FACT SHEET

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

Red River Ranger Station
P.O. Box 416 Forest Service Drive
Elk City, Idaho 83525

Permit Number: ID-002069-9
Public Notice start date: December 14, 2011
Public Notice expiration date: January 13, 2012

Technical Contact

Name: Kai Shum
Phone: (206) 553-0060
1-800-424-4372 ext. 0060 (within Alaska, Idaho, Oregon, and Washington)
Email: shum.kai@epa.gov

EPA Proposes NPDES Permit Reissuance.

EPA proposes to reissue an NPDES permit to the Red River Ranger Station. The draft permit places conditions on the discharge of pollutants from the facility to the South Fork Red River. 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.

This Fact Sheet includes:

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

The State of Idaho Certification.

EPA is requesting that the Idaho Department of Environmental Quality (IDEQ) certify the NPDES permit for Red River Ranger Station, under section 401 of the Clean Water Act. EPA has received a preliminary draft 401 certification from IDEQ. IDEQ is accepting comments on the certification concurrently with the comment period for this permit.

Public Comment.

Persons wishing to comment on or request a Public Hearing for the draft permit may do so in writing by the expiration date of the Public Notice. 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.

All written comments and requests should be submitted to the attention of the Director, Office of Water and Watersheds at the following address:

U.S. EPA, Region 10
Re: Red River Ranger Station
1200 Sixth Avenue, Suite 900, (OWW-130)
Seattle, Washington 98101

Comments may also be submitted electronically to the technical contact listed above.

After the Public Notice expires, and all comments have been considered, EPA=s Director for the Office of Water and Watersheds in Region 10 will make a final decision regarding permit re-issuance. If no significant 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. The permit will become effective 30 days after the issuance date, unless the permit is appealed to the Environmental Appeals Board within 30 days pursuant to 40 CFR 124.19.

Persons wishing to comment on State Certification should submit written comments by the end date of this public comment period to the IDEQ Regional Administrator, with a copy to EPA, at the following address:

Regional Administrator
Idaho Department of Environmental Quality
Lewiston Regional Office
1118 F Street
Lewiston, Idaho 83501

Documents are Available for Review.
The draft NPDES permit and related documents can be reviewed or obtained by visiting or contacting EPA=s Regional Office in Seattle between 8:30 a.m. and 4:00 p.m., Monday through Friday (See address below). Draft permits, Fact Sheets, and other information can also be found by visiting the Region 10 website at:
http://yosemite.epa.gov/r10/WATER.NSF/NPDES+Permits/DraftPermitsID

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, Suite 900, OWW-130
Seattle, Washington 98101
(206) 553-1774 or
1-800-424-4372 (within Alaska, Idaho, Oregon and Washington)

The Fact Sheet and draft permit are also available at:

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

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I. APPLICANT

Red River Ranger Station
NPDES Permit No.: ID-002069-9

Facility Mailing Address:
P.O. Box 416 Forest Service Drive
Elk City, Idaho 83525

Facility Contacts:
Ralph Gromley, Wastewater Treatment Plant Operator
P.O. Box 416 Forest Service Drive
Elk City, Idaho 83525
(208) 842-2102

Joseph Bonn
USDA Forest Service
104 Airport Road
Grangeville, ID 83530
(208) 983-7002

II. FACILITY INFORMATION

A. Treatment Plant Description

The U.S. Forest Service (Forest Service) owns and operates a wastewater treatment plant (WWTP) at the Red River Ranger Station in the Nez Perce National Forest that utilizes a lagoon and sand filter with chlorine disinfection prior to discharge. The facility discharges to the South Fork Red River at 45° 42' 37" N, and 115° 20' 36" W.

In the facility's permit application, dated April 9, 2007, the Forest Service stated that the facility serves 13 full time staff and 30 part time staff. It is also estimated that the facility serves a small number of visitors to the ranger station. The gravity type system has a separate sanitary sewer collection system. The WWTP is designed for an annual average flow of 0.00625 mgd. The maximum daily flow rate in 2005 as reported in its application was 0.00625 mgd, and its annual average daily flow rate in 2005 was 0.0061 mgd. The facility does not land apply treated wastewater, and it does not discharge or transport treated or untreated wastewater to another facility.

The receiving water for the discharge is the South Fork Red River, located very close (about 0.1 mile) to the confluence of the main stem of the Red River. The South Fork Red River is part of the South Fork Clearwater River Watershed.

The treatment system utilizes a lagoon, sand filter and chlorination, but it does not have dechlorination prior to discharge. The application form described its design removal rate for biochemical oxygen demand (BOD) as 70%, and the design removal rate of total suspended solids (TSS) as 93%.

Effluent testing information submitted in the permit application stated the following maximum daily values:
pH (maximum): 6.5 s.u.
pH (minimum): 9.0 s.u.
Temperature (winter): 40°F
Temperature (Summer): 69°F (equivalent to 20.6°C)

B. Background Information

The NPDES permit for this facility expired on September 30, 2007. Pursuant to 40 CFR 122.6, a federally issued NPDES permit is administratively extended (i.e., continues in force and effect) provided that the permittee submits a timely and complete application for a new permit prior to the expiration of the current permit. The facility filed a renewal application that was received by EPA on April 9, 2007. Therefore, the permit was administratively extended, as confirmed by EPA letter dated March 25, 2008.

On November 22, 2011, according to Facility Contact, Joseph Bonn of the Forest Service, the facility will likely undergo improvements in the near future. The discharge to South Fork Red River is expected to cease, and a NPDES Permit for the discharge is necessary until discharge to surface water ceases completely.

On November 7, 2011, the Idaho Department of Environment Quality provided EPA with a Draft §401 Water Quality Certification and Antidegradation Review document dated October 14, 2011, that if the permittee complies with the terms and conditions of the Draft Permit and IDEQ's draft certification, then there would be reasonable assurance the discharge would comply with the applicable requirements of the Clean Water Act, including the Idaho Water Quality Standards and other appropriate water quality requirements of State law. If finalized, IDEQ's draft § 401 Certification, would authorize a chronic mixing zone that utilizes 25% of the critical flow volumes (as calculated by Idaho USGS StreamStats) of South Fork Red River for total ammonia and total residual chlorine. Also as a result of IDEQ's draft certification requirements, EPA proposes to require the facility to conduct continuous temperature monitoring with a maximum discharge temperature not to exceed 23°C (instantaneous max. limit) from July 15 to August 31 of each year. Five times per week temperature monitoring is proposed to continue from September 1st to July 14th.

III. RECEIVING WATER

A. Outfall Location/ Receiving Water

The Red River Ranger Station discharges to the South Fork Red River, which is a tributary of the Red River. Based on the map provided by the facility in the permit application, the discharge location is estimated to be about 0.1 mile upstream from the confluence of the South Fork Red River and the Red River proper.

The previous permit required the permittee to collect surface water monitoring data once every six months. The following is a summary of the minimum to maximum range of ambient surface water monitoring data (from the South Fork Red River) for each parameter that was submitted to EPA:
Stream Flow Rate: 2.2104 mgd (October, 2008) to 52.55 mgd (April, 2008)
TSS: 0.02 mg/l (October, 2009) to17.9 mg/l (April, 2006)
pH: 6.6 s.u. (April 2005 and April 2008) to 8.15 s.u. (April 2004)
Ammonia: 0 mg/l (April 2010, October 2009, April 2008, October 2007, April 2007, April 2005) to 2.6 mg/l (April 2004)

Surface water monitoring data for temperature was collected by the permittee. In addition, Idaho Department of Environmental Quality (IDEQ) provided additional ambient stream temperature data. The 95^{th} percentile of the entire data set is 19.05°C, which was utilized to calculate the Acute and Chronic Criteria for ammonia that apply to the discharge.

On February 3, 2011, IDEQ using the USGS Idaho Streamstats program, provided EPA the following critical flow information below. IDEQ recommended using:
30Q5 flow to calculate the chronic ammonia criterion;
1Q10 flow to calculate the acute criterion;
7Q10 flow to calculate the chronic criteria for chlorine;
IDEQ also authorized 25% mixing for purposes of evaluating reasonable potential to exceed Idaho's Water Quality Standards.

30Q5 = 4.05 cfs = 2.61 mgd (for evaluating chronic ammonia criterion)
1Q10 = 2.28 cfs = 1.47 mgd (for evaluating the acute criterion)
7Q10 = 2.72 cfs = 1.75 mgd (for evaluating the chlorine chronic criterion)

Using the equation below, EPA calculated the relevant dilution factors.
Dilution factor = (Design Flow + (Stream Flow x 25%))/ Design Flow

For Chronic ammonia criterion:
Dilution Factor = (0.00625 mgd + (2.61 mgd x 0.25))/0.00625 mgd = 105.4

For Acute criterion (ammonia and chlorine):
Dilution Factor = (0.00625 mgd + (1.47 mgd x 0.25))/0.00625 mgd = 59.8

For Chronic criterion (chlorine):
Dilution Factor = (0.00625 mgd + (1.75 mgd x 0.25))/0.00625 mgd = 71.0

B. Water Quality Standards

The State of Idaho's Water Quality Standards (IDAPA 58, Title 1, Chapter 2, Idaho Administrative Code dated 2010) is composed of beneficial-use classifications, numeric and/or 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/or narrative water quality criteria are the criteria deemed necessary, by the State, to support the beneficial use classification of each water body. The anti-degradation policy represents a three tiered approach to maintain and protect various levels of water quality and uses.

Idaho's Water Quality Standards (Idaho Administrative Code 2010, IDAPA 58.01.02.120.07, page 54) protect this segment described in the South Fork Clearwater Subbasin, Hydrologic Unit Code 17060305 (Unit # C-40, South Fork Red River, Trapper Creek to mouth) for the following beneficial use classifications: cold water biota, salmonid spawning, and secondary contact recreation; and, aesthetics; wildlife habitats; and agricultural, and industrial water supply.

On November 7, 2011, the Idaho Department of Environmental Quality pre-certified EPA's draft permit for purposes of meeting Idaho's Water Quality Standards pursuant to Section 401 of the Clean Water Act. The State's water quality standards, including IDEQ's draft §401 Certification and Antidegradation Review, are included in Appendix A. The EPA reviewed the State's Draft CWA §401 certification to ensure that state water quality standards are being met pursuant to Section 301(b)(1)(C). The EPA concludes that the state water quality standards, including the State's antidegradation policy are being met.

C. Water Quality Limited Segment

A water quality limited segment is any waterbody, or definable portion of water body, where it is known that water quality does not meet applicable water quality standards, and/or is not expected to meet applicable water quality standards.

