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Fact Sheet

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Proposed Reissuance of a National Pollutant Discharge Elimination System (NPDES) Permit to Discharge Pollutants Pursuant to the Provisions of the Clean Water Act (CWA)

United States Department of Defense Mountain Home Air Force Base Wastewater Treatment Plant

EPA Proposes To Reissue NPDES Permit

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

This Fact Sheet includes:

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

State Clean Water Act Section 401 Certification

EPA is requesting 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
Boise Regional Office
1445 N. Orchard
Boise, ID 83706

Public Comment

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

After the Public Notice expires, and all comments have been considered, EPA's regional Director for the Office of Water and Watersheds will make a final decision regarding permit issuance. 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 substantive comments are received, EPA will address the comments and issue the permit. The permit will become effective no less than 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 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 at the address below. The draft permits, fact sheet, and other information can also be found by visiting the Region 10 NPDES website at "<http://epa.gov/r10earth/waterpermits.htm>."

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue
Suite 900 M/S OWW-130
Seattle, Washington 98101
(206) 553-0523 or
Toll Free 1-800-424-4372 (within Alaska, Idaho, Oregon and Washington)

The fact sheet and draft permits are also available at:

US EPA Region 10
1435 N. Orchard
Boise, ID 83706
(208) 378-5746

Idaho Department of Environmental Quality
Boise Regional Office
1445 N. Orchard
Boise, ID 83706
(208) 373-0550

Mountain Home Public Library
790 North 10th East
Mountain Home, ID 83647
(208) 587-4716

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Acronyms

AML	Average Monthly Limit
AWL	Average Weekly Limit
BOD ₅	Biochemical oxygen demand, five-day
BMP	Best Management Practices
°C	Degrees Celsius
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved oxygen
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
IDEQ	Idaho Department of Environmental Quality
I/I	Infiltration and Inflow
lbs/day	Pounds per day
mg/L	Milligrams per liter
ML	Minimum Level
µg/L	Micrograms per liter
mgd	Million gallons per day
MDL	Maximum Daily Limit or Method Detection Limit
N	Nitrogen
NOAA	National Oceanic 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
SS	Suspended Solids

s.u.	Standard Units
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TRC	Total Residual Chlorine
TRE	Toxicity Reduction Evaluation
TSD	Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001)
TSS	Total suspended solids
TU _c	Toxic Units, Chronic
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
WET	Whole Effluent Toxicity
WQBEL	Water quality-based effluent limit
WQS	Water Quality Standards
WWTP	Wastewater treatment plant

I. Applicant

A. General Information

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

United States Department of Defense
Mountain Home Air Force Base
Wastewater Treatment Plant

Physical Location:
Section 29, Township 4S, Range 4E, NW ¼ NW ¼

Mailing Address:
1100 Liberator Street Bldg 1297
Mountain Home Air Force Base, ID 83648

Contact: Tom Kendall, Water Quality Manager

II. Facility Information

A. Treatment Plant Description

The United States Department of Defense owns a wastewater treatment plant, which treats domestic sewage and a small amount of industrial waste from Mountain Home Air Force Base. The plant is designed to provide secondary treatment to 0.85 mgd of wastewater. The wastewater treatment plant is operated by a contractor.

The treatment process consists of a mechanically cleaned bar screen, influent pumps, sequencing batch reactors (SBRs), chlorination, and dechlorination. Treated wastewater may be discharged to outfall 001, pumped to rapid infiltration basins pursuant to a wastewater re-use permit issued by the Idaho Department of Environmental Quality (permit # LA-000154-02), or re-used as plant water.

B. Background Information

The most recent NPDES permit for this facility was issued on January 29, 1997, became effective on February 28, 1997, and expired on February 28, 2002. An NPDES application for permit reissuance was submitted by the Air Force on June 29, 2001. EPA determined that the application was timely and complete, and the permit has been administratively extended under 40 CFR 122.6 until the permit can be reissued. The 1997 permit was the first NPDES permit issued to this facility. According to EPA's Integrated Compliance Information System (ICIS) database, the facility has not discharged to surface water since March, 1998.

A map has been included in Appendix A which shows the location of the treatment plant.

III. Receiving Water

This facility discharges to an unnamed tributary of Canyon Creek, which is tributary to the Snake River. The receiving waters are within the C.J. Strike Reservoir watershed (HUC 17050101).

A. Low Flow Conditions

According to USGS flow records from December 1999 through May 2009 at station number 131610556, the unnamed stream to which the wastewater treatment plant discharges has zero flow upstream of the point of discharge more than 99 percent of the time. Therefore, the critical low flow rate of the receiving stream is zero.

B. Water Quality Standards

Section 301(b)(1)(C) of the CWA requires the development of limitations in permits necessary to meet water quality standards. Federal regulations 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.

This facility discharges to an unnamed tributary to Canyon Creek in the C.J. Strike Reservoir watershed. Neither the immediate receiving water nor Canyon Creek are designated for specific beneficial uses in the Idaho Water Quality Standards. Undesignated surface waters are protected for the uses of cold water aquatic life and primary or secondary contact recreation (IDAPA 58.01.02.101.01.a.) Water quality criteria designed to protect these beneficial uses appear in Sections 210, 250, and 251 of the Idaho Water Quality Standards.

