FACT SHEET

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

The City of Bonners Ferry
P.O. Box 149
Bonners Ferry, Idaho 83805

NPDES Permit Number: ID-002022-2

Public Notice Start Date: November 18, 2010
Public Notice Expiration Date: December 23, 2010

Technical Contact: John Drabek, 206-553-8257, drabek.john@epa.gov
1-800-424-4372 ext. 3-8257 (within Region 10)
drabek.john@epa.gov

EPA Proposes To Reissue NPDES Permit

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 place 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

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:

Comments to Idaho Department of Environmental Quality: Persons wishing to comment on the request for Water Quality Certification under Section 401 of the CWA, should submit written comments within the 30 days of the date of this public notice, to the address below, or by e-mail to Ms. June Bergquist at: e-mail: june.bergquist@deq.idaho.gov

June Bergquist
Regional Water Quality Compliance Officer
Idaho Department of Environmental Quality
Coeur d'Alene Regional Office
2110 Ironwood Parkway
Coeur d'Alene ID 83814
phone (208) 666-4605
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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 EPA as described in the Public Comments Section of the attached Public Notice.

After the Public Notice expires and all comments have been considered, 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, 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 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
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1435 North Orchard Street
Boise, Idaho 83706
(208) 378-5746

Idaho Department of Environmental Quality
Coeur d' Alene Regional Office
2110 Ironwood Parkway
Coeur d'Alene, ID 83814

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.

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APPLICANT

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

Facility Name:	City of Bonners Ferry, Wastewater Treatment Plant
Mailing Address:	P.O. Box 149, Bonners Ferry, Idaho 83805
Facility Address:	7232 Main Street, Bonners Ferry, Idaho 83805
Contact:	David Sims, Assistant City Administrator, (208) 267-4378

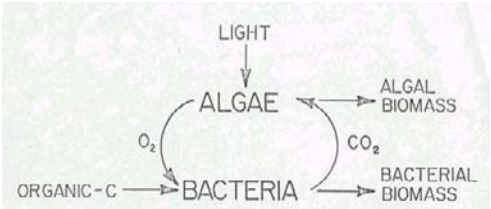
I. FACILITY INFORMATION

A. Facility Description

The City of Bonners Ferry owns, operates and has maintenance responsibility for a facility that treats domestic sewage and commercial wastewater discharge. The facility receives wastewater primarily from local residents and commercial establishments through a separate sanitary sewer system.

The Bonners Ferry wastewater treatment plant provides treatment equivalent to secondary (TES) using waste stabilization ponds operated as a "solids recycling/aerated lagoon" (SR/AL). This is a four-cell lagoon with two mechanical paddle aerators in the center of cell one.

These lagoons allow settleable solids introduced by the wastewater to settle to the bottom to form a sludge layer that decomposes anaerobically. If oxygen is present in the water column, the biodegradable organic materials that do not settle are degraded aerobically. The term facultative describes the aerobic-anaerobic nature of the lagoon - an anaerobic bottom region covered by an aerobic top layer. The depth of the latter is in a state of constant fluctuation as the result of changing meteorological conditions. The dominant organisms in the system are algae and bacteria which function in a mutually beneficial relationship. The oxygen needed for aerobic treatment in facultative lagoons is supplied primarily by algae, the cultivation of which is a major factor in the lagoon design.



Gravity flow through the four lagoon cells ends at a chlorine disinfection station prior to discharge to the Kootenai River. Wastewater is discharged at an average daily flow rate of 0.39 million gallons per day.

The current service population is estimated to be 3000 people. The WWTP has a design flow rate of 0.45 mgd. The annual average daily flow reported in the permit application is 0.43

mgd, while the maximum daily flow rate was 0.62 mgd.

The average inflow and infiltration is estimated at 30,000 gallons per day. The City anticipates that a future master plan will provide a more accurate estimate of inflow and infiltration.

Permit History

The facility's previous permit became effective on June 1, 2004 and expired on May 31, 2009. A complete application was submitted August 28, 2008 and the permit administratively extended.

B. Compliance History

A review of the DMRs from August 2007 to June 2010 found the following:

BOD, 5-day

Several violations of the monthly average limit of 45 mg/L: 62.3, 64.7, 54 and 48.8 during 2008; and 63.6 and 52.3 during 2009.

