FACT SHEET

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

The City of Marsing
P.O. Box 125
Marsing, Idaho 83639

NPDES Permit Number: ID0021202

Public Notice Start Date: July 13, 2015
Public Notice Expiration Date: August 12, 2015

Technical Contact: John Drabek, 206-553-8257, drabek.john@epa.gov
1-800-424-4372 ext. 3-8257 (within Region 10)
drabek.@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
Boise Regional Office
1445 N. Orchard Street
Boise, Idaho 83706

ph: (208) 373-0550
fx: (208) 373-0287

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'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, the 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 pursuant to 40 CFR 124.19.

Documents are Available for Review.

The draft NPDES permit and related documents can be reviewed or obtained by visiting or contacting the 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, 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:

EPA Idaho Operations Office
950 W Bannock, Suite 900
Boise, ID 83702
208-378-5746

IDEQ
Boise Regional Office
1445 N. Orchard Street
Boise, ID 83706
ph: (208) 373-0550
fx: (208) 373-0287
toll-free: (888) 800-3480

TABLE OF CONTENTS

Acronyms

1Q10	1 day, 10 year low flow
7Q10	7 day, 10 year low flow
30B3	Biologically-based design flow intended to ensure an excursion frequency of less than once every three years, for a 30-day average flow.
30Q10	30 day, 10 year low flow
ACR	Acute-to-Chronic Ratio
AML	Average Monthly Limit
ASR	Alternative State Requirement
AWL	Average Weekly Limit
BA	Biological Assessment
BAT	Best Available Technology economically achievable
BCT	Best Conventional pollutant control Technology
BE	Biological Evaluation
BO or BiOp	Biological Opinion
BOD_5	Biochemical oxygen demand, five-day
BOD_{5u}	Biochemical oxygen demand, ultimate
BMP	Best Management Practices
BPT	Best Practicable
°C	Degrees Celsius
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
COD	Chemical Oxygen Demand
CSO	Combined Sewer Overflow
CV	Coefficient of Variation
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved oxygen
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement

EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FDF	Fundamentally Different Factor
FR	Federal Register
gpd	Gallons per day
HUC	Hydrologic Unit Code
IC	Inhibition Concentration
ICIS	Integrated Compliance Information System
IDEQ	Idaho Department of Environmental Quality
I/I	Infiltration and Inflow
LA	Load Allocation
lbs/day	Pounds per day
LC	Lethal Concentration
LC_{50}	Concentration at which 50% of test organisms die in a specified time period
LD_{50}	Dose at which 50% of test organisms die in a specified time period
LOEC	Lowest Observed Effect Concentration
LTA	Long Term Average
LTCP	Long Term Control Plan
mg/L	Milligrams per liter
ml	milliliters
ML	Minimum Level
µg/L	Micrograms per liter
mgd	Million gallons per day
MDL	Maximum Daily Limit or Method Detection Limit
MF	Membrane Filtration
MPN	Most Probable Number
N	Nitrogen
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NOEC	No Observable Effect Concentration
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards

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
RWC	Receiving Water Concentration
SIC	Standard Industrial Classification
SPCC	Spill Prevention and Control and Countermeasure
SS	Suspended Solids
SSO	Sanitary Sewer Overflow
s.u.	Standard Units
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
TRC	Total Residual Chlorine
TSD	Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001)
TSS	Total suspended solids
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UV	Ultraviolet
WET	Whole Effluent Toxicity
WLA	Wasteload allocation
WQBEL	Water quality-based effluent limit
Water Quality Standards	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:

Facility Name:
City of Marsing Wastewater Treatment Plant
NPDES Permit # ID0021202

Facility Address:
1st Street North,
Marsing, Idaho 83639

Mailing Address:
P.O. Box 125,
Marsing,, Idaho 83639

Contact:
Danny Martin, Public Works Superintendent, (209) 896 – 4122

B. Permit History

The most recent NPDES permit for the City of Marsing was issued on February 27, 2004 became effective on May 1, 2004 and expired on April 30, 2009. An NPDES application for permit issuance was submitted by the permittee on March 5, 2009. The EPA determined that the application was timely and complete. Therefore, pursuant to 40 CFR 122.6., the permit has been administratively extended and remains fully effective and enforceable.