In addition, the Idaho Water Quality Standards state that all waters of the State of Idaho are protected for industrial and agricultural water supply (Section 100.03.b and c), wildlife habitats (100.04) and aesthetics (100.05). The WQS state, in Sections 252.02, 252.03, and 253 that these uses are to be protected by narrative criteria which appear in Section 200. These narrative criteria state that all surface waters of the State shall be free from hazardous materials; toxic substances; deleterious materials; radioactive materials; floating, suspended or submerged matter; excess nutrients; oxygen-demanding materials; and sediment in concentrations which would impair beneficial uses. The WQS also state, in Section 252.02 that the criteria from *Water Quality Criteria 1972*, also referred to as the "Blue Book" (EPA-R3-73-033) can be used to determine numeric criteria for the protection of the agricultural water supply use.

The receiving stream is an intermittent stream as that term is defined in Section 010 of the Idaho Water Quality Standards. Section 070.06 of the Standards states that numeric water quality criteria for aquatic life uses only apply in intermittent streams when the flow rate is greater than or equal to 1 CFS, and numeric criteria for recreation uses only apply in intermittent streams when the flow rate is greater than or equal to 5 CFS. Section 070.06 is specific to numeric criteria; narrative criteria (Section 200) apply at all times, as do the use designations.

IV. Effluent Limitations

A. Basis for Effluent Limitations

In general, the CWA requires that the effluent limits for a particular pollutant be the more stringent of either technology-based 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 applicable to a waterbody are being met and may be more stringent than technology-based effluent limits. The basis for the effluent limits proposed in the draft permit is provided in Appendix C.

B. Proposed Effluent Limitations

Below are the proposed effluent limits that are in the draft permit.

1. The permittee must not discharge floating, suspended, or submerged matter of any kind in amounts causing nuisance or objectionable conditions or that may impair designated beneficial uses.
2. Removal Requirements for BOD₅ and TSS: The monthly average effluent concentration must not exceed 15 percent of the monthly average influent concentration. Percent removal of BOD₅ and TSS must be reported on the Discharge Monitoring Reports (DMRs). For each parameter, the monthly average percent removal must be calculated from the arithmetic mean of the influent values and the arithmetic mean of the effluent values for that month. Influent and effluent samples must be taken over approximately the same time period.
3. The permittee must not discharge floating, suspended, or submerged matter of any kind in amounts causing nuisance or objectionable conditions or that may impair designated beneficial uses of the receiving water.
4. Discharges must not exceed 24 hours in duration.
5. Discharges must be separated by at least 48 hours.
6. The permittee must not discharge more than 4 days in any two-week calendar period.
7. The permittee must not discharge more than 16 days in any calendar year.
8. The downstream flow rate must be calculated and reported for every day a discharge occurs as the sum of the effluent flow rate and the flow rate measured at USGS Station #131610556.

Table 1 (below) presents the proposed numeric effluent limits.

Table 1: Proposed Effluent Limits				
Parameter	Units	Effluent Limits		
		Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit
Flow	CFS	—	—	4.64
Five-Day Biochemical Oxygen Demand (BOD₅)	mg/L	30	45	—
	lb/day	751	1126	—
	% removal	85% (min)	—	—
Total Suspended Solids (TSS)	mg/L	30	45	—
	lb/day	751	1126	—
	% removal	85% (min)	—	—
E. Coli	#/100 ml	126 (geometric mean)	—	576 (instantaneous maximum)
pH (Downstream Flow < 1 CFS)	s.u.	6.0 – 9.0 at all times		
pH (Downstream Flow ≥ 1 CFS)	s.u.	6.5 – 9.0 at all times		
Total Residual Chlorine	µg/L	—	11	19
	lb/day	—	0.28	0.47
Total Ammonia as N	mg/L	1.72	4.5	5.5
	lb/day	43	113	138
Dissolved Oxygen (Downstream Flow < 1 CFS)	mg/L	4.0 daily minimum		
Dissolved Oxygen (Downstream Flow ≥ 1 CFS)	mg/L	6.0 daily minimum		
Total Nitrogen	mg/L	10	—	—
	lb/day	250	—	—
Total Phosphorus as P	lb/year	800 annual total		

V. Monitoring Requirements

A. Basis for Effluent and Surface Water Monitoring

Section 308 of the CWA 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 effluent and surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality. The permit requires the permittee to perform effluent monitoring required by parts A.12 and B.6 of the NPDES Form 2A application, so that these data will be available when the permittee applies for a renewal of its NPDES permit. The permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports (DMRs) or on the application for renewal, as appropriate, to the U.S. Environmental Protection Agency (EPA).

B. Effluent Monitoring

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

Table 2, below, presents the proposed effluent monitoring requirements for Mountain Home Air Force Base. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. If no discharge occurs during the reporting period, “no discharge” shall be reported on the DMR.