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. A TMDL documents the amount of a pollutant a waterbody can assimilate without violating a state's water quality standards and allocates that load to known point sources and nonpoint sources. IDEQ completed a TMDL for the South Fork Clearwater watershed (which includes the South Fork Red River) in October 2003, and approved by EPA in July 2004. This TMDL report entitled, "South Fork Clearwater River Subbasin Assessment and Total Maximum Daily Loads" addressed sediment and temperature. The TMDL assigns the following wasteload allocations (WLAs) for the Red River Ranger Station facility:

1. Temperature WLA - Temperature limit of 23°C (73.4°F), daily maximum, from July 15 to August 31 of each year (see page 187, Table 48 of TMDL report), to be interpreted as the maximum end-of-pipe temperature limit (i.e., no mixing zone); and

2. TSS WLA - Annual TSS Load of 0.29 ton/year, Monthly Average TSS concentration of 30 mg/l, and Weekly Average TSS Concentration of 45 mg/l (see page 220, Table 58 of TMDL report).

Pursuant to 40 CFR 122.44(d), the proposed permit incorporates these WLAs in the permit.

IV. EFFLUENT LIMITATIONS

In general, the Clean Water Act requires that the effluent limits for a particular pollutant be the more stringent of either technology-based effluent limits or water quality-based limits. A technology based effluent limit requires a minimum level of treatment for municipal point sources based on currently available treatment technologies. A water quality based effluent limit is designed to ensure that the water quality standards of a waterbody are being met. For more information on deriving technology-based effluent limits and water quality-based effluent limits see Appendix B. The following summarizes the proposed effluent limitations that are in the draft permit.

1. The pH range must be between 6.5 - 9.0 standard units.

2. There must be no discharge of floating solids or visible foam other than in trace amounts.

3. Table 2, below presents the effluent limits for BOD_5 and TSS.

Table 2. BOD_5 and TSS Limitations		
Parameter	Monthly Average Limits	Weekly Average Limits
BOD_5, mg/L (lbs/day)	30 (1.6)	45 (2.3)
TSS, mg/L (lbs/day)	30 (1.6)	45 (2.3)

The BOD_5 and TSS concentration and mass limits are continued from the existing permit. The BOD_5 and TSS mass limits in this draft permit are established based on a facility's design flow rate of 0.00625 mgd, and complies with the facility's TSS wasteload allocations in the 2003 TMDL. The mass based limit is calculated as follows: concentration X design flow X 8.34.
monthly average limit = 30 mg/L X 0.00625 mgd X 8.34 = 1.6 lbs/day
weekly average limit = 45 mg/L X 0.00625 mgd X 8.34 = 2.3 lbs/day

4. Table 3 below summarizes the proposed effluent limitations and monitoring requirements for the Red River Ranger Station Facility.

Table 3. Effluent Limitations and Monitoring Requirements

PARAMETER	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS		
	Average Monthly Limit	Average Weekly Limit	Max. Daily Limit(1)	Instant-aneous Max. Limit(1)	Sample Location	Sample Frequency	Sample Type
Flow, MGD	Report	---	Report	---	Effluent	Continuous	Recording
Biochemical Oxygen Demand (BOD_5)	30 mg/L	45 mg/L	---	---	Influent and Effluent	1/week	24 hr comp
	1.6 lb/day	2.3 lb/day	---	---			
Total Suspended Solids (3b)	30 mg/L	45 mg/L	---	---	Influent and Effluent	1/week	24 hr comp
	1.6 lb/day (3b)	2.3 lb/day	---	---			
Total Residual Chlorine	0.5 mg/L	0.75 mg/L	---	---	Effluent	5/week	Grab
	0.03 lb/day	0.045 lb/day	---	---			

Table 3. Effluent Limitations and Monitoring Requirements

PARAMETER	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS		
	Average Monthly Limit	Average Weekly Limit	Max. Daily Limit[1]	Instant-aneous Max. Limit[1]	Sample Location	Sample Frequency	Sample Type
BOD Minimum Percent removal	65%	---	---	---	Influent and Effluent	1/month	Calculated
TSS Minimum Percent removal	85%	---	---	---	Influent and Effluent	1/month	Calculated
Dissolved Oxygen	---	---	---	Report mg/L	Effluent	1/quarter	Grab
Temperature (Sept. 1 – July 14)	---	---	---	Report °C	Effluent	Continuous or 5/week	Recording or Grab
Temperature[1][3a] (From July 15 – August 31)	---	---	---	23°C[1][3a]	Effluent	Continuous	Recording
E. coli Bacteria[1][2]	126/100 mL[1][2]	---	---	406/100 mL[1]	Effluent	5/ month	Grab
Total Ammonia as N in mg/l	---	---	Report	---	Effluent	1/quarter	24 hr comp
pH, s.u.	6.5 – 9.0				Effluent	1/week	Grab

Note:

1. Reporting is required within 24 hours if the Maximum Daily Limit or the Instantaneous Maximum Limit is violated.
2. A geometric mean of 126 organisms per 100 ml must be based on a minimum of 5 separate samples taken every 3 to 7 days over a thirty day period.
3. The South Fork Clearwater River Subbasin Assessment and Total Maximum Daily Load report, dated October 2003, provided the following wasteload allocations for the facility at the Red River Ranger Station:

   (3a) Temperature limit of 23°C (73.4°F), daily maximum, from July 15 to August 31 of each year (see page 187, Table 48 of TMDL report), to be interpreted as the maximum end-of-pipe temperature limit (i.e., no mixing zone); and

   (3b) Sediment Wasteload Allocations - Annual TSS Load of 0.29 ton/year, Monthly Average TSS concentration of 30 mg/l, and Weekly Average TSS Concentration of 45 mg/l (see page 220, Table 58 of TMDL report).

Table 3. Effluent Limitations and Monitoring Requirements							
PARAMETER	**EFFLUENT LIMITATIONS**				**MONITORING REQUIREMENTS**		
	Average Monthly Limit	Average Weekly Limit	Max. Daily Limit[(1)]	Instant-aneous Max. Limit[(1)]	Sample Location	Sample Frequency	Sample Type
5. The technology-based Total Residual Chlorine limits have been retained from the previous permit. 6. Percent removal is calculated using the following equation: ((average monthly influent concentration – average monthly effluent concentration) ÷ average monthly influent concentration) X 100							

V. MUNICIPAL SEWAGE SLUDGE/BIOSOLIDS MANAGEMENT

EPA Region 10 separates wastewater and sludge permitting. EPA has authority under the CWA 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.

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

VI. MONITORING AND REPORTING REQUIREMENTS

Section 308 of the Clean Water Act and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather data for future effluent limitations or to monitor effluent impacts on receiving water quality. The Permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports to EPA.

The draft permit includes new provisions to allow the permittee the option to submit Discharge Monitoring Report (DMR) data electronically using NetDMR. NetDMR is a national web-based tool that allows DMR data to be submitted electronically via a secure Internet application. NetDMR allows participants to discontinue mailing in paper forms under 40 CFR § 122.41 and § 403.12. The permittee may use NetDMR after requesting and receiving permission from EPA Region 10.
Under NetDMR, all reports required under the permit are submitted to EPA as an electronic attachment to the DMR. Once a permittee begins submitting reports using NetDMR, it is no longer required to submit paper copies of DMRs or other reports to EPA and IDEQ.

EPA encourages permittees to sign up for NetDMR, and currently conducts free training on the use of NetDMR. Further information about NetDMR, including upcoming trainings and contacts, is provided on the following website: http://www.epa.gov/netdmr.

For paper DMR submissions, the permittee must submit reports monthly, postmarked by the 10th day of the following month. The permittee must sign and certify all Discharge Monitoring Reports (DMRs) in accordance with the requirements of the proposed permit. The permittee must submit the legible originals of these documents to the Director, Office of Compliance and Enforcement, at the following address:

U.S. EPA Region 10
Attn: ICIS Data Entry Team
1200 Sixth Avenue, Suite 900, OCE-133
Seattle, Washington 98101

Table 3 above presents the proposed effluent monitoring requirements. Table 4 describes the surface water monitoring requirements.

Table 4: Surface Water Monitoring Parameters and Locations

Parameter	Sample Location from outfall	Sample Frequency	Sample Type
Flow, cfs	Upstream	1/6 months	Grab
TSS, mg/L	Upstream	1/ 6 months	Grab
Temperature, °C	Upstream	1/week during July and August	Grab
pH, standard units	Upstream	1/ 6 months	Grab
Total Ammonia (as N), mg/L	Upstream	1/ 6 months	Grab

Note:

1. Surface water monitoring shall begin within 6 months of the effective date of the permit.
2. Surface water monitoring stations shall be selected based on consultation and participation with the Idaho Department of Environmental Quality.
3. Surface water monitoring for temperature must be conducted the same day as effluent monitoring, at between 4 PM and 6 PM local time, as recommended by Idaho Department of Environmental Quality.

VII. OTHER PERMIT CONDITIONS

A. Quality Assurance Plan

The federal regulation at 40 CFR 122.41(e) requires the Permittee to develop a Quality Assurance Plan (QAP) to ensure that the monitoring data submitted is accurate and to explain data anomalies if they occur. Any existing QAP may be modified for compliance under this section. An updated QAP must be completed within 90 days of the effective date of the final permit, and written notification of the completion of an updated QAP must be sent to EPA within 90 days of the effective date of the permit to the address shown below. The Quality Assurance Plan must consist of standard operating procedures the Permittee must follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting.

B. Additional Permit Provisions

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

C. Sanitary Sewer Overflows and Proper Operation and Maintenance of the Collection System

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

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

system. The following specific permit conditions apply:

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

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

Third Party Notice – The permit requires that the permittee establish a process to notify specified third parties of SSOs that may endanger health due to a likelihood of human exposure; or unanticipated bypass and upset that exceeds any effluent limitation in the permit or that may endanger health due to a likelihood of human exposure. The permittee is required to develop, in consultation with appropriate authorities at the local, county, and/or state level, a plan that describes how, under various overflow (and unanticipated bypass and upset) scenarios, the public, as well as other entities, would be notified of overflows that may endanger health. The plan should identify all overflows that would be reported and to whom, and the specific information that would be reported. The plan should include a description of lines of communication and the identities of responsible officials. (See 40 CFR 122.41(l)(6)).

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

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

The permittee may refer to *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. The CMOM Guide is currently available on the EPA website at: "www.epa.gov/npdes/sso/featuredinfo.cfm."