BOD, 5-day percent removal

The monthly limit of 65% minimum removal was violated only in February 2008, at 60% removal.

Total Suspended solids

Several violations of the monthly average concentration limit of 45 mg/L: 83.6, 56, and 67 during 2007; 56.4, 70.2, 58.8, 82.4, and 57.6 during 2008; and 58 during September 2009.

Several violations of the monthly average load limit of 169 lb/day: 252, 176.5, and 216 during 2007.

Several violations of the weekly average concentration limit of 65 mg/L: 83.6 and 67 during 2007; and 82 and 82.4 during 2008.

A violation of the weekly average load limit of 244 lb/day, at 260 during August 2007.

Total Suspended solids, percent removal

Violations of the monthly limit of 65% minimum removal: 51.7% in June 2008, and 63.5% in September 2009.

II. RECEIVING WATER

The treated effluent from the City of Bonners Ferry's wastewater treatment facility is discharged continuously to the Kootenai River within the Panhandle Basin, Lower Kootenai subbasin of Idaho's *Water Quality Standards and Wastewater Treatment Requirements* (IDAPA 58.01.02.110.02.). The discharge is in the Kootenai River, Moyie River to Deep Creek, and the standards protect the following beneficial use classifications: domestic water supply, cold water biota, primary contact recreation, salmonid spawning and special resource water. The outfall is located at latitude 48° 41' 52" N and longitude 116° 19' 57" 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. Federal regulations in 40 CFR 122.4(d) prohibit the issuance of an NPDES permit which does not ensure compliance with the water quality standards.

A State's water quality standards are composed of use classifications, numeric and narrative water quality criteria and an anti-degradation policy. The use classification system designates the beneficial uses (such as cold water biota, contact recreation, etc.) that each water body is expected to achieve. The numeric and narrative water quality criteria are the criteria deemed necessary, by the State, to support the beneficial use classification of each water body.

B. Water Quality Limited Segment

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

Section 303(d) of the Clean Water Act (CWA) requires states to develop a Total Maximum Daily Load (TMDL) management plan for water bodies determined to be water quality limited segments. 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 Kootenai Tribe of Idaho, Idaho Department of Environmental Quality, and U.S. EPA prepared an *Assessment of Water Quality in Kootenai River and Moyie River Subbasins, September 2006.* The Kootenai River in the area of the discharge was identified as limited for temperature.

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

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 1 below presents the proposed effluent limitations.

Table 1
Effluent Limitations

Parameters	Average Monthly Limit	Average Weekly Limit	Minimum Percent Removal[1]	Instantaneous Maximum Limit
Flow	--	--	---	--
BOD_5	45 mg/L	65 mg/L	65%	--
	169 lbs/day[2]	244 lbs/day[2]		--
TSS	45 mg/L	65 mg/L	65%	--
	169 lbs/day[2]	244 lbs/day[2]		--
E. coli Bacteria	126 colonies /100mL[3]	--	--	406 colonies /100mL
Total Residual Chlorine	0.5 mg/L	0.75 mg/L	--	--
	1.9 lbs/day	2.8 lbs/day	--	--
pH	6.5 – 9.0 standard units			

1. Percent removal is calculated using the following equation: ((influent - effluent) / influent) x 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 0.45 mgd and a conversion factor of 8.34 lbs/gallon.
3. The monthly average for *E. coli* is the geometric mean of all samples taken during the month.

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

BOD_5, TSS, *E. coli*, pH, Flow and Total Residual Chlorine

The permit requires monitoring BOD_5, TSS, flow, *E. coli*, pH and total residual chlorine to determine compliance with the effluent limits. The permit also requires monitoring of the influent for BOD_5 and TSS to calculate monthly removal rates.

Ammonia

Monitoring for ammonia is again required however, it is expanded from one year in the existing permit to the term of the new permit. Ammonia is a parameter commonly

monitored for POTWs to determine performance and will determine impacts to the Kootenai River. It does not have a reasonable potential to violate the water quality standards of the Kootenai River and a limit is not required.

Temperature

To characterize the discharges for temperature, aide in the development of a TMDL and insure no increase in temperature discharges continuous temperature monitoring is required.

Application Form 2A Monitoring

The City of Bonners Ferry WWTP is a minor NPDES facility (i.e.,<1 MGD design flow). Monitoring for reapplication is required over a three your 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 EPA approved test methods (generally found in 40 CFR §136) and if the Method Detection Limits (MDLs) are less than the effluent limits.