Table 2: Effluent Monitoring Requirements				
Parameter	Units	Sample Location	Sample Frequency	Sample Type
Flow	mgd	Effluent	once per discharge day	measure
BOD₅	mg/L	Influent & Effluent	once per discharge day	24-hour composite
	lb/day	Influent & Effluent		calculation ¹
	% Removal	% Removal	monthly when discharging	calculation ²
TSS	mg/L	Influent & Effluent	once per discharge day	24-hour composite
	lb/day	Influent & Effluent		calculation ¹
	% Removal	% Removal	monthly when discharging	calculation ²
pH	standard units	Effluent	once per discharge day	grab
Fecal Coliform	#/100 ml	Effluent	once per discharge day	grab
Total Residual Chlorine	µg/L	Effluent	once per discharge day	grab
	lb/day	Effluent		calculation ¹
Total Ammonia as N	mg/L	Effluent	once per discharge day	24-hour composite
	lb/day	Effluent		calculation ¹
Total Phosphorus	mg/L	Effluent	once per discharge day	24-hour composite
	lb/year	Effluent	annual	calculation
Total Nitrogen	mg/L	Effluent	once per discharge day	24-hour composite
	lb/day	Effluent		calculation
Dissolved Oxygen	mg/L	Effluent	once per discharge day	grab
Nitrate	mg/L	Effluent	3x/5years	24-hour composite
Nitrite	mg/L	Effluent	3x/5years	24-hour composite
Oil and Grease	mg/L	Effluent	3x/5years	grab
Temperature	°C	Effluent	once per discharge day	grab
Total Dissolved Solids	mg/L	Effluent	3x/5years	24-hour composite
Total Kjeldahl Nitrogen	mg/L	Effluent	3x/5years	24-hour composite
Notes:				
1. Loading is calculated by multiplying the concentration in mg/L by the flow in mgd and a conversion factor of 8.34. If the concentration is measured in µg/L, the conversion factor is 0.00834.				
2. Percent removal is calculated using the following equation: (average monthly influent – average monthly effluent) ÷ average monthly influent.				

VI. Sludge (Biosolids) Requirements

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.

VII. Other Permit Conditions

A. Quality Assurance Plan

The federal regulation at 40 CFR 122.41(e) requires the permittee to develop procedures to ensure that the monitoring data submitted is accurate and to explain data anomalies if they occur. Mountain Home AFB is required to update the Quality Assurance Plan for the water pollution control plant within 180 days of the effective date of the final permit. The Quality Assurance Plan shall consist of standard operating procedures the permittee must follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting.

B. Operation and Maintenance Plan

The permit requires Mountain Home AFB 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 their facility within 180 days of the effective date of the final permit. The plan shall be retained on site and made available to EPA and IDEQ upon request.

C. Sanitary Sewer Overflows and Proper Operation and Maintenance 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.

D. Standard Permit Provisions

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

VIII. Other Legal Requirements

A. Endangered Species Act

The Endangered Species Act requires federal agencies to consult with National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) and the U.S. Fish and Wildlife Service (USFWS) if their actions could beneficially or adversely affect any threatened or endangered species. EPA has determined that the issuance of this NPDES permit will have no effect on threatened or endangered species. Therefore, consultation is not required for this action. However, EPA will notify USFWS and NOAA Fisheries of the issuance of this draft permit and will consider any comments made by the Services prior to issuance of a final permit. See Appendix D of this fact sheet for more information.

B. Essential Fish Habitat

Essential fish habitat (EFH) is 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. EPA has determined that the discharge from Mountain Home AFB will not affect any EFH species in the vicinity of the discharge, therefore consultation is not required for this action.

C. State Certification

Section 401 of the CWA 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, or treatment standards established pursuant to any State law or regulation.

D. Permit Expiration

The permit will expire five years from the effective date.

IX. References

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control*. US Environmental Protection Agency, Office of Water, EPA/505/2-90-001.

Appendix A: Facility Information

General Information

NPDES ID Number: ID0027642
Physical Location: Section 29, Township 4S, Range 4E, NW ¼ NW ¼
Mailing Address: 1100 Liberator Street, Building 1297
Mountain Home Air Force Base, ID 83648