VIII. OTHER LEGAL REQUIREMENTS

A. Endangered Species Act

The Endangered Species Act requires federal agencies to consult with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service if their actions could adversely affect any threatened or endangered species. Similar to the previous permit issuance, EPA has determined that re-issuance of this permit will not affect any of the endangered species that may occur in the vicinity of the discharge.

Discharges from the reissuance of an NPDES permit for the Red River Ranger Station Facility will not result in habitat destruction, nor will it result in changes in population that could result in increased habitat destruction for any threatened or endangered species that may occur in the vicinity of the discharge.

See Appendix C for further discussion of the Endangered Species Act.

B. Essential Fish Habitat

The Magnuson-Stevens Act (January 21, 1999) requires federal agencies to consult with NMFS when any activity proposed to be permitted, funded, or undertaken by a federal agency may have an adverse effect on designated Essential Fish Habitat (EFH) as defined by the Act. The EFH regulations define an adverse effect as any impact which reduces quality and/or quantity of EFH and may include direct (e.g. contamination or physical disruption), indirect (e.g. loss of prey, reduction in species' fecundity), site-specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

EPA has tentatively determined that issuance of this permit will not affect any EFH species in the vicinity of this discharge. EPA will provide NMFS with copies of the draft permit and fact sheet during the public notice period. Any comments received from NMFS regarding EFH will be considered prior to reissuance of this permit. See Appendix C for further discussion of the Essential Fish Habitat.

IX. State Certification

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

X. Permit Expiration

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

APPENDIX A

WATER QUALITY STANDARDS AND DRAFT STATE CERTIFICATION

1. Water Quality Criteria

For the Red River Ranger Station facility discharge, the following water quality criteria are necessary for the protection of the beneficial uses of the South Fork of the Red River:

a. IDAPA 58.01.02.200.02 - Surface waters of the State shall be free from toxic substances in concentrations that impair designated beneficial uses. Furthermore, IDAPA 58.01.02.210.01 incorporates the National Toxics Rule by reference as found in 40 CFR 131.36(b)(1) that includes numeric criteria for toxic substances.

b. IDAPA 58.01.02.200.05 - Surface waters of the State shall be free from floating, suspended, or submerged matter of any kind in concentrations causing nuisance or objectionable conditions or that may impair designated beneficial uses.

c. IDAPA 58.01.02.200.08 - Sediment. Sediment shall not exceed quantities specified in section 250, or, in the absence of specific sediment criteria, quantities which impair designated beneficial uses. Determinations of impairment shall be based on water quality monitoring and surveillance and the information utilized as described in Subsection 350.02.b.

d. IDAPA 58.01.02.250.01.a. - Hydrogen ion concentration (pH) values within the range of 6.5 to 9.5 standard units.

e. IDAPA 58.01.02.210.01.c.i. - The one-hour average concentration of total residual chlorine shall not exceed 19 ug/L.

f. IDAPA 58.01.02.210.01.c.ii. - The four-day average concentration of total residual chlorine shall not exceed 11 ug/L.

g. IDAPA 58.01.02.250.02.a. - Dissolved oxygen concentrations shall exceed 6 mg/L at all times.

h. IDAPA 58.01.02.250.02.d - Ammonia. The ammonia criteria consists of the Acute Criterion (Criterion Maximum Concentration (CMC)) and the Chronic Criterion (CCC). These criteria are not to be exceeded, and are dependent upon the temperature, T (degrees C), and pH of the water body. These equations are:

Acute Criterion (CMC): $\frac{0.275}{1+10^{7.204-pH}}+\frac{39}{1+10^{pH-7.204}}$

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

i. IDAPA 58.01.02.251.01 For waters designated as secondary contact recreation, a single sample maximum of five hundred seventy-six (576) E.coli organisms per one hundred (100)ml;

2. Wasteload Allocations from the TMDL

The South Fork Clearwater River Subbasin Assessment and Total Maximum Daily Load report, dated October 2003, provided the following wasteload allocations for the facility at the Red River Ranger Station:

a. Temperature limit of 23°C (73.4°F), daily maximum, from July 15 to August 31 of each year (see page 187, Table 48 of TMDL report), to be interpreted as the maximum end-of-pipe temperature limit (i.e., no mixing zone); and

b. Sediment Wasteload Allocations - Annual TSS Load of 0.29 ton/year, Monthly Average TSS concentration of 30 mg/l, and Weekly Average TSS Concentration of 45 mg/l (see page 220, Table 58 of TMDL report).

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1118 F Street • Lewiston, Idaho 83501 • (208) 799-4370

C.L. "Butch" Otter, Governor
Toni Hardesty, Director

November 7, 2011

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

Dear Mr. Lidgard:

The State of Idaho Department of Environmental Quality (DEQ) received a preliminary draft NPDES permit for the Red River Ranger Station discharge from their existing Wastewater Treatment Plant on November 24, 2010.

After review of the permit and fact sheet, DEQ submits the draft §401 water quality certification as an enclosure. Also enclosed is a narrative description of our antidegradation review for this permit. After the public comment period ends, DEQ will address any comments and issue a final certification after reviewing the proposed final permit.

Please direct any questions to the Lewiston Regional Office Surface Water Program Manager, John Cardwell at (208) 799-4370 or john.cardwell@deq.idaho.gov.

Sincerely,

Clayton Steele
Regional Administrator
Lewiston Regional Office

Enclosures (2)

c: Doug Conde, Deputy Attorney General
Barry Burnell, Water Quality Division Administrator
Kai Shum, EPA Region 10, NPDES Permits Unit, Seattle

Idaho Department of Environmental Quality

DRAFT §401 Water Quality Certification

November 7, 2011

NPDES Permit Number(s): ID-002069-9 Red River Ranger Station Wastewater Treatment Plant

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

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

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

MIXING ZONES

Pursuant to IDAPA 58.01.02.060, DEQ authorizes a chronic mixing zone that utilizes 25% of the critical flow volumes (as calculated by Idaho USGS StreamStats) of South Fork Red River for total ammonia and total residual chlorine.

ANTIDEGRADATION

The antidegradation provision in Idaho's WQS requires that existing uses and the water quality necessary to protect existing uses shall be maintained and protected (IDAPA 58.01.02.051.01). In addition, where water quality exceeds levels necessary to support uses, that quality shall be maintained and protected unless DEQ finds, after intergovernmental coordination and public participation, that allowing lower water quality is necessary to accommodate important social or economic development in the area in which the waters are located (IDAPA 58.01.02.051.02).

The Red River Ranger Station discharges its wastewater to the South Fork Red River, which does not fully support its aquatic life beneficial uses due to temperature. The antidegradation review for the proposed permit concludes that effluent limitations and

requirements in the proposed permit are the same or more stringent than those in the current permit. This antidegradation review evaluated effluent limits for biological oxygen demand, total suspended solids, E. coli, pH, chlorine, ammonia and temperature.

The proposed permit has a limit for temperature that does not exist in the current permit. The *South Fork Clearwater River Subbasin Assessment and Total Maximum Daily Load* (DEQ 2003) addresses temperature and has been approved by EPA. The effluent limitations in the proposed permit are consistent with applicable waste load allocations in the TMDL and are set at levels which ensure the State's numeric and narrative criteria will be met. Because numeric and narrative criteria are set at levels which protect and maintain beneficial uses, DEQ concludes that the limits and requirements in the proposed permit protect and maintain the existing beneficial uses in the South Fork Red River in accordance with IDAPA 58.01.02.051.01.

DEQ concludes that by following the permit requirements the existing level of water quality in South Fork Red River will be maintained and protected and that there will be no degradation of water quality in accordance with IDAPA 58.01.02.051.02.

OTHER CONDITIONS

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

RIGHT TO APPEAL FINAL CERTIFICATION

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

Questions regarding the actions taken in this certification should be directed to John Cardwell, Lewiston Regional Office at 208-799-4370, or at john.cardwell@deq.idaho.gov.

DRAFT

Clayton Steele, Regional Administrator
IDEQ Lewiston Regional Office

ANTIDEGRADATION REVIEW

NPDES Permit # ID-002069-9
Red River Ranger Station Wastewater Treatment Plant Facility

Idaho Department of Environmental Quality
October 14, 2011

Antidegradation Overview

In March 2011, Idaho incorporated new provisions addressing antidegradation implementation in the Idaho Code. The new antidegradation provisions are in Idaho Code § 39-3603. At the same time, Idaho adopted antidegradation implementation procedures in the Idaho Water Quality Standards (WQS). DEQ submitted the antidegradation implementation procedures to EPA for approval on April 15, 2011. On August 18, 2011 EPA approved Idaho's implementation procedures.

The WQS contain an antidegradation policy providing three levels of protection to water bodies in Idaho (IDAPA 58.01.02.051). The first level of protection (Tier 1 protection) applies to all water bodies subject to Clean Water Act jurisdiction and assures that existing uses of a water body and the level of water quality necessary to protect the existing uses will be maintained (IDAPA 58.01.02.051.01; 58.01.02.052.01). A Tier 1 review is performed for all new or reissued permits or licenses (IDAPA 58.01.02.052.05). The second level of protection (Tier 2 protection) applies to those water bodies that are considered high quality and assures that no lowering of water quality will be allowed unless it is deemed necessary to accommodate important economic or social development (IDAPA 58.01.02.051.02; 58.01.02.052.06). The third level of protection (Tier 3 protection) applies to water bodies that have been designated outstanding resource waters and requires activities to not cause a lowering of water quality (IDAPA 58.01.02.03; 58.01.02.052.07).

DEQ is employing a water body-by-water body approach to implementing Idaho's antidegradation policy. This approach means that any water body fully supporting its beneficial uses will be considered high quality (Idaho Code §39-3603(20(b)(i)). Any water body not fully supporting its beneficial uses will be provided Tier 1 protection for that use, unless specific circumstances warranting Tier 2 protection are met (Idaho Code §39-3603(2)(b)(iii)). The most recent federally-approved Integrated Report and supporting data are used to determine support status and the tier of protection (Idaho Code §39-3603(2)(b)).

Pollutants of Concern

The Red River Ranger Station Wastewater Treatment Plant Facility (Red River Ranger Station) discharges the following pollutants of concern: biological oxygen demand (BOD), total suspended solids (TSS), *E. coli*, pH, chlorine, ammonia, and temperature. Effluent limitations have been developed for BOD, TSS, *E. coli*, pH, chlorine, ammonia and temperature. Monitoring will be conducted during the permit cycle for dissolved oxygen.

