, which will be continued in the proposed reissued permit, are the TSS limits in 40CFR 133.102(a) for BOD₅ and (b) for TSS Secondary Treatment shown in Table B-1.

Parameter	Average Monthly Limit	Average Weekly Limit	Range
BOD ₅	30 mg/L	45 mg/L	---
TSS	30 mg/L	45 mg/L	---
Removal Rates for BOD ₅ and TSS	85% (minimum)	---	---
pH	---	---	6.0 - 9.0 s.u.

Mass-based Limits

The federal regulations at 40 CFR 122.45(b) and (f) require that POTW limitations to be expressed as mass-based limits using the design flow of the facility. The mass-based limits, expressed in lbs/day, are calculated as follows based on the design flow:

$$\text{Mass-based limit (lbs/day)} = \text{concentration limit (mg/L)} \times \text{design flow (mgd)} \times 8.34$$

Chlorine

Chlorine is often used to disinfect municipal wastewater existing to discharge. The Water Pollution Control Federation’s *Chlorination of Wastewater* (1976) states that a properly designed and maintained wastewater treatment facility can achieve adequate disinfection if a 0.5 mg/L chlorine residual is maintained after 15 minutes of contact time. A treatment plant that provides

City of Priest River

adequate chlorination contact time can meet the 0.5 mg/L limit on a monthly average basis. The average weekly limit is expressed as 1.5 times the average monthly limit or in this case 0.75 mg/L. The technology based limits for total residual chlorine are 0.5 mg/L average monthly and 0.75 mg/l average weekly. The City of Priest River has achieved this level of control over the last five years, with two exceptions. Chlorine limits will apply only when the back-up chlorination system is used.

Finally, since the federal regulation at 40 CFR 122.45 (f) requires limitations to be expressed as mass based limits using the design flow of the facility, mass based limits are calculated as follows:

$$\text{Monthly average} = 0.5 \text{ mg/L} \times 0.5 \text{ mgd} \times 8.34 = 2.1 \text{ lbs/day}$$

$$\text{Weekly average} = 0.75 \text{ mg/L} \times 0.5 \text{ mgd} \times 8.34 = 3.1 \text{ lbs/day}$$

B. Water Quality-Based Effluent Limits

Statutory Basis for Water Quality-Based Limits

Section 301(b)(1)(C) of the CWA requires the development of limitations in permits necessary to meet water quality standards by July 1, 1977.

The NPDES regulation 40 CFR 122.44(d)(1), implementing Section 301 (b)(1)(C) of the CWA, requires that permits include limits for all pollutants or parameters which are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state/tribal water quality standard, including state/tribal narrative criteria for water quality.

The regulations require that this evaluation be made using procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant in the effluent, species sensitivity (for toxicity), and where appropriate, dilution in the receiving water. The limits must be stringent enough to ensure that water quality standards are met and must be consistent with any available wasteload allocation.

Reasonable Potential Analysis

When evaluating the effluent to determine if water quality-based effluent limits based on chemical specific numeric criteria are needed, a projection of the receiving water concentration downstream of where the effluent enters the receiving water for each pollutant of concern is made. The chemical-specific concentration of the effluent and receiving water and, if appropriate, the dilution available from the receiving water are factors used to project the receiving water concentration. If the projected concentration of the receiving water exceeds the numeric criterion for a limited parameter, then there is a reasonable potential that the discharge may cause or contribute to an excursion above the applicable water quality standard, and a water quality-based effluent limit is required.

Sometimes it is appropriate to allow a small volume of receiving water to provide dilution of the effluent; these volumes are called mixing zones. Mixing zone allowances will increase the allowable mass loadings of the pollutant to the water body and decrease treatment requirements. Mixing zones can be used only when there is adequate receiving water flow volume and the

City of Priest River

concentration of the pollutant of concern in the receiving water is below the numeric criterion necessary to protect the designated uses of the water body. Mixing zones must be authorized by the State. The State of Idaho authorized a mixing zone of 25 percent of the receiving water resulting in an acute dilution ratio of 741 to 1 and a chronic dilution ratio of 1061 to 1 (see calculations below).

The chronic ammonia criterion is expressed as a 30-day average not to be exceeded more than once every three years. The 30B3 is a biologically based design flow intended to ensure an excursion frequency of once every three years for a 30-day average flow rate. The averaging period (30 days) and the excursion frequency (3 years) are consistent with the chronic ammonia criterion. This results in a dilution ratio of 1546.