II. FACILITY INFORMATION

A. Treatment Plant Description

Service Area

The City of Marsing (City) owns and operates the Marsing Wastewater Treatment Plant (WWTP) that treats domestic sewage that is primarily from local residents and commercial establishments through a separate sanitary sewer system. The facility serves 945 resident population in the City of Marsing and a satellite community of Labor Camp/Housing Authority with a population of 500 for a total population serviced of 1,445. There are no significant industrial users. A map showing the location of the treatment facility is included in Appendix A.

Treatment Process

The design flow of the facility is 0.30 mgd. The wastewater treatment plant consists of bar screens as primary treatment followed by a four cell lagoon system. Disinfection is in a chlorine contact chamber. The City estimates that inflow and infiltration is about 8,000 gallons per day. To address inflow and infiltration the City is completing a faculty plan to identity areas of inflow and infiltration and plan mitigation.

B. Background Information

In order to determine pollutants of concern for further analysis, EPA evaluated the application form, additional discharge data, and the nature of the discharge. The wastewater treatment process for this facility includes both primary and secondary treatment, as well as disinfection with chlorination. Pollutants typical of a sewage treatment plant treating with chlorine would be expected in the discharge, including five-day biochemical oxygen demand (BOD5), total suspended solids (TSS), E. coli bacteria, total residual chlorine (TRC), pH, ammonia, temperature, phosphorus. Based on this analysis, pollutants of concern are as follows:

- BOD5
- TSS
- E. coli bacteria
- TRC
- pH
- Ammonia
- Phosphorus

The concentrations of pollutants in the discharge were reported in the NPDES application and in DMRs and were used in determining reasonable potential for several parameters (see Appendix B).

Compliance History

A review of the Discharge Monitoring Reports (DMRs) from March , 2007 to January 2012 found the following violations of effluent limits:

<u>pH</u>

A violation of the maximum of pH limit of 9.0 of 9.3 in October 2007 and June, 2008

<u>Total Suspended Solids</u>

Eight violations of the monthly average concentration limit of 45 mg/L, with a maximum of 95 in April 2008

Three violations of the weekly average concentration limit of 65 mg/L, with a maximum of 95 in March 2006.

Multiple violations of the instantaneous maximum limit of 406 colonies/100 ml, with maximum at 2,400 in January 2005, December 2006 and November 2008.

<u>Total Suspended Solids, percent removal</u>

Seven violations of the average monthly limit of 65% minimum removal

III. RECEIVING WATER

This facility discharges to the Snake River in the City of Marsing, Idaho.

The treated effluent from the City of Marsing's wastewater treatment facility is discharged continuously to the Snake River at approximate river mile 423.7, which lies within the Middle

Snake-Succor (HUC 17050103) Subbasin SW-1, Snake River, Beneficial uses for this segment of the Snake River are cold water communities, primary contact recreation and domestic, agricultural and industrial water supply. The outfall is located at latitude 43° 33' 06" N and longitude 116° 48' 12" W.

A. Low Flow Conditions

The low flow conditions of a water body are used to assess the need for and develop water quality based effluent limits (see Appendix B of this fact sheet for additional information on flows). The EPA used ambient flow data collected at the USGS station 13172500, Snake River near Murphy, Idaho and the EPA's DFLOW 3.1b model to calculate the low flow conditions for the Snake River at Marsing.

The 1Q10, 7Q10, 30B3, 30Q5, and harmonic mean flow rates of Snake River are 4440 cfs, 4680 cfs, 5030 cfs, 5320 cfs and 8420 cfs, respectively. See Appendix B for more information. The period of record for these calculations was 1983 to 2010.