Receiving Water Body Level of Protection

Red River Ranger Station discharges to South Fork Red River (assessment unit ID17060305CL040_03). This South Fork Red River (SF Red River) assessment unit (AU) has

the following designated beneficial uses: cold water aquatic life; salmonid spawning; secondary contact recreation; aesthetics; wildlife habitat; and agricultural and industrial water supply. There is no other information indicating the presence of existing beneficial uses other than those that are designated.

Idaho has established a water body-by-water body approach for identifying what level of antidegradation protection DEQ will provide when reviewing whether activities or discharges will comply with Idaho's antidegradation policy. This approach relies upon Idaho's most recent federally approved Integrated Report (IR) of water quality status and readily available data. The cold water aquatic life and salmonid spawning beneficial uses in this SF Red River AU are listed as not fully supported due to temperature (DEQ, 2008 IR). According to Idaho Code §39-3603(2)(b)(iii)(1)), a water body that is identified in the IR as not fully supporting aquatic life uses because of temperature shall, nevertheless, be afforded Tier 2 protection if biological or aquatic habitat parameters show a healthy, balanced biological community is present.

Data provided in the South Fork Clearwater TMDL Appendix D (DEQ 2003) documents the presence of several salmonid species as well as char and non-game species of fish. The SF Red River was also identified as an area of high habitat potential for spring Chinook salmon and as having a good bull trout density. In addition, restoration work on the SF Red River has re-established spawning and rearing habitats in the lower meadow reach of SF Red River. Data from that project (2000-2004) indicate a presence of several species of salmonids and non-game fish. Additional data from 1995 (the most recent data available) showed passing scores for fish, macroinvertebrates, and habitat for this AU. When taken together, the data suggest that there is a healthy and balanced biological community present and that this AU should be afforded Tier 2 protection for aquatic life.

The secondary contact recreational use for the SF Red River assessment unit is unassessed. Water bodies identified in the IR as not assessed are provided an appropriate level of protection on a case-by-case basis using information available at the time of a proposal for a new or reissued permit or license. Idaho Code §39-3603(2)(b)(ii). Bacteria data for the SF Red River AU ID17060305CL040_03 and SF Red River AU ID17060305CL038_04 do not exceed the criteria for secondary recreation beneficial use, thus the secondary contact recreation beneficial use is fully supporting (IDAPA 58.01.02.054). Consequently, DEQ will provide Tier 2 protection for the recreation beneficial use (Idaho Code 39-3603(2)(b)).

Protection and Maintenance of Existing Uses (Tier 1 Protection)

As noted above, a Tier 1 review is performed for all new or reissued permits or licenses, applies to all waters subject to the jurisdiction of the CWA, and requires a showing that existing uses and the level of water quality necessary to protect existing uses shall be maintained and protected. In order to protect and maintain designated and existing beneficial uses, a permitted discharge must comply with WQS. The numeric and narrative criteria in the WQS are set at levels to ensure protection of beneficial uses. The effluent limitations and associated requirements contained in the Red River Ranger Station permit are set at levels that ensure compliance with the narrative and numeric criteria in the WQS. Additionally, there is no available information indicating the presence of any existing uses other than the designated uses discussed above. Therefore, the permit ensures that the level of water quality necessary to

protect both designated and existing uses is maintained and protected.

Water bodies not supporting existing or designated beneficial uses must be identified as water quality limited and a total maximum daily load (TMDL) must be prepared for any water quality limited water body. TMDLs establish waste load allocations (WLAs) for point source discharges, which are set at levels designed to help restore the water body to a condition that supports existing and designated beneficial uses. The EPA approved *South Fork Clearwater River Subbasin Assessment and Total Maximum Daily Load* (DEQ 2003) indicates that the SF Red River is not supporting its cold water aquatic life or Salmonid spawning beneficial uses due to elevated temperatures. Therefore, a WLA for temperature was established in the TMDL. In addition to establishing a temperature WLA, the TMDL includes a TSS WLA for the Red River Ranger Station in order to meet sediment targets in the South Fork Clearwater River. These effluent limitations and associated requirements contained in the Red River Ranger Station permit are set at levels that are consistent with these WLAs. Therefore, DEQ has determined the permit will ensure that existing uses and the level of water quality necessary to protect existing uses will be maintained and protected in accordance with IDAPA 58.01.02.051.01, IDAPA 58.01.02.052.05, and 40 CFR 131.12(a)(1).

High Quality Waters (Tier 2 Protection)

The Red River Ranger Station discharges to a segment of the SF Red River that is considered high quality for both recreation and aquatic life uses. As such, the quality of SF Red River must be maintained and protected, unless a lowering of water quality is deemed necessary to accommodate important social or economic development.

In order to determine whether degradation will occur, DEQ must evaluate the effect on water quality of the issuance of the permit for each pollutant that is relevant to the designated beneficial uses of the Red River (IDAPA 58.01.02.052.04). These include *E. coli* for the recreational use and temperature, BOD, TSS, pH, ammonia and residual chlorine for the aquatic life use (Table 2). Effluent limits are set in the proposed and existing permit for all listed parameters except temperature for which a new limit is being proposed.

Pollutants with limits in the current and proposed permit

For a reissued permit or license, the effect on water quality is determined by looking at the difference in water quality that would result from the activity or discharge as authorized in the current permit and the water quality that would result from the activity or discharge as proposed in the reissued permit or license (IDAPA 58.01.02.052.04.a). For pollutants that currently are limited and will have limits under the reissued permit, the current discharge quality is based on the limits in the current permit or license (IDAPA 58.01.02.052.04.a.i), and the future discharge quality is based on the proposed permit limits (IDAPA 58.01.02.052.04.a.ii). For the Red River Ranger Station permit this means determining the effect on water quality based on the limits for TSS, BOD, pH, ammonia, residual chlorine and *E. coli*. Table 2 provides a summary of the existing permit limits and the proposed reissued permit limits.

New permit limits for pollutant currently discharged

The only new proposed permit limit is for temperature. The current permit does not have a limit as the permit was written prior to the TMDL. When new limits are proposed in a reissued permit for pollutants in the existing discharge, available discharge quality data or other relevant information shall be considered. The TMDL established a WLA for temperature. Since discharge permits must incorporate limitations that are consistent with approved TMDLs, the proposed temperature permit limit of 23 degrees Celsius is set to maintain and protect water quality.

Table 2: Comparison of proposed permit limits with current permit

		Proposed Permit			**Current Permit**		
Parameter	Units	Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit	Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit
Five-Day BOD	mg/L	30	45	-	30	45	-
	lb/day	1.6	2.3	-	1.6	2.3	-
	% removal	65%	-	-	65%	-	-
TSS	mg/L	30	45	-	30	45	-
	lb/day	1.6	2.3	-	1.6	2.3	-
	% removal	85%	-	-	65%	-	-
pH	s.u.	6.5 – 9.0 all times			6.5 – 9.0 all times		
E. coli	#/100 mL	126		406	126		406
Total Residual Chlorine (final)	mg/L	0.5	0.75	-	0.5	0.75	-
	lb/day	0.03	0.045	-	0.03	0.045	-
Total Ammonia	mg/L	-	-	Report	-	-	Report
Temperature	°C	-	-	23			

In summary, the proposed permit limits in Table 2 are the same as, or more stringent, than those in the current permit. Based on these considerations, DEQ has concluded that this discharge will have no adverse change in water quality and no degradation will occur.

APPENDIX B
BASIS FOR EFFLUENT LIMITATIONS

The CWA requires dischargers to meet performance-based requirements (also known as technology based effluent limits). EPA may find by analyzing the effect of an effluent discharge on the receiving water, that technology-based effluent limits are not sufficiently stringent to meet water quality standards. In such cases, EPA is required to develop more stringent, water quality-based effluent limits designed to ensure that water quality standards are met. The draft effluent limits reflect whichever limits (technology-based or water quality-based) are more stringent. The following explains in more detail the derivation of technology based effluent limits and water quality-based effluent limits. The following discussion explains in more detail the derivation of technology based effluent limits, and water quality based effluent limits. Part I discusses technology based effluent limits, Part II discusses the water quality based evaluation, Part III discusses the water quality based effluent limits and Part IV discusses the State's antidegradation review.

I. Technology-Based Effluent Limitations

Section 301 of the CWA established a required performance level, referred to as secondary treatment that all POTWs were required to meet by July 1, 1977. EPA developed secondary treatment regulations which are specified in 40 CFR Part 133. These technology-based effluent limits apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of BOD, TSS, and pH. The definition of secondary treatment includes special considerations regarding waste stabilization ponds. Specifically, the regulations allow alternative limits for facilities using waste stabilization ponds, such as the Red River Ranger Station, if it can meet the conditions outlined in 40 CFR 133.101(g).

The technology based effluent standards in the Federal Secondary Treatment Standards for POTWs are: five-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), the minimum removal rates for BOD_5 and TSS, and pH. In addition, effluent from a POTW may contain other pollutants such as bacteria, chlorine, ammonia, or metals depending on the type of treatment system used and the service area of the POTW (i.e., industrial facilities as well as residential areas discharge into the POTW). When technology based effluent limits do not exist for a particular pollutant expected to be in the effluent, EPA must determine if the pollutant may cause or contribute to an exceedance of the water quality standards for the water body. If a pollutant causes or contributes to an exceedance of a water quality standard, water quality-based effluent limits for the pollutant must be incorporated into the permit.

A. BOD, TSS, and pH

1. Secondary Treatment:

The CWA requires POTWs to meet performance-based requirements based on available

wastewater treatment technology. Section 301 of the CWA established a required performance level, referred to as "secondary treatment," that all POTWs were required to meet by July 1, 1977. EPA developed "secondary treatment" regulations, which are specified in 40 CFR 133. These technology-based effluent limits apply to all municipal wastewater treatment plants, and identify the minimum level of effluent quality attainable by secondary treatment in terms of BOD_5, TSS, and pH.

Table B-1 below illustrates the technology based effluent limits for "Secondary Treatment" effluent limits:

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

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.