Table 2 presents the effluent monitoring requirements for the permittee in the draft 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 2
Effluent Monitoring Requirements

Parameter	Unit	Sample Location	Sample Frequency	Sample Type
Flow	mgd	Effluent	Continuous	Recording
BOD_5	mg/L	Influent and Effluent[4]	1/month	8-hour composite
	lbs/day	Effluent	1/month	Calculation
	% Removal	---	---	Calculation
TSS	mg/L	Influent and Effluent[4]	1/month	8-hour composite
	lbs/day	Effluent	1/month	Calculation
	% Removal	---	---	Calculation
pH	standard units	Effluent	1/week	Grab

Table 2
Effluent Monitoring Requirements

Parameter	Unit	Sample Location	Sample Frequency	Sample Type
E.coli Bacteria	colonies/100 ml	Effluent	5/month	Grab
Total Residual Chlorine	mg/L lbs/day	Effluent	1/week	Grab
Temperature	°F	Effluent	Continuous	Recording
Total Ammonia Nitrogen	mg/L	Effluent	1/quarter	8-hour composite
NPDES Application Form 2A Effluent Testing Data	mg/L	Effluent	1 each in 2nd, 3rd, & 4th years of the permit	See footnote 5

4. Influent and effluent composite samples shall be collected during the same 8-hour period.
5. For Effluent Testing Data, in accordance with instructions in NPDES Application Form 2A, Part B.6.

V. SLUDGE (BIOSOLIDS) REQUIREMENTS

EPA Region 10 separates wastewater and sludge permitting. Under the CWA, EPA has the authority to issue separate sludge-only permits for the purposes of regulating biosolids. 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 EPA has time to evaluate the information, ask for additional information and prepare the permit.

VII. 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 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 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 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 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 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 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.

VIII. OTHER LEGAL REQUIREMENTS

A. Endangered Species Act

The Endangered Species Act requires federal agencies to consult with National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) and the U.S. Fish and Wildlife Service (FWS) if their actions could adversely affect any threatened or endangered species.

The U.S. Fish and Wildlife Service identified the Bull Trout as threatened and the Kootenai River white sturgeon as endangered in Idaho in the vicinity of the discharge. For the issuance of the existing permit a biological evaluation (BE) analyzing the effects of the discharge from the Bonners Ferry treatment facility on listed endangered and threatened species determined that discharges and the issuance of the NPDES permit did not affect any of the threatened or endangered species in the vicinity of the discharge.

Bull Trout

U.S. Fish and Wildlife Service *Draft Bull Trout Recovery Plan* October, 2002 identified Libby Dam as one of the most important factors affecting bull trout in the Kootenai River Recovery Unit. Also identified are isolation and habitat fragmentation, poaching, non-native species, residential development, mining, transportation networks and agricultural practices. Neither Bonners Ferry nor any sewage treatment plant is identified as a contributing factor to the decline in Bull Trout. Discharges are unchanged from the existing permit. EPA again determines issuance of this permit will have no effect on bull trout.

Kootenai River White Sturgeon

The *Recovery Plan for the Kootenai River Population of the White Sturgeon***,** September 30,

1999 *(Recovery Plan)* identifies the significant change to the natural flows in the Kootenai River caused by flow regulation at the Libby Dam as the primary reason for the Kootenai River white sturgeon's continuing lack of recruitment and declining numbers. Contributing factors to the white sturgeon decline are the elimination of side-channel slough habitats in the Kootenai River flood plain due to diking and bank stabilization to provide flood protection for agricultural land; development of Creston Valley Wildlife Management Area in British Columbia and Kootenai National Wildlife Refuge in Idaho; and lower Kootenay Lake spring maximum elevations. Neither Bonners Ferry nor any sewage treatment plant are identified as contributing to the decline of the white sturgeon.

Of the 56 actions in the implementation schedule for the recovery of the white sturgeon listed in the *Recovery Plan* none indentified or involved Bonners Ferry or any municipal sewage treatment plant. **"**Although fertilizer, sewage, lead-zinc mining, and vermiculite discharges have been eliminated many of these pollutants and contaminants persist, primarily in the sediments."

