



FACT SHEET

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

**U.S. Department of Agriculture
U.S. Forest Service, Slate Creek Ranger Station
HC01 Box 70
White Bird, Idaho 83554**

NPDES Permit Number: ID-0020737

Public Notice Start Date: July 30, 2012
Public Notice Expiration Date: August 29, 2012

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

The EPA Proposes To Reissue NPDES Permit

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

This Fact Sheet includes:

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

State Certification for Facilities that Discharge to State Waters

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

Idaho Department of Environmental Quality
Lewiston Regional Office
1118 F Street
Lewiston, Idaho 83501
ph: (208) 799-4370
fx: (208) 799-3451
toll-free: (877) 541-3304

Public Comment

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

After the Public Notice expires and all comments have been considered, the EPA Region 10's Director for the Office of Water and Watersheds will make a final decision regarding permit reissuance. If no substantive comments are received, the tentative conditions in the draft permit will become final, and the permit will become effective upon issuance. If comments are received, the EPA will address the comments and issue the permit. In such a case, the permit will become effective at least 30 days after the issuance date unless an appeal is submitted to the Environmental Appeals Board within 30 days.

Documents are Available for Review.

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

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

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

IDEQ
Lewiston Regional Office
1118 F Street
Lewiston, ID 83501
ph: (208) 799-4370
fx: (208) 799-3451
toll-free: (877) 541-3304

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

TABLE OF CONTENTS

I.	APPLICANT	5
II.	FACILITY INFORMATION	5
A.	Facility Description	5
B.	Compliance History	5
III.	RECEIVING WATER	6
A.	Low Flow Conditions	6
B.	Water Quality Standards	7
C.	Water Quality Limited Segment.....	7
IV.	EFFLUENT LIMITATIONS.....	8
A.	Basis for Permit Effluent Limits.....	8
B.	Proposed Effluent Limitations.....	9
V.	MONITORING REQUIREMENTS	10
A.	Basis for Effluent and Surface Water Monitoring Requirements	10
B.	Effluent Monitoring Requirements.....	10
VI.	SLUDGE (BIOSOLIDS) REQUIREMENTS	11
VII.	OTHER PERMIT CONDITIONS	11
A.	Quality Assurance Plan Implementation.....	11
B.	Operation and Maintenance Plan Implementation	12
C.	Sanitary Sewer Overflows and Proper Operation and Maintenance	12
D.	Electronic Submission of Discharge Monitoring Reports.....	13
E.	Additional Permit Provisions.....	13
VIII.	OTHER LEGAL REQUIREMENTS	13
A.	Endangered Species Act	13
B.	Essential Fish Habitat.....	14
C.	State Certification	14
D.	Permit Expiration	14
IX.	DEFINITIONS AND ACRONYMS	14
X.	REFERENCES.....	15
	Appendix A – Location Map.....	16
	Appendix B – Basis for Effluent Limitations	17
A.	Technology-Based Effluent Limits	17
B.	Water Quality-Based Effluent Limits	18
C.	Facility-Specific Water Quality-based Limits	19

I. APPLICANT

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

Facility Name: U.S. Forest Service, Slate Creek Ranger Station

Mailing Address: Nez Perce National Forest, 104 Airport Road, Grangeville,
Idaho 83530

Facility Address: 304 Slate Creek Road, White Bird, Idaho 83554

Contact: Joe Bonn, Facilities Engineer, (208) 983 - 7002

II. FACILITY INFORMATION

A. Facility Description

The U.S. Forest Service, Slate Creek Ranger Station owns, operates and has maintenance responsibility for a facility that treats domestic sewage that is primarily from housing for visitors and U.S. Forest Service employees through a separated sanitary sewer. There are no significant industrial users.

The wastewater treatment plant consists of a concrete lagoon with aeration. The collection system is gravity fed to a lift station that pumps the influent approximately 200 feet to the lagoon. One section of the lagoon, divided with a baffle extending from the lagoon surface to about two feet from the bottom, allows for some settling. Disinfection is by chlorination prior to discharge.

The facility serves a population of 50-150 and has a design flow rate of 0.012 mgd.