2. Treatment Equivalent to Secondary

EPA has evaluated the facility's DMR data to determine if the facility is eligible for "treatment equivalent to secondary treatment." Facilities can be eligible to treat to "treatment equivalent to secondary treatment," if they meet the criteria in 40 CFR133.101(g)

The regulations allow alternative limits for BOD_5 and TSS for facilities using trickling filters or waste stabilization ponds provided the following requirements are met (40 CFR 133.101(g), and 40 CFR 133.105(d)):

1) The BOD_5 and TSS effluent concentrations consistently achievable through proper operation and maintenance of the treatment works exceed the minimum level of effluent quality required by the secondary treatment limits (i.e., the 95^{th} percentile monthly averages both BOD_5 and TSS effluent quality must be greater than 30 mg/l; and, the concentration equal to 1.5 times the 95^{th} percentile monthly averages must be greater than 45 mg/l).

2) A trickling filter or waste stabilization pond is used as the principal treatment process.

3) The treatment works provide significant biological treatment of municipal wastewater (i.e., per 40 CFR 133.101(k), a minimum 30-day average of 65% removal of BOD_5 is consistently attained).

To be eligible for "treatment equivalent to secondary treatment," the facility must meet all three criterion in 40 CFR 133.101(g). As discussed in more detail below, the facility meets the conditions for "treatment equivalent to secondary treatment" for BOD_5 but does not meet the conditions for "treatment equivalent to secondary treatment" for TSS. Therefore, the permit requires separate percent removal requirements for BOD_5 and TSS. According to page 5-4 of EPA's Permit Writer's Manual, dated September 2010: *"EPA believes that it is acceptable for the permit writer to adjust the limitations for only one parameter (BOD_5 or TSS) if the effluent concentration of only one of the parameters is demonstrated to consistently exceed the secondary treatment standards."*

Condition (1): The facility meets Condition (1) for BOD_5, but not for TSS. See Table B-2 for the calculations related to BOD_5The Red River Ranger Station Wastewater Treatment Plant does not meet this criterion for TSS because the 95th percentile of the facility's TSS Monthly Average is 20mg/l. This number is not greater than 30 mg/l (see Table B-2). Moreover, 1.5 times the 95th percentile of the TSS Monthly Average is 30mg/l which is not greater than 45 mg/l. Therefore, the facility's data does not exceed the minimum level of effluent quality set forth in 40 CFR Section 133.102(a), secondary treatment for TSS.

Rationale for meeting Condition (2):

The Red River Ranger Station Wastewater Treatment Plant meets this criterion because the facility does utilize waste stabilization ponds as the principle process of treating wastewater.

Rationale for meeting Condition (3):

Condition (3) only applies to removal rates of BOD_5. The facility meets this criterion because the facility has demonstrated by its previously submitted DMRs that it could consistently achieve the percent removal rates for the treatment equivalent to secondary treatment limits for BOD_5. This is demonstrated by the DMRs from September 2007 to August 2010 (See Table B-2) where the 5th percentile of BOD_5 removal rates is 66%. This removal rate is greater than the 65% removal rate required by treatment equivalent to secondary treatment, therefore, the facility meets Condition (3) for BOD_5.

In summary, for BOD_5, the facility meets the conditions for treatment equivalent to secondary, therefore, the percent removal requirement is retained in the previous permit

at 65%. The concentration limits of 30 mg/l and 45 mg/l for the Monthly Average and Weekly Average limits respectively are also retained from the previous permit.

For TSS, the facility is not eligible for the treatment equivalent to secondary. Thus, the required percent removal rate for TSS has been raised from "65% minimum" in the previous permit to "85% minimum" in the proposed permit. The proposed permit requires the following effluent limits for TSS: 30 mg/l Monthly Average Limit (retained from previous permit); 45 mg/l Weekly Average Limit (retained from previous permit); and "85% minimum" removal rate (changed from "65% minimum" as was required in the previous permit).

Table B-2
Evaluation of Equivalent to Secondary Treatment Standard Based on DMR Data

Date	BOD Monthly Ave (mg/l)	BOD % Removal	TSS Monthly Ave (mg/l)	Remarks
Aug, 2010				No Discharge
July, 2010	28.6	89.3	2.6	
June, 2010	47.2	69.99	1.9	
May, 2010	52.7	57.91	10.2	
April, 2010	51.5	70.47	12.8	
March, 2010	57.8	66	20.7	
Feb, 2010	94	75	20	
Jan., 2010	103.5	72.84	14.2	
Dec, 2009	82.7	84.36	11.5	
Nov, 2009	1.71	69.4	0.19	
Oct., 2009	1.24	84.31	0.15	
Sept. 2009				No Discharge
Aug, 2009				No Discharge
July, 2009				Missing DMR
June, 2009	1.34	101.54	0.09	
May, 2009	2.07	87.41	0.53	
April, 2009	1.56	71.55	0.012	
March, 2009	1.46	71.97	0.27	
Feb, 2009	0.81	75	0.14	
Jan, 2009				No Discharge
Dec, 2008				No Discharge
Nov, 2008	0.58	82.6	1.38	
Oct., 2008	0.57	89.51	0.069	
Sept, 2008	0.13	71	0	TSS 0=ND
Aug, 2008				No Discharge
July, 2008				Missing DMR

Table B-2

Evaluation of Equivalent to Secondary Treatment Standard Based on DMR Data

Date	BOD Monthly Ave (mg/l)	BOD % Removal	TSS Monthly Ave (mg/l)	Remarks
June, 2008				Missing DMR
May, 2008				Missing DMR
April, 2008	12.8	88.29	13	
March, 2008	43.71	84	15.83	
Feb, 2008				Missing DMR
Jan, 2008	78	88.17	12.8	
Dec, 2007		75		Concentrations
Nov., 2007		66		Not
Oct., 2007		78.53		Reported
Sept. 2007		80.16		On DMRs
Calculation	**95th Percentile = 94 mg/l**	**5th Percentile = 66%**	**95th Percentile = 20 mg/l**	
Condition (1)	95th Percentile Must be greater than 30 mg/l, and 1.5X 95th Percentile must be greater than 45 mg/l		95th Percentile must be greater than 30mg/l, and 1.5X 95th Percentile must be greater than 45 mg/l	Citation: 133.101(g)(1)
Condition (3)		5th Percentile must be greater than 65%		133.101(g)(3)
Evaluation for meeting Conditions (1) and (3)	**YES**	**YES**	**NO**	

3. Mass Based Limits - EPA methodology and regulations at 40 CFR 122.45(b) and 122.45(f) require BOD_5 and TSS limitations to be expressed as mass based limits using the design flow (0.00625 mgd) of the facility. The loading is calculated as follows: concentration X design flow X 8.34. Using this formula the BOD_5 and TSS permit limits are:

BOD_5 loading, monthly average = 30 mg/L X 0.00625 MGD X 8.34 =1.6 lbs/day
BOD_5 loading, weekly average = 45 mg/L X 0.00625 MGD X 8.34 = 2.3 lbs/day
TSS loading, monthly average = 30 mg/L X 0.00625 MGD X 8.34 = 1.6 lbs/day
TSS loading, weekly average = 45 mg/L X 0.00625 MGD X 8.34 = 2.3 lbs/day

In summary, the proposed effluent limits for BOD_5 and TSS are as follows:

Table B-4. Proposed BOD_5 and TSS Limitations			
Parameter	Average Monthly Limit	Average Weekly Limit	Minimum Percent Removal
BOD_5, mg/L (lbs/day)	30 (1.6)	45 (2.3)	65%
TSS, mg/L (lbs/day)	30 (1.6)	45 (2.3)	85%

4. pH

Federal regulations at 40 CFR ' 133.102(c) requires the pH to be in the range from 6.0 to 9.0 S.U. The limits in the permit are based on the more stringent of the Idaho Water Quality Standards requiring the range from 6.5 S.U. to 9.0 S.U.

5. Total Residual Chlorine (TRC)

A Reasonable Potential Analysis was performed to determine if the technology based Total Residual Chlorine effluent limits at the facility would exceed the Idaho Water Quality Standards. Since there is no reasonable potential for the existing technology-based limits, the same existing limits have been included in the proposed permit. The technology based effluent standards are based on publication from the Water Pollution Control Federation. 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.

Additionally, the NPDES regulation at 40 CFR 122.45(d) requires permit limits for publicly owned treatment works be expressed as average monthly limits (AMLs) and average weekly limits (AWLs) unless impracticable. The AWL is expressed as 1.5 X AML, or, in this case, 0.75 mg/L.

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 have been added to the draft permit. The mass based limit is calculated as follows: concentration X design flow X 8.34.

Monthly Average Loading Limit = 0.5 mg/L X 0.00625 mgd X 8.34
= 0.03 lbs/day
Weekly Average Loading Limit = 1.5 X Monthly Average Loading Limit
= 0.045 lbs/day

In the previous permit, the average monthly limit was 0.5 mg/L with a loading limit of 0.03 lbs/day and the weekly average limit was 0.75 mg/L with a loading

limit of 0.045 lbs/day. During the previous permit cycle, the facility achieved an average of 0.57 mg/l as the Average Monthly value, and 0.66 mg/l as the Average weekly value. The highest average monthly value was 0.7 mg/l, and the highest average weekly value was 0.79 mg/l.

Idaho Water Quality Standards in IDAPA 58.01.02 (IAC 2010), states that for chlorine, the Aquatic Life acute criteria value (CMC) is 19ug/l, and the chronic criteria value (CCC) is 11ug/l. Using the site specific monitoring values obtained from the facility's Discharge Monitoring Reports, EPA performed reasonable potential calculations on a spreadsheet. Based on the calculations, the permitted discharge did not have reasonable potential to exceed Idaho Water Quality Standards. Therefore, the facility will not have new effluent limits for chlorine, and the previous effluent limits are retained in the proposed permit.

II. Water Quality-based Evaluation

A. 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. Discharges to state waters must also comply with limitations imposed by the state as part of its certification of NPDES permits under section 401 of the CWA.

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 water quality standard, including state 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 effluent limits must be stringent enough to ensure that water quality standards are met, and must be consistent with any available wasteload allocation.

B. Reasonable Potential Determination

When evaluating the effluent to determine if water quality-based effluent limits are needed based on chemical specific numeric criteria, 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 ambient water and, if appropriate, the dilution available from the ambient water are factors used to project the receiving water concentration. If the projected concentration of the receiving water exceeds the

numeric criterion for a specific chemical, 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.

As mentioned above, sometimes it is appropriate to allow a small area of ambient water to provide dilution of the effluent. These areas are called mixing zones. Mixing zone allowances will increase the mass loading of the pollutant to the water body, and decrease treatment requirements. Mixing zones can be used only when there is adequate ambient flow volume and the ambient water concentrations are below the criteria necessary to protect designated uses.