Further, of the 13 actions for recovery in the *Kootenai River White Sturgeon Spotlight Species Action Plan*, May 17, 2010, none involve Bonners Ferry or any municipal sewage treatment plant. Further reasons for the no effect determination are:

- The small discharge of 0.45 mgd.
- The large receiving water flow of 1700 mgd.
- Total Residual Chlorine limits.

For these reasons EPA again determines discharges from Bonners Ferry and the issuance of this permit will have no effect on the Kootenai River white sturgeon.

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 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 both bull trout and Kootenai River white sturgeon species. Due to the same reasons listed in VIII.A. EPA again concludes that issuance of this permit has no affect on EFH.

C. State Certification

Section 401 of the CWA requires 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.

IX. 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
ºC	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
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

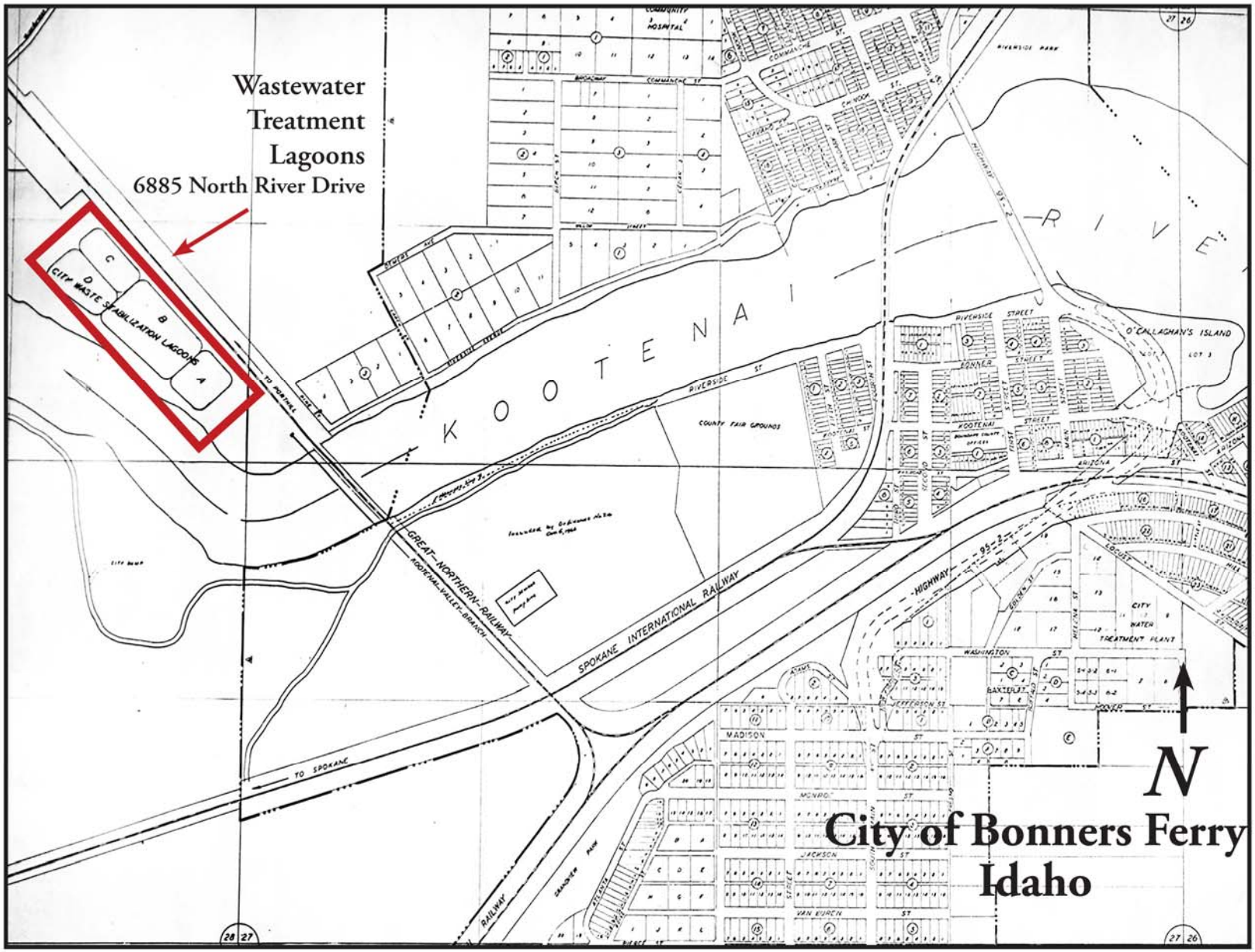
X. REFERENCES

1. City of Bonners Ferry, ID, NPDES permit, effective June 1, 2004 to April 30, 2009.
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.