Permit History

The facility's previous permit became effective on January 1, 2004 and expired on January 1, 2009. EPA received a complete application for permit reissuance on July 7, 2008. Since the permit was not reissued before the expiration date of January 1, 2009 and since the U.S. Forest Service submitted a timely application, the permit was administratively extended pursuant to 40 CFR 122.6.

B. Compliance History

A review of the Discharge Monitoring Reports (DMRs) from February 2004 to November 2011 found the following violations of effluent limits:

BOD₅

A violation of the weekly average load limit of 5 lb/day, at 10 lb/day in August 2006.

pH

A violation of the instantaneous minimum of 6.5, at 6.4 in May 2009.

Total Suspended Solids

A violation of the monthly average concentration limit of 30 mg/L, at 76.5 in July 2004.

A violation of the weekly average concentration limit of 45 mg/L, at 76.5 in July 2004.

Total Residual Chlorine

Violations of the monthly average concentration limit of 0.5 mg/L, at 0.63 in April 2004 and 0.52 in April 2006.

Violations of the weekly average concentration limit of 0.75 mg/L, at 0.8 in April 2004 and September 2009.

E. coli

A violation of the instantaneous maximum limit of 406 colonies/100 ml, at 921 in August 2011.

Total Suspended solids, percent removal

A violation of the monthly average minimum percent removal limit of 85 percent, at 64 percent in September 2011.

III. RECEIVING WATER

The treated effluent from the Slate Creek Ranger Station's wastewater treatment facility is discharged intermittently to the Salmon River at approximate river mile 66, just upstream of the confluence with Slate Creek, which lies within the Lower Salmon Subbasin (HUC 17060209), Salmon River Little Salmon River to Slate Creek. Beneficial uses for this segment of the Salmon River are cold water communities, primary contact recreation, special resource water, and domestic, agricultural and industrial water supply. The outfall is located at latitude 45° 38' 14" N and longitude 116° 16' 59" W.

A. Low Flow Conditions

The *Technical Support Document for Water Quality-Based Toxics Control* (hereafter referred to as the TSD) (EPA, 1991) and the Idaho Water Quality Standards (WQS) recommend the flow conditions for use in calculating water quality-based effluent limits (WQBELs) using steady-state modeling. The TSD and the Idaho WQS state that WQBELs intended to protect aquatic life uses should be based on the lowest seven-day average flow rate expected to occur once every ten years (7Q10) for chronic criteria and the lowest one-day average flow rate expected to occur once every ten years (1Q10) for acute criteria.

Because the chronic criterion for ammonia is a 30-day average concentration not to be exceeded more than once every three years, EPA has used the 30B3 for the chronic ammonia criterion instead of the 7Q10. The 30B3 is a biologically-based flow rate designed to ensure an excursion frequency of no more than once every three years for a 30-day average flow rate. For human health criteria, the Idaho water quality standards recommend the 30Q5 flow rate for non-carcinogens, and the harmonic mean flow rate for carcinogens.

The 1Q10, 7Q10, 30B3, 30Q5, and harmonic mean flow rates of Salmon River are 1710 cfs, 2240 cfs, 2620 cfs, 2930 cfs and 548010 cfs, respectively. These calculations used flow data from the USGS station 133317000, Salmon River near White Bird, Idaho, which is slightly

downstream of the Slate Creek Ranger Station outfall and the confluence of Slate Creek. This data is from the USGS station on the Salmon River closest to the Slate Creek Ranger Station outfall. The period of record for these calculations was 1983 to 2011.