To evaluate low flow values flow values are based on USGS data from 1952 to 1999 for the Pend Oreille River in the vicinity of Priest River of 2292 cfs for 1Q10, 3284 cfs for 7Q10 and 4785 cfs for 30B3.

$$D = \frac{Q_e + Q_u(MZ)}{Q_e}$$

D = Dilution Ratio

Q_e = Effluent flow rate (set equal to the design flow of the WWTP)

Q_u = Receiving water low flow rate upstream of the discharge (1Q10, 7Q10 or 30B3)

MZ = is the fraction of the receiving water flow available for dilution.

Q_e = maximum effluent flow = 0.50 mgd

Q_u = 1Q10 = upstream acute critical low flow = 2292 CFS = 1480 mgd

$$\text{Acute dilution ratio} = \frac{0.50 + 1480(0.25)}{0.50} = 741$$

Q_u = 7Q10 = upstream chronic critical low flow = 3284 CFS = 2121 mgd

$$\text{Chronic dilution ratio} = \frac{0.50 + 2121(0.25)}{0.50} = 1061$$

Q_u = 30B3 = ammonia upstream chronic critical low flow = 4785 CFS = 3091 mgd

$$\text{Ammonia Chronic dilution ratio} = \frac{0.50 + 3091(0.25)}{0.50} = 1546$$

City of Priest River

Procedure for Deriving Water Quality-based Effluent Limits

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

In cases where a mixing zone is not authorized, either because the receiving water already exceeds the criterion, the receiving water flow is too low to provide dilution, or the State does not authorize one, the criterion becomes the WLA. Establishing the criterion as the wasteload allocation ensures that the permittee will not cause or contribute to an exceedance of the criterion. The following discussion details the specific water quality-based effluent limits in the draft permit.

C. Facility-Specific Water Quality-based Limits

Once the WLA has been developed, the EPA applies the statistical permit limit derivation approach described in Chapter 5 of the TSD to obtain daily maximum and monthly average permit limits. This approach takes into account effluent variability (using the CV), sampling frequency and the difference in time frames between the monthly average and daily maximum limits.

The daily maximum limit is based on the CV of the data and the probability basis, while the monthly average limit is dependent on these two variables and the monitoring frequency. As recommended in the TSD, the EPA used a probability basis of 95 percent for monthly average limit calculation and 99 percent for the daily maximum limit calculation.

Floating, Suspended or Submerged Matter/Oil and Grease

The Idaho water quality standards (IDAPA 58.01.02.200.05) require surface waters of the State to be free from floating, suspended or submerged matter of any kind in concentrations causing nuisance or objectionable conditions that may impair designated beneficial uses. A narrative condition is proposed for the draft permit that states there must be no discharge of floating solids or visible foam or oil and grease other than trace amounts.

pH

The Idaho water quality standards (IDAPA 58.01.02.250.01.a) require surface waters of the State to have a pH value within the range of 6.5 - 9.5 standard units. It is anticipated that mixing zones will not be authorized for the water quality-based criterion for pH. Therefore, this criterion must be met when the effluent is discharged to the receiving water. The technology-based effluent limits for pH are 6.0 - 9.0 standard units. To ensure that both water quality-based requirements and technology-based requirements are met, the draft permit incorporates the more stringent lower limit of the water quality standards (6.5 standard units) and the more stringent upper limit of the technology-based limits (9.0 standard units).

Chlorine

Idaho water quality standards at IDAPA 58.01.02.210.01 establish a chlorine chronic aquatic life criterion of 11 µg/L and an acute aquatic life criterion 19 µg/L in the Pend Oreille River. The City of Priest River does not have a reasonable potential to violate the water quality standards for chlorine in the Pend Oreille River. Therefore, water quality based effluent limits for chlorine are

City of Priest River

not required. However, the EPA will continue to include technology based limits of 0.5 mg/l average monthly and 0.75 mg/l weekly derived for the existing permit, when the City uses the existing back-up chlorination system. Ambient monitoring for chlorine is not available for determining reasonable potential or water quality based limitations. For these reasons ambient chlorine monitoring is required in the permit.

Ammonia, Total (as Nitrogen)

The Idaho water quality standards contain criteria for the protection of aquatic life from the toxic effects of ammonia (IDAPA 58.01.02.250.01.d.). The water quality standards apply the criteria for early life stages to water bodies (IDAPA 58.01.02.250.01.d.(3)). The criteria are dependent on pH and temperature, because the fraction of ammonia present as the toxic, un-ionized form increases with increasing pH and temperature. Therefore, the criteria become more stringent as pH and temperature increase. Fresh water ammonia criteria are calculated according to the equations in Table B-2.