Appendix A – Location Map and Discharge Point to Kootenai River

#ID-002022-2

City of Bonners Ferry Idaho


Wastewater
Treatment
Lagoons
6885 North River Drive
C
D
B
A
CITY WASTE STABILIZATION LAGOONS
TO PORTHILL
KOOTENAI
RIVERSIDE ST
COUNTY FAIR GROUNDS
GREAT NORTHERN RAILWAY
KOOTENAI-VALLEY-BRANCH
SPOKANE INTERNATIONAL RAILWAY
HIGHWAY 95-2
TO SPOKANE
RIVERSIDE STREET
O'CALLAGHAN'S ISLAND
CITY WATER TREATMENT PLANT
WASHINGTON ST
MADISON ST
JACKSON ST
VAN BUREN ST
N
City of Bonners Ferry
Idaho

City of Bonners Ferry
Wastewater Treatment Lagoons

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. EPA has developed and promulgated "secondary treatment" effluent limitations, which are found in 40 CFR 133.102. These technology-based effluent limits apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by application of secondary treatment in terms of BOD_5, TSS and pH.

On September 20, 1984, EPA revised the Secondary Treatment Regulations (40CFR 133.102) for facilities that use waste stabilization ponds as the principal process. These revisions established effluent limitations for Treatment Equivalent to Secondary Treatment (40 CFR 133.105).

Table B-1: Secondary Treatment Effluent Limits (40 CFR 133.105)

Parameter	Average Monthly Limit	Average Weekly Limit	Range
BOD_5	45 mg/L	65 mg/L	---
TSS	45 mg/L	65 mg/L	---
Removal Rates for BOD_5 and TSS	65% (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:

Mass-based limit (lbs/day) = concentration limit (mg/L) × design flow (mgd) × 8.34

For example for BOD_5:

Mass-based limit (lbs/day) = 45 mg/L x 0.45 mgd x 8.34 = 169 lbs per day.

Chlorine

Chlorine is often used to disinfect municipal wastewater prior 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 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. This level of control has been achieved over the last five years.

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:

Monthly average = 0.5 mg/L x 0.45 mgd x 8.34 = 1.9 lbs/day

Weekly average = 0.75 mg/L x 0.45 mgd x 8.34 = 2.8 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 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 945 to 1 and a chronic dilution ratio of also 945 to 1.

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 1740.

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

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)

Based on Gage 12310100, KOOTENAI RIVER @ TRIBAL HATCHERY NR BONNERS FERRY

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

Qe = maximum effluent flow = 0.45 mgd

Q_u = 1Q10 = upstream acute critical low flow = 2620 CFS = 1,693 mgd

$$\text{Acute dilution ratio} = \frac{0.45 + 1700(0.25)}{0.45} = 945$$

Q_u = 7Q10 = upstream chronic critical low flow = 2670 CFS = 1700 mgd

$$\text{Chronic dilution ratio} = \frac{0.45 + 1700(0.25)}{0.45} = 945$$

Q_u = 30B3 = ammonia upstream chronic critical low flow = 4840 CFS = 3128 mgd

$$\text{Ammonia Chronic dilution ratio} = \frac{0.45 + 3128(0.25)}{0.45} = 1740$$

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, 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, 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). The City achieved these levels of control over the last five years.

Chlorine

Chlorine has a chronic aquatic life criterion of 11 μg/L and an acute aquatic life criterion 19 μg/L in the Kootenai. Bonners Ferry does not have a reasonable potential to violate the water quality standards for chlorine in the Kootenai.

EPA will continue with the technology based limits of 0.5 mg/l average monthly and 0.75 mg/l weekly derived for the last permit. This level of control is achieved. The highest monthly

average measured over the last three years was 0.49 mg/L. The highest weekly average was 0.66 mg/L.

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-5.