B. Water Quality Standards

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

Idaho Water Quality Standards (WQS) summarize the surface water use designations for the State of Idaho: that all waters of the State of Idaho are protected for the uses of industrial and agricultural water supply (IDAPA 58.01.02.100.03.b and c), wildlife habitats (IDAPA 58.01.02.100.04) and aesthetics (IDAPA 58.01.02.100.05). The Lower Salmon Subbasin, Salmon River Little Salmon River to Slate Creek (IDAPA 58.01.02.130.11, S-11) is protected for cold water biota. Cold water biota is water quality appropriate for the protection and maintenance of a viable aquatic life community for cold water species. This segment of the Salmon River is also designated for domestic water supply and primary contact recreation for water quality appropriate for prolonged and intimate contact by humans or for recreational activities when the ingestion of small quantities of water is likely to occur. Such activities include, but are not restricted to, those used for swimming, water skiing or skin diving. This segment of the Salmon River is also designated for special resource water, recognized as needing intensive protection to preserve outstanding or unique characteristics; or to maintain current beneficial use.

Antidegradation

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

C. Water Quality Limited Segment

A water quality limited segment (WQLS) is any waterbody where it is known that water quality does not meet applicable water quality standards or is not expected to meet applicable water quality standards. In accordance with section 303(d) of the Clean Water Act, States must identify waters not achieving water quality standards in spite of application of technology-based controls in National Pollutant Discharge Elimination System (NPDES)

permits for point sources. Such waterbodies are known as water quality limited segments (WQLSs), and the list of such waterbodies is called the “303(d) list.” Once a water body is identified as a WQLS, the States are required under the Clean Water Act to develop a total maximum daily load (TMDL).

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

On the State of Idaho’s 2010 Integrated Water Quality Monitoring and Assessment Report (Integrated Report), the Salmon River – Little Salmon River to Slate Creek, is designated an Unassessed Water, and is not on the 303(d) list for any parameter.

IV. EFFLUENT LIMITATIONS

A. Basis for Permit Effluent Limits

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

Parameter	Units	Monthly Avg.	Weekly Avg.	Instantaneous Maximum Limit	Sample Frequency	Sample Type
Flow	MGD	---	---	---	Daily	Measured
Biochemical Oxygen Demand (BOD ₅)	mg/l	30	45	---	1/month	Grab
	lbs/day	3 ²	5	---		
Total Suspended Solids (TSS)	mg/l	30	45	---	1/month	Grab
	lbs/day	3 ²	5	---		
E. coli Bacteria	colonies/100 ml	126	---	406	5/month	Grab
pH	s.u.	6.5 – 9.0			1/week	Grab

Parameter	Units	Monthly Avg.	Weekly Avg.	Instantaneous Maximum Limit	Sample Frequency	Sample Type
Total Residual Chlorine	mg/L	0.5	0.75		1/week	Grab
	lbs/day	0.05	0.08			
Total Ammonia as N ¹	mg/L	---			1/month	Grab

¹Monitoring shall be conducted once per month starting in January 2006 and lasting for one year.

²85% Removal Requirements for BOD₅ and TSS: For each month, the monthly average effluent concentration shall not exceed 15 percent of the monthly average influent concentration.

B. Proposed Effluent Limitations

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

There must be no discharge of any floating solids, visible foam in other than trace amounts, or oily wastes that produce a sheen on the surface of the receiving water.

Table 2 below presents the proposed effluent limits for 5-day biochemical oxygen demand (BOD₅), total suspended solids (TSS), *Escherichia coli* (*E. coli*), pH, total ammonia, and the minimum percent removal requirements for BOD₅ and TSS.

Parameters	Average Monthly Limit	Average Weekly Limit	Minimum Percent Removal ¹	Daily Maximum Limit
BOD ₅	30 mg/L	45 mg/L	85%	--
	3 lbs/day ²	5 lbs/day ²		--
TSS	30 mg/L	45 mg/L	85%	--
	3 lbs/day ²	5 lbs/day ²		--
<i>E. coli</i> Bacteria	126 colonies /100mL ³	--	--	406 colonies /100mL ⁴
Total Residual Chlorine ²	0.5 mg/L	0.75 mg/L		
	0.05 lb/day	0.08 lb/day		
pH	6.5 – 9.0 standard units			

1. Percent removal is calculated using the following equation: ((influent - effluent) / influent) x 100, this limit applies to the average monthly values.
2. Loading is calculated by multiplying the concentration in mg/L by the design flow of 0.012 mgd and a conversion factor of 8.34 lbs/gallon.