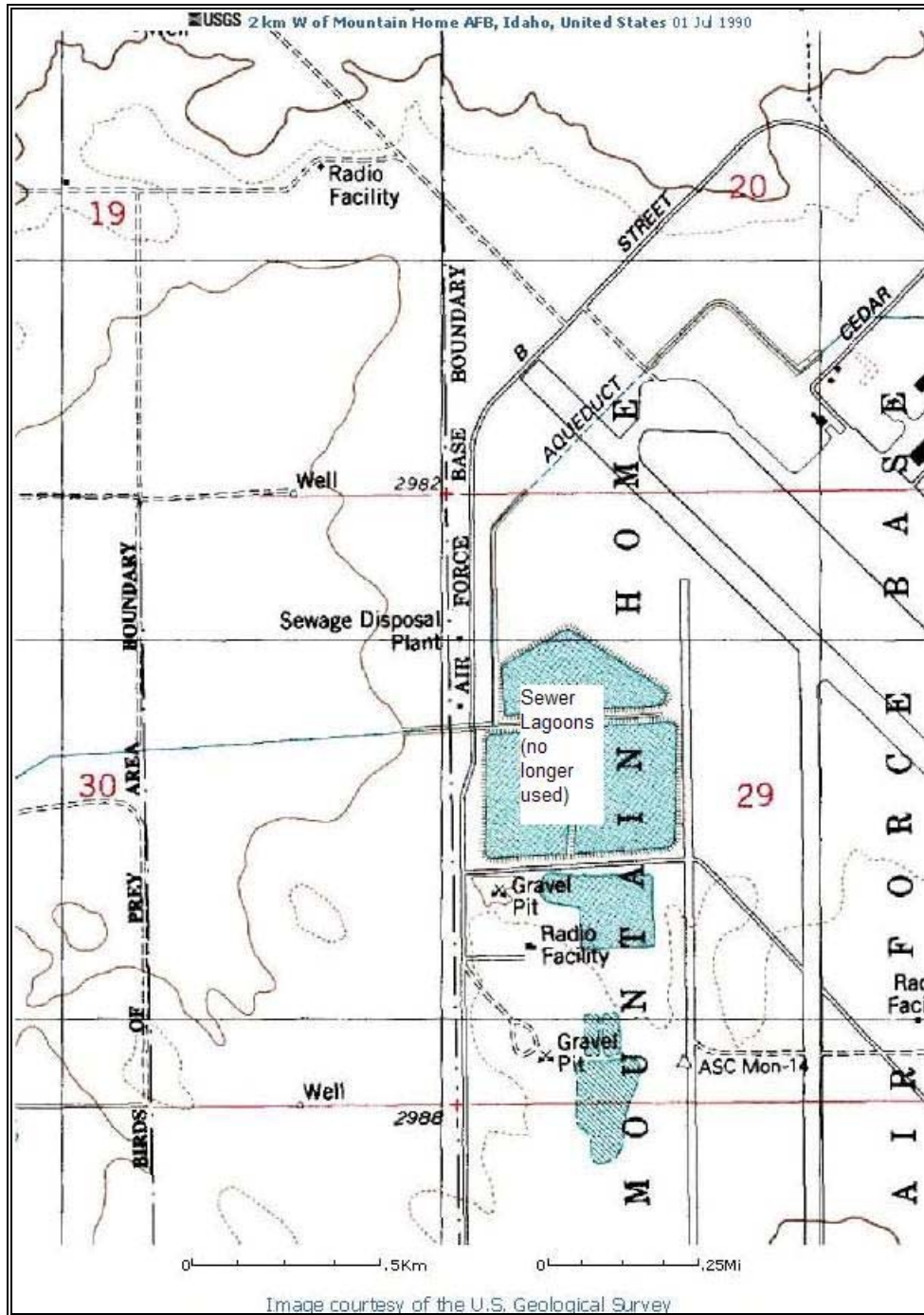
Facility Information

Type of Facility: Federally Owned Treatment Works
Treatment Train: Mechanically cleaned bar screen, influent pumps, sequencing batch reactors (SBRs), chlorination, and dechlorination. Treated wastewater may be discharged to outfall 001, pumped to rapid infiltration basins pursuant to a wastewater re-use permit issued by the Idaho Department of Environmental Quality (permit # LA-000154-02), or re-used as plant water.
Flow: Design flow is 0.85 mgd. Average influent flow has been 0.44 mgd during the summer and 0.41 mgd during the winter. The facility has not discharged to surface water since March, 1998.
Outfall Location: latitude 43° 3' 19" N; longitude 115° 53' 28" W

Receiving Water Information

Receiving Water: Unnamed tributary to Canyon Creek
Watershed: C.J. Strike Reservoir (HUC 17050101)
Beneficial Uses: Cold water aquatic, primary or secondary contact recreation, industrial and agricultural water supply, wildlife habitats, and aesthetics. (IDAPA 58.01.02.100.03 – 05, 101.01.a)

Appendix B: Facility Map



Appendix C: Basis for Effluent Limits

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

Federal Secondary Treatment 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 term POTW, which stands for “publicly owned treatment works” means “a treatment works... which is owned by a State or a municipality.” The Mountain Home Air Force Base facility is not a POTW because it is not owned by a State or a municipality.

There are no promulgated technology-based effluent limits that apply specifically to treatment works owned by the federal government. When technology-based effluent limits have not been promulgated, EPA may establish technology-based effluent limits based on best professional judgment (BPJ) under the authority of Section 402(a)(1)(B) of the CWA. One of the ways in which BPJ may be applied is to apply promulgated technology-based effluent limits for sources similar to the source being permitted (see *U.S. EPA NPDES Permit Writer’s Manual*, EPA-833-B-96-003, at Page 71).

Although the permitted facility is not owned by a State or a municipality thus does not fit the definition of a POTW, it is similar to a POTW in its purpose (treatment, including recycling and reclamation, of sewage or industrial waste or a liquid nature) and design. EPA therefore has applied the “secondary treatment” effluent limitations, which are found in 40 CFR 133.102, to the subject facility, under the authority of Section 402(a)(1)(B) of the CWA. These technology-based effluent limits identify the minimum level of effluent quality attainable by application of secondary treatment in terms of BOD₅, TSS, and pH. The secondary treatment effluent limits are listed in Table C-1.

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

At the time the previous permit was issued, the treatment process consisted of a four-cell facultative lagoon, and the current sequencing batch reactor (SBR) treatment plant was under construction. Treatment works using lagoons as the principal treatment process may be eligible for less-stringent technology-based effluent limits than those listed in Table C-1 (40 CFR 133.101(g), 103(c), 105). The previous permit included these less-stringent technology-based

effluent limits, in addition to the limits listed in table C-1, above. The lagoon system has been replaced, and the current SBR treatment plant is not eligible for the less-stringent effluent limits provided for in 40 CFR 133.103(c) and 133.105. Therefore, effluent limits based on these provisions (listed under “Option 001b” in the 1997 permit) have been deleted from the draft permit.

Chlorine

Chlorine is often used to disinfect municipal wastewater prior to discharge. The plant uses chlorine disinfection.

A 0.5 mg/L average monthly limit for chlorine is derived from standard operating practices. The Water Pollution Control Federation’s *Chlorination of Wastewater* (1976) states that a properly designed and maintained wastewater treatment plant can achieve adequate disinfection if a 0.5 mg/L chlorine residual is maintained after 15 minutes of contact time. Therefore, a wastewater treatment plant that provides adequate chlorine contact time can meet a 0.5 mg/L total residual chlorine limit on a monthly average basis. In addition to average monthly limits (AMLs), NPDES regulations require effluent limits for POTWs to be expressed as average weekly limits (AWLs) unless impracticable. The AWL is calculated to be 1.5 times the AML, consistent with the “secondary treatment” limits for BOD₅ and TSS. This results in an AWL for chlorine of 0.75 mg/L.