Table B-5 Water Quality Criteria for Ammonia

Acute Criterion	Chronic Criterion
$\frac{0.275}{1+10^{7.204-pH}}+\frac{39}{1+10^{pH-7.204}}$	$\left(\frac{0.0577}{1+10^{7.688-pH}}+\frac{2.487}{1+10^{pH-7.688}}\right)\times MIN\left(2.85,1.45\times10^{0.028\times(25-T)}\right)$

Ambient ammonia, temperature and pH data are from the surface water monitoring from May, 2002 through November, 2004 required during the last permit cycle. The 95th percentile of pH and temperature data are used to derive the acute and chronic criteria.

95th Percentile Ambient pH	8.0
95th Percentile Ambient Temperature °C	15.6
Highest Background Ammonia mg/L	0.76
Highest Discharge Ammonia mg/L	25.1
Discharge Coefficient of Variation	0.217

The ammonia acute standard is 5.61 mg/L and the chronic standard is 2.25 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 criteria, therefore, effluent limits are not required. The reasonable potential analysis derived for the existing permit issuance also found Bonners Ferry had no reasonable potential to violate the ammonia water quality standards in the Kootenai River. Ammonia is a parameter commonly monitored for POTWs to determine performance. Monitoring will again be required. This will also determine impacts to the Kootenai River. Receiving water monitoring will not be required.

Escherichia coli (E. coli) Bacteria

The Kootenai 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 draft compliance monitoring schedule contains a monthly geometric mean effluent limit for *E. coli* of 126 organisms per 100 ml.

The Idaho water quality rules 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, 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.

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 fact that the State of Idaho has not identified methods for implementing its antidegradation policy does not prevent EPA from establishing such conditions.

Antidegradation

As explained below, the City of Bonners Ferry NPDES permit contains limits as stringent as necessary to ensure compliance with all applicable water quality standards, including Idaho's antidegradation policy (IDAPA 58.01.02.051). As explained in detail below, the reissued permit ensures that "the existing in stream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected" consistent with the requirements of 40 CFR 131.12(a)(1) and IDAPA 58.01.02.051.01. Relative to the prior permit issued in 2004, the reissued permit does not allow lower water quality for those parameters where the receiving water quality "exceeds levels necessary to support propagation of fish, shellfish and wildlife and recreation in and on the water," therefore, the reissued permit maintains and protects the existing level of water quality, consistent with 40 CFR 131.12(a)(2) and IDAPA 58.01.02.051.02. Finally, the antidegradation policy for outstanding resource waters is inapplicable in this reissued permit because no waters of the State of Idaho are designated as "outstanding resource waters" (IDAPA 58.01.02.051.03).

The reissued permit ensures compliance with the State of Idaho's antidegradation policy and CWA regulations because the permit conditions ensure protection of existing uses and do not allow lower water quality relative to the prior permit. Under the circumstances of this reissued permit, EPA may issue an NPDES permit even though the State has not yet identified methods for implementing its antidegradation policy. In its antidegradation analysis below, EPA is applying a parameter-by-parameter approach in determining compliance with Idaho's antidegradation requirements.

EPA Antidegradation Analysis

Protection of Existing Uses (IDAPA 58.01.02.051.01 and 40 CFR 131.12(a)(1))

Idaho Water Quality Standards (WQS) summarize the surface water use designations for the State of Idaho: that all waters of the State of Idaho are protected for the uses of industrial and agricultural water supply (IDAPA 58.01.02.100.03.b and c), wildlife habitats (IDAPA 58.01.02.100.04) and aesthetics (IDAPA 58.01.02.100.05). The receiving water is the Kootenai River within the Panhandle Basin, Lower Kootenai subbasin of Idaho's *Water Quality Standards and Wastewater Treatment Requirements* (IDAPA 58.01.02.110.02.). The discharge is in the Kootenai River, Moyie River to Deep Creek, and the standards protect the following beneficial use classifications: domestic water supply, cold water biota, primary contact recreation, salmonid spawning and special resource water. Cold water is water quality appropriate for the protection and maintenance of a viable aquatic life community for cold water species. Primary contact recreation protection is for prolonged and intimate contact by humans or for recreational activities when the ingestion of small quantities of water is likely to occur. Such activities include, but are not restricted to, those used for swimming, water skiing, or skin diving. As there is no available information indicating the presence of any existing uses other than the designated uses discussed above, the permit ensures that the level of water quality necessary to protect the designated and existing uses is maintained and protected in compliance with IDAPA 58.01.02.051.01 and 40 CFR 131.12(a)(1). If EPA receives information during the public comment period demonstrating that there are existing uses for which the Kootenai River is not designated, EPA will consider this information before issuing a final permit and will establish additional or more stringent effluent limitations if necessary to ensure protection of existing uses.