C. Procedure for Deriving Water Quality-Based Effluent Limits

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

1. TMDL-Based Wasteload Allocation

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

Section 303(d) of the CWA requires states to develop TMDLs for water bodies that will not meet water quality standards after the imposition of technology-based effluent limitations to ensure that these waters will come into compliance with water quality standards. The first step in establishing a TMDL is to determine the assimilative capacity (the loading of pollutant that a water body can assimilate without exceeding water quality standards). The next step is to divide the assimilative capacity into allocations for non-point sources (load allocations), point sources (wasteload allocations), natural background loadings, and a margin of safety to account for any uncertainties. Permit limitations are then developed for point sources that are consistent with the wasteload allocation for the point source. TMDLs have been established for the waterbody to which the facility discharges. Specifically, the South Fork Clearwater River Subbasin Assessment and Total Maximum Daily Load report, dated October 2003, provides the following wasteload allocations for the facility at the Red River Ranger Station:

1a. Temperature wasteload allocation - Temperature limit of 23°C (73.4°F), daily instantaneous maximum, from July 15 to August 31 of each year (see page 187, Table 48 of TMDL report), to be interpreted as the maximum end-of-pipe temperature limit (i.e., no mixing zone); and

1b. Sediment wasteload allocation - Annual TSS Load of 0.29 ton/year, Monthly Average TSS concentration of 30 mg/l, and Weekly Average TSS Concentration of 45 mg/l (see page 220, Table 58 of TMDL report).

2. Mixing zone based WLA

When the State authorizes a mixing zone for the discharge, the WLA is calculated by using a simple mass balance equation. The equation takes into account the available dilution provided by the mixing zone, and the background concentrations of the pollutant. The reasonable potential evaluation for the Red River Ranger Station is based on allowing 25 percent of the volume of the receiving water for dilution. This amount will need to be certified by the State.

3. Criterion as the Wasteload Allocation

In some cases a mixing zone cannot be authorized, either because the receiving water already exceeds the criteria or the receiving water flow is too low to provide dilution. In such cases, the criterion becomes the wasteload allocation. Establishing the criterion as the wasteload allocation ensures that the Permittee will not contribute to an exceedance of the criteria.

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

III. Water Quality-Based Effluent Limits

A. Toxic Substances

The Idaho water quality standards require surface waters of the state to be free from toxic substances in concentration that impair designated uses. Based upon evaluation of data from the facility, EPA has determined that the narrative criteria will be protected by including a technology-based effluent limit for total residual chlorine.

B. Floating, Suspended or Submerged Matter

The Idaho water quality standards 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 or that may impair designated beneficial uses. Therefore, the draft permit specifies that there must be no discharge of floating solids or visible foam in other than trace amounts.

C. *E. coli* Bacteria

The South Fork Red River is not listed as water-quality limited for pathogens. New water quality standards adopted by Idaho in May 2000 removed the fecal coliform limits and adopted *E. coli* bacteria limits. The Idaho state water quality standards require waters designated for primary contact recreation not contain *E. coli* bacteria in amounts exceeding:

1. a single sample of 406/100 ml; and

2. 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.

The Idaho water quality standards for secondary contact recreation is, a single sample maximum of five hundred seventy-six (576) E.coli organisms per one hundred (100) ml.

For the proposed permit limits, the previous limits have been retained because they are more stringent than the secondary contact recreation standards that are currently designated for this receiving water. The decision to retain the more stringent limits is to be in compliance with the anti-backsliding and antidegradation policies. The effluent limits in the permit are consistent with primary contact recreation standards of 126/100 ml for the Average Monthly Limit, and an Instantaneous Maximum Limit of 406/100 ml.

D. pH

The Idaho water quality standards require surface waters of the state to have a pH value within the range of 6.5 to 9.0 standard units. These limits remain unchanged from the previous permit.

E. Dissolved Oxygen

The South Fork Red River is not listed as water quality-limited for dissolved oxygen (D.O.). The state water quality standards in subsection 250 02.a., require the level of D.O. to exceed 6 mg/L at all times for water bodies that are protected for aquatic life use. The previous permit required the monitoring of dissolved oxygen in the effluent. Based on the reported dissolved oxygen data from the facility, the average dissolved oxygen in its effluent is 7.15mg/l, and the lowest reliable value was 2.1mg/l. Based on simple mixing using the dilution factor of 59.8, the dissolved oxygen in the river is not expected to be substantially changed; therefore, no reasonable potential is expected. Effluent monitoring will be required to continue in the proposed permit.

F. Total Ammonia

IDEQ has developed water quality criteria to protect aquatic life against short term and long term adverse impacts from ammonia. EPA has calculated the ammonia criteria using IDEQ's spreadsheet, with the following results: Acute Criteria of 4.20 mg/l, and Chronic Criteria of 1.58 mg/l. The calculations for the Acute and Chronic Criteria are based on the assumptions that Salmonids and Fish are present, applying the 95^{th} percentile of ambient stream temperature of effluent of 19.05°C, and applying the 95^{th} percentile of the stream pH data of 8.095 s.u. Using the computed ammonia Acute and Chronic Criteria, EPA performed a reasonable potential analysis based on the site specific effluent data from the facility. Based on these calculations, EPA determined that the facility has no reasonable potential to exceed the Idaho Water Quality Standards.

The monitoring frequency for ammonia is retained from the previous permit at once per quarter. The quarterly effluent monitoring for ammonia will begin at the effective date of the proposed permit.

IV. Antidegradation Analysis

On November 7, 2011, the Idaho Department of Environmental Quality pre-certified EPA's draft permit for purposes of meeting Idaho's Water Quality Standards pursuant to Section 401 of the Clean Water Act. IDEQ's draft §401 certification and concludes that the state water quality standards, including the State's antidegradation policy, are being met.

Reasonable Potential Calculations

The following describes the process EPA has used to determine if the discharge authorized in the draft permit has the reasonable potential to cause or contribute to a violation of the State of Idaho's federally approved WQS. EPA uses the process described in the *Technical Support Document for Water Quality-based Toxics Control* (EPA, 1991) to determine reasonable potential.

To determine if there is reasonable potential for the discharge to cause or contribute to an exceedance of water quality criteria for a given pollutant, EPA compares the maximum projected receiving water concentration to the criteria for that pollutant. If the projected receiving water concentration exceeds the criteria, there is reasonable potential, and a water quality-based effluent limit must be included in the permit. This section discusses how the maximum projected receiving water concentration is determined.

A. Mass Balance

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

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

where,

C_d = Receiving water concentration downstream of the effluent discharge (that is, the concentration at the edge of the mixing zone)
C_e = Maximum projected effluent concentration
C_u = 95th percentile measured receiving water upstream concentration
Q_d = Receiving water flow rate downstream of the effluent discharge = $Q_e + Q_u$
Q_e = Effluent flow rate (set equal to the design flow of the WWTP)
Q_u = Receiving water low flow rate upstream of the discharge (1Q10, 7Q10, 30B3 or 30Q5)

When the mass balance equation is solved for C_d, it becomes:

$$C_d = \frac{C_e Q_e + C_u Q_u}{Q_e + Q_u} \qquad \text{(Equation B-2)}$$

The above form of the equation is based on the assumption that the discharge is rapidly and completely mixed with the receiving stream. If the mixing zone is based on less than complete mixing with the receiving water, the equation becomes:

$$C_d = \frac{C_e Q_e + C_u (Q_u \times MZ)}{Q_e + (Q_u \times MZ)} \qquad \text{(Equation B-3)}$$

Where MZ is the fraction of the receiving water flow available for dilution. In this case, the mixing zone is based on complete mixing of the effluent and the receiving water, and MZ is equal to unity (1). Therefore, in this case, Equation B-3 is equal to Equation B-2.

If a mixing zone is not allowed, dilution is not considered when projecting the receiving water concentration and,

$$C_d = C_e \qquad \text{(Equation B-4)}$$

Equation B-2 can be simplified by introducing a "dilution factor,"

$$D = \frac{Q_e + Q_u}{Q_e} \qquad \text{(Equation B-5)}$$

On February 3, 2011, IDEQ using the USGS Idaho Streamstats program, provided EPA with the following critical flow information below. IDEQ recommended using:
30Q5 flow to calculate the chronic ammonia criterion;
1Q10 flow to calculate the acute criterion;
7Q10 flow to calculate the chronic criteria for chlorine;
Per §401 pre-certification, IDEQ also tentatively authorized 25% mixing for purposes of evaluating reasonable potential to exceed Idaho's Water Quality Standards.

30Q5 = 4.05 cfs = 2.61 mgd (for evaluating chronic ammonia criterion)
1Q10 = 2.28 cfs = 1.47 mgd (for evaluating the acute criterion)
7Q10 = 2.72 cfs = 1.75 mgd (for evaluating the chlorine chronic criterion)

Using the equation below and the above upstream statistical low flows, EPA calculated the relevant dilution factors.
Dilution factor = (Design Flow + (Stream Flow x 25%))/ Design Flow

For Chronic ammonia criterion:
Dilution Factor = (0.00625 mgd + (2.61 mgd x 0.25))/0.00625 mgd = 105.4

For Acute criterion (ammonia and chlorine):
Dilution Factor = (0.00625 mgd + (1.47 mgd x 0.25))/0.00625 mgd = 59.8

For Chronic criterion (chlorine):
Dilution Factor = (0.00625 mgd + (1.75 mgd x 0.25))/0.00625 mgd = 71.0

B. Maximum Projected Effluent Concentration

To calculate the maximum projected effluent concentration, EPA has used the procedure described in section 3.3 of the TSD, "Determining the Need for Permit Limits with Effluent Monitoring Data." In this procedure, the 99th percentile of the effluent data is the maximum projected effluent concentration in the mass balance equation.

As an example, in the case for chlorine, EPA has used the technology-based limit as the maximum projected effluent concentration. The technology-based effluent limit is used in this manner because water quality-based effluent limits are required only when a discharge of the pollutant at the technology-based limit has the reasonable potential to cause or contribute to water quality standards violations.

Since there are a limited number of data points available, the 99th percentile is calculated by multiplying the maximum reported effluent concentration by a "reasonable potential multiplier" (RPM). The RPM is the ratio of the 99th percentile concentration to the maximum reported

effluent concentration. The RPM is calculated from the coefficient of variation (CV) of the data and the number of data points. The CV is defined as the ratio of the standard deviation of the data set to the mean, but when fewer than 10 data points are available, the TSD recommends making the assumption that the CV is equal to 0.6. For ammonia, the CV is 0.84.