Table B-2 Water Quality Criteria for Ammonia	
Acute Criterion	Chronic Criterion
$\frac{0.275}{1+10^{7.204-pH}} + \frac{39}{1+10^{pH-7.204}}$	$\left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}} \right) \times \text{MIN}(2.85, 1.45 \times 10^{0.028 \times (25-T)})$

The 95th percentile of pH and temperature data are used to derive the acute and chronic criteria.

95 th Percentile Ambient pH	8.7
95 th Percentile Ambient Temperature °C	23.6
Highest Background Ammonia mg/L	0.05
Highest Discharge Ammonia mg/L	1.6
Coefficient of Variation	0.997

The coefficient of variation (CV) of the data and the highest observed effluent value are based on effluent data collected by the City of Priest River from January, 2006 through December, 2010. Receiving water data near Priest River were limited, so ambient data for the Pend Oreille River were taken from the current NPDES permit Fact Sheet for the city of Newport WA (on the Idaho border), issued by WA Department of Ecology in February 2010. The values in the table above represent the highest ambient pH and ambient temperature reported in that Fact Sheet.

The ammonia acute standard is 1.47 mg/L and the chronic standard is 0.431 mg/L.

The reasonable potential analysis shows that there is no reasonable potential for the facility’s discharge to cause or contribute to an exceedance of the acute or chronic criterion, therefore, effluent limits for ammonia are not required. Ammonia is a parameter commonly monitored for POTWs to determine performance. Monitoring will again be required. Newport is downstream of Albeni Falls but Priest River is upstream of the Falls. To provide more representative ambient

City of Priest River

data monitoring is required upstream of Priest River POTW point of discharge and the Falls for pH, temperature and ammonia.

Temperature

The existing permit only required temperature monitoring by grab sampling and only five times per week. The proposed permit requires continuous monitoring to better characterize discharges. The permit also requires once per quarter ambient monitoring to determine if Priest River has a reasonable potential to violate water quality standards. Both are required by the IDEQ 401 Certification. Any monitoring requirement in a 401 Certification must become a condition in the NPDES permit pursuant to Section 401(d).

Escherichia coli (E. coli) Bacteria

The Pend Oreille River at the point of discharge is designated for primary contact recreation. Waters of the State of Idaho that are designated for recreation are not to contain *E. coli* bacteria in concentrations exceeding 126 organisms per 100 ml as a geometric mean based on a minimum of five samples taken every three to seven days over a thirty day period (IDAPA 58.01.02.251.01.a). The permit contains a monthly geometric mean effluent limit for *E. coli* of 126 organisms per 100 ml and a monitoring schedule to determine compliance.

The Idaho water quality standards also state that for primary contact recreation a single water sample that exceeds 406 organisms/100 ml indicates a likely exceedance of the geometric mean criterion, although it is not, in and of itself, a violation of water quality standards. (IDAPA § 58.01.02.251.01.b.ii).

The goal of a water quality-based effluent limit is to ensure a low probability that water quality standards will be exceeded in the receiving water as a result of a discharge, while considering the variability of the pollutant in the effluent (EPA, 1991). Because a single sample value exceeding 406 organisms/100 ml may indicate an exceedance of the geometric mean criterion, the EPA has included an instantaneous (single grab sample) maximum effluent limit for *E. coli* of 406 organisms/ 100 ml, in addition to a monthly geometric mean limit of 126 organisms/100 ml, which directly implements the water quality criterion for *E. coli*. This will ensure that the discharge will have a low probability of exceeding the geometric mean criterion for *E. coli* and provide warning of and opportunity to avoid possible non-compliance with the geometric mean criterion.

Antidegradation

The EPA is required under Section 301(b)(1)(C) of the Clean Water Act (CWA) and implementing regulations (40 CFR 122.4(d) and 122.44(d)) to establish conditions in NPDES permits that ensure compliance with State water quality standards, including antidegradation requirements. The antidegradation analysis is conducted as part of the State's 401 certification.

REASONABLE POTENTIAL FOR AQUATIC LIFE
 #ID-002033-8

Parameter	State Water Quality Standard			Max concentration at edge of...		LIMIT REQ'D?	Effluent percentile value	Pn	Max effluent conc. measure	Coeff Variation	# of samples	Multiplier	Acute Dil'n Factor	Chronic Dil'n Factor
	Ambient Conc.	Acute	Chronic	Acute Mixing Zone	Chronic Mixing Zone									
	mg/L	mg/L	mg/L	mg/L	mg/L				mg/L	CV	n			
Total Ammonia Nitrogen	0.05	1.47	0.431	0.052	0.051	NO	0.99	0.924	1.6	0.997	58	1.20	741	1546
Total Residual Chlorine	0.0	0.019	0.011	0.001	0.001	NO	0.99	0.962	1.12	0.32	118	0.96	741	1061