The Kootenai River in the area of the discharge was identified as a water quality limited segment for temperature. A TMDL was not developed. The permit contains a requirement for continuous temperature monitoring to determine if Bonners Ferry has a reasonable potential to violate the temperature water quality standard for the Kootenai River and to ensure no increase in temperature to the Kootenai River.

Furthermore, the limits for other pollutants ensure compliance with water quality criteria for those pollutants. The numeric and narrative water quality criteria are set at levels that ensure protection of the designated uses. As there is no available information indicating the presence of any existing uses other than the designated uses discussed above, the permit ensures that the level of water quality necessary to protect the designated and existing uses is maintained and protected in compliance with IDAPA 58.01.02.051.01 and40 CFR 131.12(a)(1)).

High Quality Waters (IDAPA 58.01.02.051.02 and 40 CFR 131.12(a)(2))

EPA is assuming that the receiving water is a high quality water with water quality levels that exceed "levels necessary to support propagation of fish, shellfish and wildlife and recreation in and on the water." Therefore, EPA considers the provisions of IDAPA 58.01.02.051.02, for high quality waters, to be applicable to the receiving waters for all parameters except phosphorus, TSS, temperature, mercury, pH and bacteria.

All of the effluent limits in the reissued permit are as stringent as or more stringent than the corresponding limits in the prior (2004) permit. Therefore, for these high quality waters the

reissued permit does not authorize an increased discharge of any pollutant that was limited in the prior permit.

As to those pollutants present in the discharge without effluent limits in both the reissued permit and the prior permit, there is no factual basis to expect that those pollutants will be discharged in greater amounts under the reissued permit than were authorized in the prior permit. Similarly, there is no factual basis to expect that the effluent contains any new pollutants that have not been discharged previously. EPA reached these conclusions because the permit application and the discharge monitoring report data indicate no changes in the design flow, actual flow, influent quality or treatment processes that could result in a new or increased discharge of pollutants.

Summary

In summary, the effluent limits in the reissued permit are as stringent as or more stringent than the corresponding limits in prior permit for all parameters for which the receiving water quality "exceeds levels necessary to support propagation of fish, shellfish and wildlife and recreation in and on the water." Furthermore, the reissued permit will not authorize an increased discharge of any pollutants that were not subject to effluent limits under the prior permit.

The reissuance of the City of Bonners Ferry NPDES permit will therefore not allow lower water quality relative to the prior permit. Consequently, there is no need for the State of Idaho to make a finding that "allowing lower water quality is necessary to accommodate important economic or social development" under IDAPA 58.01.02.051.02. Under these circumstances, EPA may issue an NPDES permit even though the State of Idaho has not yet identified methods for implementing its antidegradation policy.

The reissued permit will not allow "lower water quality" (as defined in IDAPA 58.01.02.010.49) relative to the prior permit. This is because the "baseline" for determining whether a reissued permit allows "lower water quality" is the level of discharge currently authorized (and the associated water quality). The effluent limitations in the draft permit are the same or more stringent than the limits in the existing permit. The limits in the draft permit, therefore, ensure that the existing level of water quality in the Kootenai River is maintained.

#ID-002022-2

REASONABLE POTENTIAL FOR AQUATIC LIFE

		State Water Quality Standard		Max concentration at edge of...										
	Ambient Conc.	Acute	Chronic	Acute Mixing Zone	Chronic Mixing Zone	**LIMIT REQ'D?**	Effluent percentile value		Max effluent conc. measure	Coeff Variation	# of samples	Multiplier	Acute Dil'n Factor	Chronic Dil'n Factor
Parameter		*mg/L*	mg/L	*mg/L*	*mg/L*			*Pn*	*mg/L*	*CV*	*n*			
Total Ammonia Nitrogen	0.75	5.61	2.25	0.783	0.768	**NO**	0.99	0.681	25.1	0.217	12	1.29	945	1740
Total Residual Chlorine	0.00	0.019	0.011	0.0099	0.0099	**NO**	0.99	0.918	0.66	1.33	35	1.29	945	945