In Table B-5, EPA computed reasonable potential using a programmed spreadsheet. The results show that data from the facility show that ammonia from the facility did not have the potential to exceed applicable WQSs. The technology limits for chlorine also did not show reasonable potential to exceed WQSs in the receiving water. Therefore, based on these circumstances, EPA is not requiring effluent limits for ammonia, and the technology effluent limit for chlorine is retained. Although no new water quality based effluent limit is developed for chlorine at this time, the proposed permit would require chlorine monitoring and to comply with the existing technology-based chlorine limits as continued from the previous permit.

Table B-5: Reasonable Potential Calculations

Parameter		Idaho Water Quality Standards		Max concentration at edge of mixing zone											
	Ambient Concentration	Acute	Chronic	Acute	Chronic	LIMIT REQUIRED?	Effluent percentile value		Computed Max effluent conc. measured (metals as total recoverable)	Coeff of Variation		# of samples	Reasonable Potential Multiplier	Acute Dilution Factor	Chronic Dilution Factor
	Ug/l	*ug/L*	*ug/L*	*ug/L*	*ug/L*			*Pn*	*ug/L*	*CV*	*S*	*n*			
Ammonia (as N)[1,2]	590	4700	1580	1475.35	1092.32	**NO**	0.99	0.702	14400	0.84	0.73	13	3.72	59.8	105.4
Chlorine[1]	0	19.00	11.00	12.54	10.56	**NO**	NA	NA	750	NA	NA	NA	1.00	59.8	71

Footnotes:

1. Based on State of Idaho water quality standards.
2. Notes for Ammonia RP calculation:
(a) Acute &Chronic criteria based on complete set of IDEQ temp data at the 95th percentile;
(b). Ambient concentration based on 95th percentile with 1 outlier removed per Grubbs' Test at 0.01 significance level;
(c). Max. effluent concentration has 1 outlier removed from data set per Grubbs' Test at 0.01 significance level; and
(d). Using 95th percentile of ambient stream pH data.
3. For the chlorine RP calculation, the technology based weekly average limit of 0.75 mg/l was evaluated.

Since there is no reasonable potential for exceeding Idaho Water Quality Standards for Ammonia, no water quality based effluent limits are proposed. The technology based effluent limit for Chlorine also did not have reasonable potential to exceed the State's Water Quality Standards. The existing technology based effluent limits for Chlorine is retained from the previous permit per antidegradation and anti-backsliding regulations.

As reference, the following demonstrate how the water quality-based effluent limits (WQBELs) are calculated to determine WQBELs, if such effluent limits are necessary.

C. Wasteload Allocations (WLAs)

Wasteload allocations (WLAs) are calculated using the same mass balance equations used to calculate the concentration of the pollutant at the edge of the mixing zone in the reasonable potential analysis (Equations D-6 and D-7). To calculate the wasteload allocations, C_d is set equal to the acute or chronic criterion and the equation is solved for C_e. The calculated C_e is the acute or chronic WLA. Equation B-6 is rearranged to solve for the WLA, becoming:

$$C_e = WLA = D \times (C_d - C_u) + C_u \qquad \text{(Equation F-1)}$$

For metals, the Federal regulation at 40 CFR 122.45(c) requires that effluent limits be expressed as total recoverable metal. Therefore, EPA must calculate a wasteload allocation in total recoverable metal that will be protective of the dissolved criterion. This is accomplished by dividing the WLA expressed as dissolved by the criteria translator, as shown in equation F-2. The criteria translator (CT) is equal to the conversion factor, because site-specific translators are not available for this discharge. For ammonia, CT=1 for a non-metal, and C_u is the background concentration:

$$C_e = WLA = \frac{D \times (C_d - C_u) + C_u}{CT} \qquad \text{(Equation F-2)}$$

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

$$LTA_a = WLA_a \times \exp(0.5\,\delta^2 - z\,\delta) \quad \text{(Equation F-3)}$$
$$LTA_c = WLA_c \times \exp(0.5\,\delta_4^2 - z\,\delta_4) \quad \text{(Equation F-4)}$$

where,

$\delta^2 = \ln(CV^2 + 1)$

$\delta = \sqrt{\sigma^2}$

$\delta_4^2 = \ln(CV^2/4 + 1)$

$\delta = \sqrt{\sigma_4^2}$

$z = 2.326$ for 99^{th} percentile probability basis

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

To derive the maximum daily and average monthly effluent limits

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

$$MDL = LTA \times \exp(z_m\,\delta - 0.5\,\delta^2) \quad \text{(Equation F-5)}$$
$$AML = LTA \times \exp(z_a\,\delta_n - 0.5\,\delta_n^2) \quad \text{(Equation F-6)}$$

where δ, and δ^2 are defined as they are for the LTA equations (F-2 and F-3) and,

$\delta_n^2 = \ln(CV^2/n + 1)$

$\delta = \sqrt{\sigma_n^2}$

z_a = 1.645 for 95^{th} percentile probability basis
z_m = 2.326 for 99^{th} percentile probability basis
n = number of sampling events required per month (minimum of 4)

APPENDIX C

Endangered Species Act and Essential Fish Habitat

By implementation of Section 7 of the Endangered Species Act (ESA), EPA would request a consultation with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) when EPA determines that the proposed action might result in a possible impact to listed Endangered or to Threatened species.

The USFWS website (http://fws.gov/idaho/species/Idaho.SpeciesList.pdf) updated December 13, 2010, downloaded April 7, 2011) for Idaho County, Idaho, identified the following species and their respective listings:

Mammal:	Canada Lynx (*Lunx canadesis*) – Threatened
Fish:	Bull Trout (*Salvelinus confluentus*) – Threatened
Plant:	Marfarlane's four-o'clock (*Mirabilis macfarlanei*) – Threatened
Plant:	Spalding's catchfly (*Silene spaldingii*) – Threatened

The NOAA Fisheries Service website (http://www.nwr.noaa.gov/ESA-Salmon-Listings/upload/snapshot-7-09.pdf, updated July 1, 2009, downloaded September 28, 2010) has a tabulated chart entitled: "Endangered Species Act Status of West Coast Salmon & Steelhead". On September 28, 2010, EPA wrote to Dale Brege at NOAA concerning species listings appropriate for this facility. According to NOAA, the only listed species for ESA purposes is the Snake River Basin Steelhead (*Oncorhynchus mykiss*), which is listed as Threatened. NOAA also considers the Chinook Salmon for purposes of Essential Fish Habitat (EFH) under the Magnuson-Stevens Act.

EPA has evaluated possible impacts to the species listed by both USFWS and by NOAA which are shown below:

FWS - Mammal:	Canada Lynx (*Lunx canadesis*) – Threatened
FWS - Fish:	Bull Trout (*Salvelinus confluentus*) – Threatened
NOAA - Fish:	Steelhead (*Oncorhynchus mykiss*) – Threatened
NOAA – Fish:	Chinook Salmon (for EFH only)
FWS - Plant:	Marfarlane's four-o'clock (*Mirabilis macfarlanei*) – Threatened
FWS - Plant:	Spalding's catchfly (*Silene spaldingii*) – Threatened

Among the six species above, three are terrestrial species, which could not be affected in the river. These three terrestrial species are the Canada Lynx, the Marfarlane's four-o'clock, and the Spaldings's catchfly. Therefore, these three species are not further evaluated for possible impacts from the facility. The remaining three species of interest are fish, which could be impacted in the river, and each are further described below.

Sockeye salmon (*Oncorhynchus nerka*) - Endangered

Sockeye salmon are the third most abundant of the five Pacific salmon species in North America. These fish exhibit a greater variety of life history patterns than any other species within the genus, *Oncorhynchus*. Anadromous sockeye rear in lakes for 1-2 years, then migrate out to sea for 2-3 years before returning to freshwater. Residual populations of sockeye, also known as kokanee, remain in freshwater throughout their life cycle. Sockeye undergo a remarkable transformation in color and shape as they return to freshwater to spawn. The heads of both male and female fish turn bright green, while the bodies turn bright red. Male fish also develop humped backs and severely hooked jaws. The distribution of sockeye salmon ranges to both sides of the Pacific Ocean. Sockeye salmon migrate extensively in the sea to areas in the North Pacific, Bristol Bay, and the Bering Sea. They do not reside in coastal waters during their oceanic life stage (NMFS, R. Gustafson, personal communication with EPA Region 10, 10 August 1998).

Threats to Snake River sockeye salmon include hydropower development, agricultural uses of water, commercial fisheries in the lower Columbia River, drought, and hatchery programs. Agricultural uses of water involve withdrawing water from rivers for storage, diverting water for irrigation, and blockage of habitat for agricultural purposes. All of these practices contribute to the destruction of Snake River sockeye habitat. Commercial harvest on the lower Columbia River and on sockeye spawning grounds contributed significantly to the decline of the species in the past. Fish reared in hatchery programs may impact Snake River sockeye as they jointly migrate through the rivers, estuaries and ocean, and may compete with sockeye for food (NMFS, 1996c).

Critical habitat established by NMFS includes the Columbia, Snake, and Salmon Rivers, and a number of lakes, including Redfish Lake (58FR68543). Sockeye salmon are native to the Snake River and historically were abundant in several lake systems in Idaho and Oregon. In this century, a variety of factors (including overfishing, irrigation diversions, obstacles to migrating fish, and eradication through poisoning) have led to the demise of all Snake River sockeye salmon except those returning to Redfish Lake in the Stanley Basin of Idaho. These fish spawn on the shoals of Redfish Lake in the fall, and fry emerge in the spring. Returns to Redfish Lake between 1989-1994 have numbered fewer than ten fish. Adults of this population travel farther from the sea (about 900 miles) and to a higher elevation (6,500 feet) than adults of any other population (NMFS, 1996c).

While NMFS has designated Columbia, Snake, and Salmon Rivers as critical habitat for the Snake River sockeye salmon, the Red River is not considered critical habitat for this species. In addition, the Snake River sockeye salmon is not known to occur in the South Fork of the Red River. Therefore, it is not expected that reissuance of the wastewater discharge permit to the Red River Ranger Station will affect Snake River sockeye salmon.

Chinook Salmon (*Oncorhynchus tshawytscha*) – listed under Essential Fish Habitat

Chinook salmon are the largest of the five Pacific salmon species occurring in North America. The commercial fishing industry values chinook salmon highly, due in no small part to their large size. Also known as king salmon, these fish are caught using gill nets in both the high seas salmon fishery as well as coastal fisheries. Their migration patterns exhibit a high degree of variability as do their ages at seaward migration, and their distribution spans both sides of the Pacific Ocean (Groot and Margolis, 1991).