3. The monthly average for *E. coli* is the geometric mean of all samples taken during the month, based on a minimum of five samples, taken every 3-5 days within a calendar month.
4. Instantaneous maximum limit

V. MONITORING REQUIREMENTS

A. Basis for Effluent and Surface Water Monitoring Requirements

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

B. Effluent Monitoring Requirements

1. Parameters

BOD₅, TSS, *E. coli*, Flow, pH

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

Ammonia monitoring is necessary to generate data used in determining a reasonable potential for exceeding water quality standards. Ammonia effluent levels also provide an indication of the operational efficiency of the wastewater treatment plant. In the proposed permit, ammonia effluent sampling will once again be required once per month, but expanded to the entire term of the permit. Appendix B indicates no reasonable potential to violate water quality standards for ammonia, so the proposed permit contains no effluent limits for ammonia.

2. Frequency

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

Table 3 presents the effluent monitoring requirements for the permittee in the draft permit. Each of the effluent monitoring requirements from the previous permit was evaluated to determine whether the requirements should be continued, updated or eliminated.

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

Table 3 Effluent Monitoring Requirements				
Parameter	Unit	Sample Location	Sample Frequency	Sample Type
Flow	mgd	Effluent	Daily	Measured
BOD ₅	mg/L	Influent and Effluent ¹	1/month	Grab
	lbs/day	Effluent	1/month	Calculation
	% Removal	---	---	Calculation
TSS	mg/L	Influent and Effluent ¹	1/month	Grab
	lbs/day	Effluent	1/month	Calculation
	% Removal	---	---	Calculation
pH	standard units	Effluent	1/week	Grab
<i>E.coli</i>	colonies/100 ml	Effluent	5/month	Grab
Total Ammonia as N ²	mg/L	Effluent	1/month	Grab
Total Residual Chlorine	mg/L	Effluent	1/week	Grab

1. Influent and effluent composite samples shall be collected during the same 24-hour period.
2. Monitoring shall be conducted once per month during the full term of the permit.

VI. SLUDGE (BIOSOLIDS) REQUIREMENTS

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

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

VII. OTHER PERMIT CONDITIONS

A. Quality Assurance Plan Implementation

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

The plan shall be retained on site and be made available to the EPA and IDEQ upon request.

B. Operation and Maintenance Plan Implementation

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

C. Sanitary Sewer Overflows and Proper Operation and Maintenance

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

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

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

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

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

Record Keeping – The permittee is required to keep records of SSOs. The permittee must retain the reports submitted to the EPA and other appropriate reports that could include work orders associated with investigation of system problems related to a SSO, that describes the

steps taken or planned to reduce, eliminate and prevent reoccurrence of the SSO. (See 40 CFR 122.41(j)).

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

The permittee may refer to Guide for Evaluating Capacity, Management, Operation and Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems (EPA 305-B-05-002). This guide identifies some of the criteria used by the EPA inspectors to evaluate a collection system's management, operation and maintenance program activities. Owners/operators can review their own systems against the checklist (Chapter 3) to reduce the occurrence of sewer overflows and improve or maintain compliance.

D. Electronic Submission of Discharge Monitoring Reports

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>.

E. Additional Permit Provisions

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

VIII. OTHER LEGAL REQUIREMENTS

A. Endangered Species Act

The Endangered Species Act requires federal agencies to consult with National Oceanic and Atmospheric Administration Fisheries (NOAA) and the U.S. Fish and Wildlife Service (FWS) if their actions could adversely affect any threatened or endangered species. The NOAA National Marine Fisheries Service, Northwest Regional Office, designates salmon species in the Snake River Basin endangered or threatened.

Based on the USFW website, Idaho County, the location of the Slate Creek Ranger Station's WWTP discharge, contains critical habitat for the threatened fish species Bull Trout; no other FWS listed aquatic species resides in Idaho County. The Salmon River is not impaired, the effluent limits are the more stringent of technology-based or water-quality based values, and the design flow of the Slate Creek Ranger Station WWTP is 0.012 mgd, compared to typical river flows of 1000 mgd or more. Therefore, the EPA determines the discharges from the Slate Creek Ranger Station's WWTP will have no effect on listed species.