EPA has determined that the technology-based effluent limits for BOD₅ and TSS are stringent enough to ensure compliance with Idaho’s federally-approved water quality standards. More stringent water quality-based effluent limits are proposed for chlorine and pH.

Non-continuous discharges

The federal regulation at 40 CFR 122.45(e) states that discharges which are not continuous, as defined in 40 CFR 122.2, shall be particularly described and limited, considering the following factors, as appropriate:

- (1) Frequency;
- (2) Total mass;
- (3) Maximum rate of discharge of pollutants during the discharge; and
- (4) Prohibition or limitation of specified pollutants by mass, concentration, or other appropriate measure.

In accordance with this regulation, the draft permit proposes to limit the frequency, duration, and flow rate of the discharge, and the concentration and/or the mass of certain pollutant parameters within the discharge.

Mass-Based Limits

The federal regulation at 40 CFR 122.45(f) requires that effluent limits be expressed in terms of mass, if possible. The mass based limits are expressed in pounds per day and are calculated as follows:

$$\text{Mass based limit (lb/day)} = \text{concentration limit (mg/L)} \times \text{flow (mgd)} \times 8.34^1$$

The flow rate used to calculate mass limits is 3.0 mgd (4.64 CFS), which is the effluent flow limit.

B. Water Quality-based Effluent Limits

Statutory and Regulatory Basis

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 or Tribal waters must also comply with limitations imposed by the State or Tribe as part of its certification of NPDES permits under section 401 of the CWA. Federal regulations at 40 CFR 122.4(d) prohibit the issuance of an NPDES permit that does not ensure compliance with the water quality standards of all affected States. 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 or Tribal water quality standard, including narrative criteria for water quality, and that the level of water quality to be achieved by limits on point sources is derived from and complies with all applicable water quality standards.

The regulations require the permitting authority to make this evaluation 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.

C. Facility-Specific Water Quality-based Limits

Discharge Flow, Duration, and Frequency

The limitations on the flow rate, duration, and frequency of the discharge are carried forward from the 1997 permit, under the anti-backsliding provisions of the Clean Water Act (Section 402(o)). The bases for these conditions are provided in the 1996 fact sheet for this permit and in an IDEQ staff evaluation dated November 13, 1995. These requirements are authorized by 40 CFR 122.45(e).

Applicability of Numeric Water Quality Criteria for Aquatic Life Uses

Numeric criteria for aquatic life uses do not apply at stream flow rates less than 1 CFS (IDAPA 58.01.02.070.06). The receiving stream has zero flow upstream of the point of discharge more than 99% of the time. Numeric water quality criteria apply to the receiving stream at the point of discharge only if the receiving water flow rate, downstream from the point of discharge (i.e. the sum of the effluent and upstream flow rates) is greater than or equal to 1 CFS.

If the downstream receiving water flow rate is less than 1 CFS, numeric water quality criteria for aquatic life uses do not apply, but narrative water quality criteria and the use designations do apply. According to 40 CFR 122.44(d)(1)(vi):

¹ 8.34 is a conversion factor equal to the density of water in pounds per gallon

Where a State has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits using one or more of the following options:

(A) Establish effluent limits using a calculated numeric water quality criterion for the pollutant which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and will fully protect the designated use...; or

(B) Establish effluent limits on a case-by-case basis, using EPA's water quality criteria, published under section 304(a) of the CWA...; or

(C) Establish effluent limitations on an indicator parameter for the pollutant of concern....

In this case, pursuant to 40 CFR 122.44(d)(1)(vi)(B), EPA has applied Clean Water Act Section 304(a) criteria, in cases where the downstream receiving water flow rate is less than 1 CFS, and Idaho's numeric water quality criteria for aquatic life uses therefore do not apply.

Dissolved Oxygen

The Idaho water quality standards require waters protected for the beneficial use of cold water aquatic life to have a minimum dissolved oxygen concentration of 6.0 mg/L (IDAPA 58.01.02.250.02.a). The draft permit requires that the effluent dissolved oxygen concentration comply with the aquatic life criterion at the end-of-pipe, on days when the downstream flow rate is greater than or equal to 1 CFS.

When the downstream flow rate is less than 1 CFS, the numeric dissolved oxygen criteria do not apply. The applicable narrative criterion is IDAPA 58.01.02.200.07, which requires the avoidance of anaerobic conditions in surface waters of the State.

EPA has used Clean Water Act Section 304(a) criteria to establish effluent limitations for dissolved oxygen based on the narrative criterion, as provided for in 40 CFR 122.44(d)(1)(vi)(B). For waters designated for cold water aquatic life uses, where early life stages of fish are not present, the recommended daily minimum dissolved oxygen criterion is 4.0 mg/L (EPA 440/5-86-003, Table 8, Page 34). EPA believes that early life stages of fish are not likely to be present in the receiving waters because of the intermittent flow. While there are also recommended 7-day mean minimum and 30-day mean criteria, only the daily minimum criterion is applicable in this case due to the intermittent nature of the discharge. The permit therefore includes a daily minimum dissolved oxygen limit of 4.0 mg/L, when the downstream flow rate is less than 1 CFS.

pH

The pH numeric criteria for aquatic life uses state that the pH must be no less than 6.5 and no greater than 9.0 standard units (IDAPA 58.01.02.250.01.a). This criterion applies when the downstream flow rate is greater than or equal to 1 CFS.

The State of Idaho does not have a narrative water quality criterion that specifically addresses pH. Therefore, in cases where the downstream receiving water flow rate is less than 1 CFS, the technology-based pH effluent limits (6.0 – 9.0 standard units) apply.