B. Water Quality Standards

Overview

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 that each water body is expected to achieve, such as drinking water supply, contact recreation, and aquatic life. The numeric and narrative water quality criteria are the criteria deemed necessary by the State to support the beneficial use classification of each water body. The anti-degradation policy represents a three-tiered approach to maintain and protect various levels of water quality and uses.

Designated Beneficial Uses

This facility discharges to the Middle Snake-Succor Subbasin (HUC 17050103) SW-1, Snake River, River Mile 425 to Idaho/Oregon border (assessment unit ID: Idaho/Oregon border 17050103SW001_07 Snake River - Marsing (RM 425). At the point of discharge, the Snake River is protected for the following designated uses (IDAPA 58.01.02**.**130.12):

- cold water aquatic life
- primary contact recreation
- domestic water supply

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).

Surface Water Quality Criteria

The criteria are found in the following sections of the Idaho Water Quality Standards:

- The narrative criteria applicable to all surface waters of the State are found at IDAPA 58.01.02.200 (General Surface Water Quality Criteria).

- The numeric criteria for toxic substances for the protection of aquatic life and primary contact recreation are found at IDAPA 58.01.02.210 (Numeric Criteria for Toxic Substances for Waters Designated for Aquatic Life, Recreation, or Domestic Water Supply Use).

- Additional numeric criteria necessary for the protection of aquatic life can be found at IDAPA 58.01.02.250 (Surface Water Quality Criteria for Aquatic Life Use Designations).

- Numeric criteria necessary for the protection of recreation uses can be found at IDAPA 58.01.02.251 (Surface Water Quality Criteria for Recreation Use Designations).

- Water quality criteria for agricultural water supply can be found in the EPA's *Water Quality Criteria 1972*, also referred to as the "Blue Book" (EPA R3-73-033) (See IDAPA 58.01.02.252.02)

The numeric and narrative water quality criteria applicable to the Snake River at the point of discharge are provided in Appendix B of this fact sheet.

Antidegradation

The IDEQ has completed an antidegradation review which is included in the draft 401 certification for this permit. See Appendix D for the State's draft 401 water quality certification. The EPA has reviewed this antidegradation review and finds that it is consistent with the State's 401 certification requirements and the State's antidegradation implementation procedures. Comments on the 401 certification including the antidegradation review should be submitted to the IDEQ as set forth above (see State Certification).

C. Water Quality Limited Waters

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

Section 303(d) of the Clean Water Act (CWA) requires states to develop a Total Maximum Daily Load (TMDL) management plan for water bodies determined to be water quality limited segments. A TMDL is a detailed analysis of the water body to determine its assimilative capacity. The assimilative capacity is the loading of a pollutant that a water body can assimilate without causing or contributing to a violation of water quality standards. Once the assimilative capacity of the water body has been determined, the TMDL will allocate that capacity among point and non-point pollutant sources, taking into account natural background levels and a margin of safety. Allocations for non-point sources are known as "load allocations" (LAs). The allocations for point sources, known as "waste load allocations" (WLAs), are implemented through effluent limitations in NPDES permits. Effluent limitations for point sources must be consistent with applicable TMDL allocations.

The State of Idaho's 2012 Integrated Water Quality Monitoring and Assessment Report (Integrated Report), designates this segment of the Snake River on the 303(d) list as impaired for nutrient/eutrophication and temperature. The State of Idaho developed the Mid Snake River/Succor Creek Subbasin Assessment and TMDL (IDEQ), April 2003 (TMDL). This TMDL reported that the Snake River from Swan Falls to Boise River, the segment including the Marsing WWTP discharge outfall, was impaired by temperature, nutrients, dissolved oxygen. The Subbasin Assessment established a TMDL for nutrients, and concluded that dissolved oxygen would be addressed by the nutrient TMDL. The TMDL proposed no action for flow alteration, and listed temperature as a concern. EPA approved this TMDL in January 2004. The TMDLs resulted in the following Waste Load Allocation for the Marsing WWTP: Total Phosphorus - 4 kg/day. This allocation was repeated in the Mid Snake River / Succor Creek Subbasin, Five-Year Review of 2003 and 2007 Total Maximum Daily Loads, September 2011.