B. Essential Fish Habitat

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

NOAA National Marine Fisheries Services, Northwest Regional Office, has designated EFH for salmon in the area of the discharge, HUC 17060209, the Lower Salmon Subbasin. However, for the same reasons contained in Section VIII.A above, the EPA concludes that issuance of this permit will have no effect on EFH.

C. State Certification

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

D. Permit Expiration

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

IX. DEFINITIONS AND ACRONYMS

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

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

X. REFERENCES

1. U.S. Forest Service, Slate Creek Ranger Station, ID, NPDES permit, effective January 1, 2004 to January 1, 2009.
2. Idaho Administrative Procedures Act (IDAPA), 2006. Section 58, Water Quality Standards and Wastewater Treatment Requirements. Idaho Department of Environmental Quality Rules, Title 01, Chapter 02.
3. U.S. EPA, 1973. *Water Quality Criteria 1972* (EPA R3-73-033).
4. EPA. 1991. Technical Support Document for Water Quality-based Toxics Control. US Environmental Protection Agency, Office of Water, EPA/505/2-90-001.
5. EPA, 2010. U.S. EPA NPDES Permit Writer's Manual, US Environmental Protection Agency, Office of Wastewater Management, EPA-833-K-10-001. |

Appendix B – Basis for Effluent Limitations

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

A. Technology-Based Effluent Limits

The CWA requires POTWs to meet requirements based on available wastewater treatment technology. Section 301 of the CWA established a required performance level, referred to as “secondary treatment,” which all POTWs were required to meet by July 1, 1977. The EPA has developed and promulgated “secondary treatment” effluent limitations, which are found in 40 CFR 133.102. These technology-based effluent limits apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by application of secondary treatment in terms of BOD₅, TSS and pH. The federally promulgated secondary treatment effluent limits are listed in Table B-1.

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.

Mass-based Limits

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

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

The mass limits for BOD₅ and TSS are calculated as follows:

$$\text{Average Monthly Limit} = 30 \text{ mg/L} \times 0.012 \text{ mgd} \times 8.34 = 3 \text{ lbs/day}$$

$$\text{Average Weekly Limit} = 45 \text{ mg/L} \times 0.012 \text{ mgd} \times 8.34 = 5 \text{ lbs/day}$$

Chlorine

Chlorine is often used to disinfect municipal wastewater existing to discharge. The Water Pollution Control Federation's *Chlorination of Wastewater* (1976) states that a properly designed and maintained wastewater treatment facility can achieve adequate disinfection if a 0.5 mg/L chlorine residual is maintained after 15 minutes of contact time. A treatment plant that provides adequate chlorination contact time can meet the 0.5 mg/L limit on a monthly average basis. The average weekly limit is expressed as 1.5 times the average monthly limit or in this case 0.75 mg/L. The technology based limits for total residual chlorine are 0.5 mg/L average monthly and 0.75 mg/l average weekly.

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

$$\text{Monthly average} = 0.5 \text{ mg/L} \times 0.012 \text{ mgd} \times 8.34 = 0.05 \text{ lbs/day}$$

$$\text{Weekly average} = 0.75 \text{ mg/L} \times 0.012 \text{ mgd} \times 8.34 = 0.08 \text{ lbs/day}$$

B. Water Quality-Based Effluent Limits

Statutory Basis for Water Quality-Based Limits

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

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

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

Reasonable Potential Analysis

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

Sometimes it is appropriate to allow a small volume of receiving water to provide dilution of the effluent; these volumes are called mixing zones. Mixing zone allowances will increase the allowable mass loadings of the pollutant to the water body and decrease treatment requirements. Mixing zones can be used only when there is adequate receiving water flow volume and the concentration of the pollutant of concern in the receiving water is below the numeric criterion necessary to protect the designated uses of the water body. Mixing zones must be authorized by the State. The State of Idaho authorized a mixing zone of 25 percent of the receiving water resulting in an acute dilution ratio of 23,751 to 1, a chronic dilution ratio of 31112, and a chronic dilution ratio for ammonia of 36389 to 1.