Ammonia

The Idaho water quality standards contain criteria for the protection of aquatic life from the toxic effects of ammonia (IDAPA 58.01.02.250.02.d.). 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. The following table details the equations used to determine water quality criteria for ammonia, and the values of these equations at the 95th percentile pH and temperature at USGS station 131610556, which are 8.01 standard units and 19.7 °C, respectively. These criteria apply when the flow rate downstream of the point of discharge is greater than or equal to 1 CFS.

Table C-4: Water Quality Criteria for Ammonia		
	Acute Criterion (1-hour average)	Chronic Criterion (30-day average)
Equations:	$\frac{0.275}{1+10^{7.204-pH}} + \frac{39}{1+10^{pH-7.204}}$	$\left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}} \right) \times MIN(2.85, 1.45 \times 10^{0.028 \times (25-T)})$
Results (mg/L):	5.50	1.72

When the downstream flow rate is less than 1 CFS, the numeric ammonia criteria do not apply. The applicable narrative criterion is IDAPA 58.01.02.200.02, which states that “(s)urface waters of the state shall be free from toxic substances in concentrations that impair designated beneficial uses.” Ammonia is a “toxic substance” as that term is defined in the Idaho Water Quality Standards (IDAPA 58.01.02.010). Note that the definition of “toxic substance” in the Idaho standards includes, but is not limited to the 126 priority pollutants identified by EPA pursuant to Section 307(a) of the federal Clean Water Act.

When the downstream flow rate is less than 1 CFS, EPA has used Clean Water Act Section 304(a) criteria to establish effluent limitations for ammonia based on the narrative criterion, as provided for in 40 CFR 122.44(d)(1)(vi)(B). Idaho’s numeric water quality criteria for ammonia are identical to the Clean Water Act Section 304(a) criteria (EPA-822-R-99-014, Page 83). Therefore, the ammonia effluent limits apply at all times and are not dependent upon flow.

The acute criterion is applied directly as a maximum daily limit; the chronic criterion (which is a 30-day average value) is applied directly as an average monthly limit. The 4.5 mg/L average weekly limit from the previous permit has been retained under the anti-backsliding provisions of the Clean Water Act (Section 402(o)).

Chlorine

The Idaho water quality standards contain numeric criteria for the protection of aquatic life from the toxic effects of chlorine. The chronic criterion is 11 µg/L and the acute criterion is 19 µg/L (IDAPA 58.01.02.210). These criteria apply when the flow rate downstream of the point of discharge is greater than or equal to 1 CFS.

When the downstream flow rate is less than 1 CFS, the numeric chlorine criteria do not apply. The applicable narrative criterion is IDAPA 58.01.02.200.02, which states that “(s)urface waters of the state shall be free from toxic substances in concentrations that impair designated beneficial uses.” Chlorine is a “toxic substance” as that term is defined in the Idaho Water Quality Standards (IDAPA 58.01.02.010). Note that the definition of “toxic substance” in the Idaho standards includes, but is not limited to the 126 priority pollutants identified by EPA pursuant to Section 307(a) of the federal Clean Water Act.

When the downstream flow rate is less than 1 CFS, EPA has used Clean Water Act Section 304(a) criteria to establish effluent limitations for chlorine based on the narrative criterion, as provided for in 40 CFR 122.44(d)(1)(vi)(B). Idaho’s numeric water quality criteria for chlorine are identical to the Clean Water Act Section 304(a) criteria (EPA 440/5-84-030, Page 17). Therefore, the chlorine effluent limits apply at all times and are not dependent upon flow.

E. Coli

The previous permit had effluent limits for fecal coliform. In the 1995 staff evaluation, IDEQ stated that the receiving waters should be protected for the use of secondary contact recreation. The effluent limits for fecal coliform were based on the numeric fecal coliform criteria, which were in effect at that time.

Numeric criteria for bacteria in Idaho are no longer expressed in terms of fecal coliform, rather, they are expressed in terms of *E. coli* (IDAPA 58.01.02.251). However, the numeric *E. coli* criteria do not apply unless the stream flow is greater than or equal to 5 CFS (IDAPA 58.01.02.070.06). The receiving stream has zero flow upstream of the point of discharge more than 99% of the time and in more than 9 years of daily flow records, has never had a flow rate of 5 CFS or greater. The effluent flow rate is limited to 4.64 CFS. Therefore, numeric criteria for *E. coli* generally do not apply in the receiving stream.

The applicable narrative criterion is IDAPA 58.01.02.200.01, which states that “(s)urface waters of the state shall be free from hazardous materials in concentrations found to be of public health significance or to impair designated beneficial uses.” The Standards define “hazardous materials” as “(a) material or combination of materials which, when discharged in any quantity into state waters, presents a substantial present or potential hazard to human health, the public health, or the environment.” Because *E. coli* are an indicator of human fecal contamination and pathogens, which present a potential hazard to human health, this narrative criterion applies to *E. coli*.

EPA has used Clean Water Act Section 304(a) criteria to establish effluent limitations for *E. coli* based on the narrative criterion, as provided for in 40 CFR 122.44(d)(1)(vi)(B). The applicable 304(a) criteria for *E. coli* for waters designated for secondary contact recreation are a monthly geometric mean of 126 organisms per 100 ml, and a single sample maximum of 576 organisms per 100 ml (EPA 440/5-84-002, Table 4, Page 15). Idaho’s numeric water quality criteria, which would apply if the downstream flow were greater than or equal to 5 CFS, are identical to the 304(a) criteria. Therefore, the bacteria effluent limits are a monthly geometric mean of 126 organisms per 100 ml and a single sample maximum of 576 organisms per 100 ml; these limits apply at all times and are not dependent upon flow.