Chinook salmon (from here on referred to as chinook) have a diversity of juvenile and adult life history strategies. Biological characterization of chinook populations differentiates these fish into two primary population segments: spring/summer and fall chinook (NMFS 1995).

1. Snake River spring/summer chinook salmon

Migrating adult spring chinook enter the Columbia River between February and May, and adult summer chinook enter in June and July (Bevan et al. 1994). Both spring and summer chinook spawn in high elevation tributaries from August through September and offspring rear in streams for one year before emigrating to the ocean in the spring (April through June). Ocean residency varies but is generally one to four years.

Snake River spring/summer chinook are distributed throughout the Snake River mainstem and its tributaries. The mainstem provides spawning and rearing habitat for chinook as well as a migration corridor (USFS 1994). Critical habitat, which includes all river reaches presently or historically accessible, has been designated for this threatened species by the NMFS (58 Fed. Reg. 68543). These reaches are the Columbia, Snake, and Salmon rivers and all Snake River and Salmon River tributaries except the Clearwater River. Areas not included as critical habitat for Snake River spring/summer chinook are those reaches above impassable natural falls and Dworshak and Hells Canyon dams. Also, NMFS has proposed excluding the reach above Napias Creek Falls, as this barrier is considered a historical blockage to chinook access of upper Napias Creek (Federal Register Vol. 64, No.105, June 1999).

The native runs of chinook salmon in the Clearwater River subbasin were nearly, if not totally, eliminated by hydropower development. In 1927, Island Power and Light Company built a dam on the river near its mouth at Lewiston, Idaho. From 1927 through 1940, inadequate adult fish passage in the dam's fish ladder virtually eliminated salmon runs into the basin (CBFWA 1990). Fulton (1968) stated the dam "prevented passage" during the 14-year period, but the area above the dam was subsequently made available to salmon by improvements to the fishway in 1940. He further stated that chinook salmon returning since then were from "re-stocking." Holmes (1961) provided a detailed record of fish passage at the dam. Spring and summer chinook salmon were observed during only 3 years prior to 1950, after which counts were conducted annually. Counts of 311 and 102 spring and/or summer chinook salmon were reported in 1928 and 1929, respectively. In 1938, only two fish were counted. When counting resumed in 1950, seven chinook salmon were observed passing the dam during the time period typical for spring- or summer-run fish. Some or all of these fish could have been from either restocking or straying

(Chapman et al. 1991). The dam was removed in 1973. Harpster Dam on the South Fork of the Clearwater River blocked chinook salmon runs into this tributary (CBFWA 1990).

Based on these data, NMFS has concluded that upper reaches of the Clearwater River (including the South Fork of the Red River) Aare not considered critical for the conservation of listed Snake River Spring/summer chinook salmon (58FR68543). Therefore, it is not expected that reissuance of the wastewater discharge permit to the Red River Ranger Station will affect Snake River Spring/summer chinook salmon.

2. Snake River fall chinook salmon

Snake River fall chinook have a life history pattern typical of >ocean-type' chinook. Generally, ocean-type chinook spend all of their oceanic life in coastal waters less than 1000 km from their natal streams and return to spawn in those natal streams in the fall at age 2-5. Emergent fry migrate seaward slowly from the mainstem Snake River within several weeks of emergence (NMFS, 1996a). Most fall chinook have migrated to sea within their first year. In the ocean, juvenile fall chinook feed primarily on herring, pelagic amphipods and crab megalopa, while adult fish feed on herring and squid (Groot and Margolis, 1991).

Threats to fall chinook include hydropower development, commercial, recreational and sports fisheries, drought, and poor ocean survival. Hydropower development is commonly regarded as the most substantial threat to the survival of fall chinook for three reasons: alteration/inundation of salmon habitat, mortality associated with downstream migration of juveniles, and migration delay due to the presence and operation of dams on the Snake and Columbia Rivers (NMFS, 1996a). Therefore, it is not expected that reissuance of the wastewater discharge permit to the Red River Ranger Station will affect Snake River fall chinook salmon.

Steelhead (*Oncorhynchus mykiss*) - Threatened

Steelhead have the most complex life histories of any Pacific salmon species. These fish have variable run timing and degree of anadromy and are capable of more than one spawning cycle. In the Snake River subbasin, steelhead are stream-maturing as they enter freshwater in a sexually immature state and require several months in freshwater before they mature then spawn. These stream maturing fish are referred to as summer run based on the time that they enter freshwater. Summer steelhead of the Snake River subbasin have generally two potential run timings. The A-run enters freshwater from June to August and the B-run enters fresh water from late August to October. A-run fish have generally spent one year in the ocean while B-run fish have spent two.

Steelhead can have various life histories in terms of the degree of anadromy. The anadromous form that migrates between the ocean and freshwater are termed steelhead, while the non-anadromous or resident= form does not migrate and is called rainbow trout. Like steelhead, rainbow trout spawn in winter/spring and emerge in spring/early summer. In inland *O. mykiss* populations, including the upper Snake River basin, both anadromous and non-anadromous forms commonly co-occur. Although both the anadromous and non-anadromous forms are classified as the same species taxonomically, the relationship of the two forms in a given area is

typically unclear. The migratory and resident forms of this species may be ecophenotypes within a common gene pool or they may be distinct due to reproductive isolation (Zimmerman and Reeves 2000).

The primary factors that have affected Steelhead populations are dam construction (which restricts the ability of individuals to reach their spawning areas); and habitat loss and degradation due to human activities such as land development, logging, mining, and agriculture.

The South Fork Clearwater River (including the South Fork Red River) has been designated as critical habitat for the Snake River Steelhead and the Clearwater stock of Steelhead salmon has been identified as a population of special concern. However, reissuance of the wastewater discharge permit to the Red River Ranger Station would not affect Steelhead. As discussed above, the primary threats to Steelhead are dams and habitat degradation. Reissuance of the Red River Ranger Station wastewater discharge permit would not lead to increased dam construction or habitat degradation. Therefore, reissuance of the permit will not affect Steelhead.

Bull Trout (*Salvelinus confluentus*) - Threatened

The bull trout is a member of the char subgroup of the family Salmonidae. Bull trout populations are known to exhibit two distinct life history forms: 1) resident bull trout that spend their entire life cycle in the same (or nearby) streams in which they were hatched, and 2) migratory bull trout which can exhibit either a fluvial life history- spawning in tributary streams where the young rear from one to four years before migrating to a river, or an adfluvial form-- spawning in tributary streams where the young rear before migrating to a lake (Fraley and Shepard 1989).

Bull trout generally mature at between 5 and 7 years of age (Fraley and Shepard 1989; Goetz 1989; Leathe and Enk 1985). Spawning occurs from August through November (Armstrong and Murrow 1980; Brown 1994; McPhail and Murray 1979). Embryos incubate over winter and hatch in late winter or early spring (Weaver and White 1985). Emergence has been observed over a relatively short period of time after a peak in stream discharge from early April through May (Rieman and McIntyre 1993).

In-stream habitat requirements make bull trout exceptionally sensitive to activities which directly or indirectly affect stream channel integrity and natural flow patterns, including groundwater flow. Stream flow, bed load movement, and channel instability influence the survival of juvenile bull trout (Weaver 1985; Goetz 1989). The presence of fine sediments reduces pool depth, alters substrate composition, reduces interstitial spaces in substrate, and causes channel braiding, all of which can negatively impact the survival of bull trout eggs and fry. Cover, such as large woody debris, undercut banks, boulders, pools, side margins, and beaver ponds, is heavily utilized by all life stages of bull trout for rearing, foraging and resting habitat, as well as for protection from predators (USFWS 1998a). Bull trout prefer cold waters, and temperatures in excess of 15 ^{o}C are considered to limit their distribution (Rieman and McIntyre 1993). USACE (1999) suggested that water temperature in fact influences bull trout distribution more than any other habitat factor. Finally, migration corridors are important for sustaining bull trout populations, allowing

for gene flow and connecting wintering areas to summer/foraging habitat (Rieman and McIntyre 1993).

The bull trout is threatened by habitat degradation (e.g., land management activities with negative impacts on water quality or spawning habitat); passage restrictions, mortality, or entrapment at dams; and competition from non-native lake and brook trout (USFWS 1998b). According to USACE (1999), bull trout populations are likely affected by dam operation as well as augmentation (i.e., spill) used to mitigate effects on salmon migration by increasing fish passage efficiency. Bull trout growth, survival and long-term population persistence are correlated with stream habitat conditions such as cover, channel stability, substrate composition, temperature, and migratory corridors (Rieman and McIntyre 1993). These habitat features are often impaired as the result of land management activities such as forest harvest, road building, hydropower development, irrigation diversions, and grazing. Mining has altered stream channel morphology, increased sediment transport and deposition, decreased vegetative cover, and contributed to acidic water discharge and heavy metal water pollution (Chapman et al. 1991).

Reissuance of the wastewater discharge permit to the Red River Ranger Station will not affect bull trout. As discussed above, the primary threats to bull trout are changes in water temperature and habitat degradation. Reissuance of the Red River Ranger Station wastewater discharge permit will not lead to increased habitat degradation. In addition, the facility will be required to monitor for temperature in both its effluent and upstream waters. Therefore, reissuance of the permit will not affect Bull trout.

Analysis

Reissuance of an NPDES permit for the Red River Ranger Station WWTP will not result in loss of habitat and will not result in habitat destruction. EPA also considered the size of the facility for evaluation of potential impacts. The existing treatment plant is relatively new, with a small design flow rate of 0.00625 mgd. For purposes of comparison based on the design flow rate criteria, EPA generally considers wastewater treatment plants having 1.0 mgd or greater to be major facilities. This facility is obviously much smaller than having a designed flow rate of 1.0 mgd, and is not considered a major facility. In addition, the proposed permit has placed effluent limits that are both technology based and water quality based standards.

As shown above, the evaluation of each listed species has resulted in no measurable impact. In consideration of this conclusion, EPA has tentatively determined that issuance of the NPDES permit is protective and there is **no effect** to all listed ESA species in the vicinity of the discharge.

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 and/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. It is predicted that the Red River Ranger Station's WWTP will not cause any of the above adverse effects to fish habitat, including the Chinook Salmon.

The circumstances discussed indicate that there is no measurable impact. Therefore EPA has determined that the re-issuance of this permit has **no effect** on EFH in the vicinity of the discharge.

APPENDIX D

MAP OF WASTEWATER TREATMENT PLANT LOCATION