$$Q_e = \text{maximum effluent flow} = 0.012 \text{ mgd} = 0.018 \text{ CFS}$$

$$1Q_{10} = \text{upstream low flow} = 1710 \text{ CFS}$$

$$\text{Acute dilution ratio} = \frac{0.018 + 1710(0.25)}{0.018} = 23751$$

$$7Q_{10} = \text{upstream low flow} = 2240 \text{ CFS}$$

$$\text{Chronic dilution ratio} = \frac{0.018 + 2240(0.25)}{0.018} = 31112$$

For ammonia

$$30B3 = 2620 \text{ CFS}$$

$$\text{Chronic dilution ratio} = \frac{0.018 + 2620(0.25)}{0.018} = 36389$$

Procedures for Deriving Water Quality-based Effluent Limits

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

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

C. Facility-Specific Water Quality-based Limits

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

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

limit calculation and 99 percent for the daily maximum limit calculation.

Floating, Suspended or Submerged Matter/Oil and Grease

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

pH

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

Ammonia, Total (as Nitrogen)

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

Table B-3 Water Quality Criteria for Ammonia	
Acute Criterion	Chronic Criterion
$\frac{0.275}{1 + 10^{7.204 - \text{pH}}} + \frac{39}{1 + 10^{\text{pH} - 7.204}}$	$\left(\frac{0.0577}{1 + 10^{7.688 - \text{pH}}} + \frac{2.487}{1 + 10^{\text{pH} - 7.688}} \right) \times \text{MIN} \left(2.85, 1.45 \times 10^{0.028 \times (25 - T)} \right)$

The acute and chronic criteria are derived from the annual 95th percentiles of pH and temperature. The permittee reported effluent data for ammonia from January 2010 to December 2011, with some gaps; and surface water monitoring data approximately quarterly from March 2010 to October 2011. Only 5 sets of surface water monitoring data were provided, so the ammonia criteria will be derived from the maximum values below for each of pH and temperature.

95 th Percentile (maximum) Ambient pH	8.4
95 th Percentile (maximum) Ambient Temperature °C	16.0
Highest Background Ammonia mg/L	0.144
Highest Discharge Ammonia mg/L	6.01
Coefficient of Variation	1.34

The ammonia acute standard is 2.59 mg/L and the chronic standard is 1.17 mg/L. The reasonable potential analysis shows the facility's discharge does not have the potential to cause or contribute to an exceedance of the acute or chronic criteria, therefore, no effluent limits for ammonia are required.

Escherichia coli (E. coli) Bacteria

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

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

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

Chlorine

Idaho water quality standards at IDAPA 58.01.02.210.01 establish a chlorine chronic aquatic life criterion of 11 µg/L and an acute aquatic life criterion 19 µg/L in the Salmon River. Slate Creek Ranger Station does not have a reasonable potential to violate the water quality standards for chlorine in the Salmon. Therefore, water quality based effluent limits for chlorine are not required. However, the EPA will continue to include technology based limits of 0.5 mg/L average monthly and 0.75 mg/L average weekly derived for the proposed permit. The EPA will

continue with the technology based monthly mass limit of 0.05 lbs/day and the weekly limit of 0.08 lbs/day.

REASONABLE POTENTIAL FOR AQUATIC LIFE

	Ambient Conc.	State Water Quality Standard		Max concentration at edge of...		LIMIT REQ'D?	Effluent percentile value	Pn	Max effluent conc. measure	Coeff Variation	# of samples	Multiplier	Acute Dil'n Factor	Chronic Dil'n Factor
		Acute	Chronic	Acute Mixing Zone	Chronic Mixing Zone									
Parameter	Mg/L	mg/L	mg/L	mg/L	mg/L				mg/L	CV	n			
Total Residual Chlorine	0.00	0.019	0.011	0.00004	0.00003	NO	0.99	0.974	0.80	0.379	177	1.15	23800	31100
Ammonia	0.144	2.59	1.17	0.145	0.145	NO	0.99	0.803	6.0	1.34	21	4.45	23800	36400