The draft permit proposes to delete the previous permit’s effluent limits for fecal coliform, replacing them with the *E. coli* limits described above. Section 402(o) of the Clean Water Act

(CWA) generally prohibits the establishment of effluent limits in a reissued NPDES permit that are less stringent than the corresponding limits in the previous permit, but provides limited exceptions. Section 402(o)(1) of the CWA states that a permit may not be reissued with less-stringent limits established based on Sections 301(b)(1)(C), 303(d) or 303(e) (i.e. water quality-based limits or limits established in accordance with State treatment standards) except in compliance with Section 303(d)(4). Section 402(o)(1) also prohibits backsliding on technology-based effluent limits established using best professional judgment (i.e. based on Section 402(a)(1)(B)), but in this case, the effluent limits being revised are water quality-based effluent limits (WQBELs).

Section 303(d)(4) of the CWA states that, for water bodies where the water quality meets or exceeds the level necessary to support the water body's designated uses, WQBELs may be revised as long as the revision is consistent with the State's antidegradation policy. Additionally, Section 402(o)(2) contains exceptions to the general prohibition on backsliding in 402(o)(1). According to the U.S. EPA NPDES Permit Writers' Manual (EPA-833-B-96-003) the 402(o)(2) exceptions are applicable to WQBELs (except for 402(o)(2)(B)(ii) and 402(o)(2)(D)) and are independent of the requirements of 303(d)(4). Therefore, WQBELs may be relaxed as long as either the 402(o)(2) exceptions or the requirements of 303(d)(4) are satisfied. Even if the requirements of Sections 303(d)(4) or 402(o)(2) are satisfied, Section 402(o)(3) prohibits backsliding which would result in violations of water quality standards or effluent limit guidelines.

The receiving water has not been listed on Idaho's "303(d) list" as not attaining or not being expected to attain water quality standards for bacteria. When water quality standards for the relevant pollutant are being attained, Section 303(d)(4)(B) of the Act states that water quality-based effluent limits may be revised if the revision is consistent with the State's antidegradation policy.

The draft permit, like the previous permit, includes "criteria end-of-pipe" effluent limits for bacteria, in order to protect contact recreation beneficial uses in the receiving water. The new water quality criteria and effluent limits simply use the indicator organism currently specified in the Idaho water quality standards (E. coli) to provide the same level of protection for the beneficial use of secondary contact recreation as was provided by the fecal coliform effluent limits. EPA does not believe that the change from fecal coliform limits to E. coli limits will result in degradation of the receiving water or have any effect on beneficial uses. Therefore, EPA believes that the deletion of the of fecal coliform effluent limits is compliant with Section 303(d)(4)(B) of the Act.

Total Phosphorus and Total Nitrogen

The Idaho Water Quality Standards do not include numeric criteria for nutrients. The total phosphorus and total nitrogen effluent limits from the previous permit have been continued forward under the anti-backsliding provisions of the Clean Water Act (Section 402(o)). The basis for the previous permit's total phosphorus and total nitrogen limits is provided in the 1996 fact sheet for this permit and in an IDEQ staff evaluation dated November 13, 1995.

Floating, Suspended and Submerged Matter

The State of Idaho has a narrative water quality criterion which reads “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” (IDAPA 58.01.02.200.05). This criterion has been included in the permit as a narrative effluent limit.

D. Summary of Limits and Bases

The following table summarizes the general statutory and regulatory bases for the limits in the draft permit.

Table C-5 Summary of Effluent Limit Bases	
Limited Parameter	Basis for Limit
Discharge flow rate, frequency, and duration	Clean Water Act (CWA) Section 402(o) (anti-backsliding)
BOD ₅ and TSS	CWA Sections 402(a)(1)(B) and 402(o), 40 CFR 133, 40 CFR 122.45(f), (technology-based, best professional judgment, anti-backsliding, mass limits)
Floating, Suspended or Submerged Matter	CWA Section 301(b)(1)(C), 40 CFR 122.44(d), IDAPA 58.01.02.200.05 (water quality-based)
pH (< 1 CFS)	CWA Sections 402(a)(1)(B) and 402(O), 40 CFR 133 (technology-based, best professional judgment, anti-backsliding)
pH (≥ 1 CFS)	CWA Section 301(b)(1)(C), 40 CFR 122.44(d), IDAPA 58.01.02.250.01.a. (water quality-based)
E. Coli	CWA Section 301(b)(1)(C), 40 CFR 122.44(d)(1)(vi) (water quality-based)
Chlorine	CWA Section 301(b)(1)(C), 40 CFR 122.44(d), 40 CFR 122.45(f) IDAPA 58.01.02.210 (water quality-based, mass limits)
Ammonia (average monthly and maximum daily)	CWA Section 301(b)(1)(C), 40 CFR 122.44(d), 40 CFR 122.45(f) IDAPA 58.01.02.250.01.d.i. (water quality-based, mass limits)
Ammonia (average weekly)	CWA Section 402(o) (anti-backsliding)
Total Phosphorus and Total Nitrogen	CWA Section 402(o) (anti-backsliding)
Dissolved Oxygen	CWA Section 301(b)(1)(C), 40 CFR 122.44(d), IDAPA 58.01.02.200.07, IDAPA 58.01.02.250.02.a. (water quality-based)

E. References

- EPA. 1985. *Ambient Water Quality Criteria for Chlorine – 1984*. EPA 440/5-84-030. January 1985.
- EPA. 1986. *Ambient Water Quality Criteria for Bacteria – 1986*. EPA 440/5-84-002. January 1986.
- EPA. 1986. *Ambient Water Quality Criteria for Dissolved Oxygen*. EPA 440/5-86-003. April 1986.
- EPA. 1996. Fact Sheet. Mountain Home Air Force Base. August 23, 1996.
- EPA. 1996. *U.S. EPA NPDES Permit Writers' Manual*. EPA-833-B-96-003. December 1996.