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 is in Appendix B.

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 1 below presents the proposed effluent limits for 5-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), *Escherichia coli (E. coli)*, pH, total residual chlorine and the minimum percent removal requirements for BOD_5 and TSS.

Table 1
Effluent Limitations

Parameters	Average Monthly Limit	Average Weekly Limit	Minimum Percent Removal[1]	Daily Maximum Limit
BOD_5	30 mg/L	45 mg/L	85%	--
	75 lbs/day	112 lbs/day		--
TSS	45 mg/L	65 mg/L	65%	--
	112 lbs/day	162 lbs/day		--

Table 1
Effluent Limitations

Parameters	Average Monthly Limit	Average Weekly Limit	Minimum Percent Removal[1]	Daily Maximum Limit
E. coli Bacteria	126 colonies /100mL[2]	--	--	406 colonies /100mL[3]
Total Phosphorus May 1- September 30	8.8 lb/day	13 lb/day	--	--
Total Residual Chlorine	0.5 mg/L	0.75 mg/L	--	--
	1.3 lb/day	1.9 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. 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 3-7 days within a calendar month.
3. Instantaneous maximum limit

Except for the addition of total phosphorus limits and the reduction of BOD_5 limitations these proposed effluent limitations are identical to the effluent limitations in the current permit for the City of Marsing. The BOD_5 percent removal requirement in the previous permit was 65 percent. Refer to Appendix B for the derivation of the effluent limits.

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.

The permit also requires the permittee to perform effluent monitoring required by 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 DMRs or on the application for renewal, as appropriate, to the EPA.

B. Effluent Monitoring Requirements

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 must be used for averaging if they are conducted using the EPA-approved test methods (generally found in 40 CFR 136) or as specified in the permit.

Table 2 below presents the proposed effluent monitoring requirements for the City. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. The samples must be representative of the volume and nature of the monitored discharge. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

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

The permit requires monitoring BOD_5, TSS, *E. coli*, flow, pH, total phosphorus and total residual chlorine to determine compliance with the effluent limits; it also requires monitoring of the influent for BOD_5 and TSS to calculate monthly removal rates. Continuous temperature monitoring is required to better characterize temperature in the Snake River that is listed as impaired for temperature.

Ammonia

Ammonia effluent levels 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. The City does not have a reasonable potential to violate water quality standards for ammonia, so the proposed permit contains no effluent limits for ammonia.

Table 2
Effluent Monitoring Requirements

Parameter	Unit	Sample Location	Sample Frequency	Sample Type
Flow	mgd	Effluent	Continuous	Recording
BOD_5	mg/L	Influent and Effluent[1]	1/week	Grab
	lbs/day		1/week	Calculation
	% Removal	---	1/month	Calculation
TSS	mg/L	Influent and Effluent[1]	1/week	Grab
	lbs/day		1/week	Calculation
	% Removal	---	1/month	Calculation
pH	standard units	Effluent	1/week	Grab
E.coli	colonies/100 ml	Effluent	5/month	Grab
Total Residual Chlorine	mg/L	Effluent	1/week	Grab
Temperature	°C	Effluent	Continuous	Recording
Total Phosphorus as P	mg/L	Effluent	1/week	Grab

Table 2
Effluent Monitoring Requirements

Parameter	Unit	Sample Location	Sample Frequency	Sample Type
NPDES Application Form 2A Effluent Testing Data	mg/L	Effluent	3x/5 years	See footnote 2

1. Influent and effluent composite samples shall be collected over approximately the same time period.
2. For Effluent Testing Data, in accordance with instructions in NPDES Application Form 2A, Part B.6.