EPA. 1999. *1999 Update of Ambient Water Quality Criteria for Ammonia*. EPA-822-R-99-014. December 1999.

IDEQ. 1995. Staff Evaluation on Effluent Limitations for Mountain Home Air Force Base. November 13, 1995. Idaho Department of Health and Welfare Division of Environmental Quality.

Appendix D: Endangered Species Act

Section 7 of the Endangered Species Act (ESA) requires federal agencies to request a consultation with the National Oceanic and Atmospheric Administration (NOAA) Fisheries and the US Fish and Wildlife Service (USFWS) regarding potential effects that a federal action may have on listed endangered and threatened species.

In an e-mail dated January 21, 2009, NOAA Fisheries stated that there are no threatened or endangered species under NOAA's jurisdiction in the Snake River drainage upstream of the Hells Canyon Dam, which is located at river mile 247.5. The Mountain Home Air Force Base discharge is located on a tributary to Canyon Creek, which is a tributary to the Snake River. The confluence of Canyon Creek with the Snake River is near river mile 498. The discharge is about 10 miles upstream of the confluence of Canyon Creek with the Snake River. The discharge is thus about 260 miles upstream from the nearest ESA-listed threatened or endangered species under NOAA's jurisdiction. Therefore, the reissuance of this permit will have no effect on any listed threatened or endangered species under NOAA's jurisdiction. This is consistent with the findings of the fact sheet for the previous reissuance of this permit.

The subject discharge is located in Elmore County, Idaho. The USFWS county species list for Elmore County lists the following threatened and endangered species:

- Canada lynx (*Lynx canadensis*) Listed Threatened
- Bull trout (*Salvelinus confluentus*) Listed Threatened
- Bliss Rapids snail (*Taylorconcha serpenticola*) Listed Threatened
- Snake River physa snail (*Haitia (Physa) natricina*) Listed Endangered

Discharges of pollutants to surface waters have the potential to directly affect aquatic species such as bull trout and the Bliss Rapids and Snake River physa snails.

According to the *Snake River Aquatic Species Recovery Plan* (USFWS 1995), the current range and recovery area of the Bliss Rapids snail is from Snake River miles 547 to 585. The subject discharge is to a tributary of Canyon Creek, which flows into the Snake River at about river mile 498, which is downstream of the current range of the Bliss Rapids snail. The current range of the Snake River physa snail is from river mile 487 to 573; Canyon Creek flows into the Snake River within this reach.

The receiving waters are not designated critical habitat for bull trout (USFWS 2002). In southwestern Idaho, Bull trout critical habitat has been designated only in the Boise, Payette, Weiser and Jarbidge River watersheds. Canyon Creek and the unnamed ditch to which Mountain Home AFB discharges are not suitable habitat for bull trout due to the intermittent flow. According to the *King Hill – C.J. Strike Reservoir Subbasin Assessment and Total Maximum Daily Load* (IDEQ 2006), "(i)n the tributaries of the King Hill-C.J. Strike subbasin, the only salmonid generally present is redband trout," and Canyon Creek is not one of the tributaries where redband trout are known to occur. Bull trout were not among the species collected by the USGS in the main stem Snake River at King Hill (see the TMDL at Table 3). Thus, bull trout are not likely to be present in the receiving waters.

The permit places restrictions on the frequency, duration, and flow rate of the discharge and on the concentration and mass of pollutant parameters of concern within the discharge. The effluent limitations in the permit are derived from and comply with all applicable water quality standards

at the end-of-pipe. The discharge is to a tributary to Canyon Creek and is about 10 miles upstream from the Snake River. Therefore, the discharge will not affect water quality in the Snake River and will have no effect on bull trout, bull trout critical habitat, the Bliss Rapids snail, or the Snake River physa snail.

EPA has determined that the reissuance of an NPDES permit to Mountain Home AFB will have no effect on the Canada lynx. Terrestrial species are generally not susceptible to the water quality impacts that may result from the reissuance of an NPDES permit. The primary causes of the Canada lynx's decline are habitat destruction, overutilization for commercial, recreational, scientific, or educational purposes, and climate change (USFWS 2005). Reissuance of an NPDES permit to Mountain Home AFB will have no effect on habitat destruction, utilization of species for commercial, recreational, scientific, or educational purposes, or climate change. Therefore, the issuance of this permit will have no effect on the Canada lynx.

References

IDEQ. 2006. *King Hill – C.J. Strike Reservoir Subbasin Assessment and Total Maximum Daily Load*. Idaho Department of Environmental Quality. Revised Final. March 2006.

US Fish and Wildlife Service. 1995. *Snake River Aquatic Species Recovery Plan*. Snake River Basin Office, Ecological Services, Boise, Idaho. 92 pp.

US Fish and Wildlife Service. 2002. U.S. Fish and Wildlife Service. *Bull Trout (Salvelinus confluentus) Draft Recovery Plan*. Portland, Oregon.

US Fish and Wildlife Service. 2005. *Recovery Outline for the Contiguous United States Distinct Population Segment of the Canada Lynx*.