Surface water monitoring is discontinued. The effluent monitoring frequency is increased from monthly to weekly for TSS, BOD_5 and total phosphorus to determine compliance with the weekly effluent limitations. The duration of total phosphorus monitoring is extended from one year to the term of the permit. Temperature monitoring is increased from grab sampling for one year to continuous monitoring for the 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

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. The Permittee is required to update the Quality Assurance Plan for the City within 90 days of the effective date of the final permit. The Quality Assurance Plan must include standard operating procedures the permittee will follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting. The plan must be retained on site and be made available to the EPA and the IDEQ upon request.

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. Any changes occurring in the operation of the plant shall be reflected within the Operation and Maintenance plan.

C. Electronic Submission of Discharge Monitoring Reports

The draft permit requires that the permittee submit DMR data electronically using NetDMR within six months of the effective date of the permit. 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. 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.

The EPA 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. The permittee may use NetDMR after requesting and receiving permission from EPA Region 10.

D. Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs each federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities." The EPA strives to enhance the ability of overburdened communities to participate fully and meaningfully in the permitting process for the EPA-issued permits, including NPDES permits. "Overburdened" communities can include minority, low-income, tribal, and indigenous populations or communities that potentially experience disproportionate environmental harms and risks. As part of an agency-wide effort, the EPA Region 10 will consider prioritizing enhanced public involvement opportunities for the EPA-issued permits that may involve activities with significant public health or environmental impacts on already overburdened communities. For more information, please visit http://www.epa.gov/compliance/ej/plan-ej/ .

As part of the permit development process, the EPA Region 10 conducted a screening analysis to determine whether this permit action could affect overburdened communities. The EPA used a nationally consistent geospatial tool that contains demographic and environmental data for the United States at the Census block group level. This tool is used to identify permits for which enhanced outreach may be warranted.

The f**acility** is not located within or near a Census block group that is potentially overburdened. The draft permit does not include any additional conditions to address environmental justice.

Regardless of whether a **facility** is located near a potentially overburdened community, the EPA encourages permittees to review (and to consider adopting, where appropriate) Promising Practices for Permit Applicants Seeking EPA-Issued Permits: Ways To Engage Neighboring Communities (see https://www.federalregister.gov/articles/2013/05/09/2013-10945/epa-activities-to-promote-environmental-justice-in-the-permit-application-process#p-104). Examples of promising practices include: thinking ahead about community's characteristics and the effects of the permit on the community, engaging the right community leaders, providing progress or status reports, inviting members of the community for tours of the facility, providing informational materials translated into different languages, setting up a hotline for community members to voice concerns or request information, follow up, etc.

E. 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 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 the National Oceanic and Atmospheric Administration Fisheries (NOAA) and the U.S. Fish and Wildlife Service (USFWS) if their actions could adversely affect any threatened or endangered 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 City of Marsing outfall is located at approximately river mile 425, more than 150 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.

Based on the USFWS website, Owyhee County, location of the City of Marsing discharge, contains threatened Bull Trout, along with endangered Bruneau hot spring snail and endangered Snake River physa snail. The effluent limits are the more stringent of technology-based or water-quality based values, and the design flow of the City of Marsing WWTP is 0.30 mgd, compared to typical river flows of the Snake River in the vicinity of 49,000 mgd. Therefore, the EPA again determines that the discharges from the City'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.

Based on the USFW website, Owyhee County contains critical habitat for the threatened fish species Bull Trout. A December 2003 BE concluded that the action of permit issuance for the City of Marsing Wastewater Treatment Plant would have no effect on Bull Trout habitat. The BE for Marsing reported that effluent limits were the more stringent of technology-based or water-quality based values, and that the design flow of the City of Marsing WWTP was 0.3 mgd, compared to typical Snake River flows in the vicinity of 49,000 mgd or more. The flow and effluent limits in the proposed City of Marsing permit are similar and to and in the vicinity to those of Marsing. Therefore, the EPA determines that the discharges from the City of Marsing WWTP will have no effect on listed EFH.

C. State Certification

Section 401 of the CWA requires the 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.

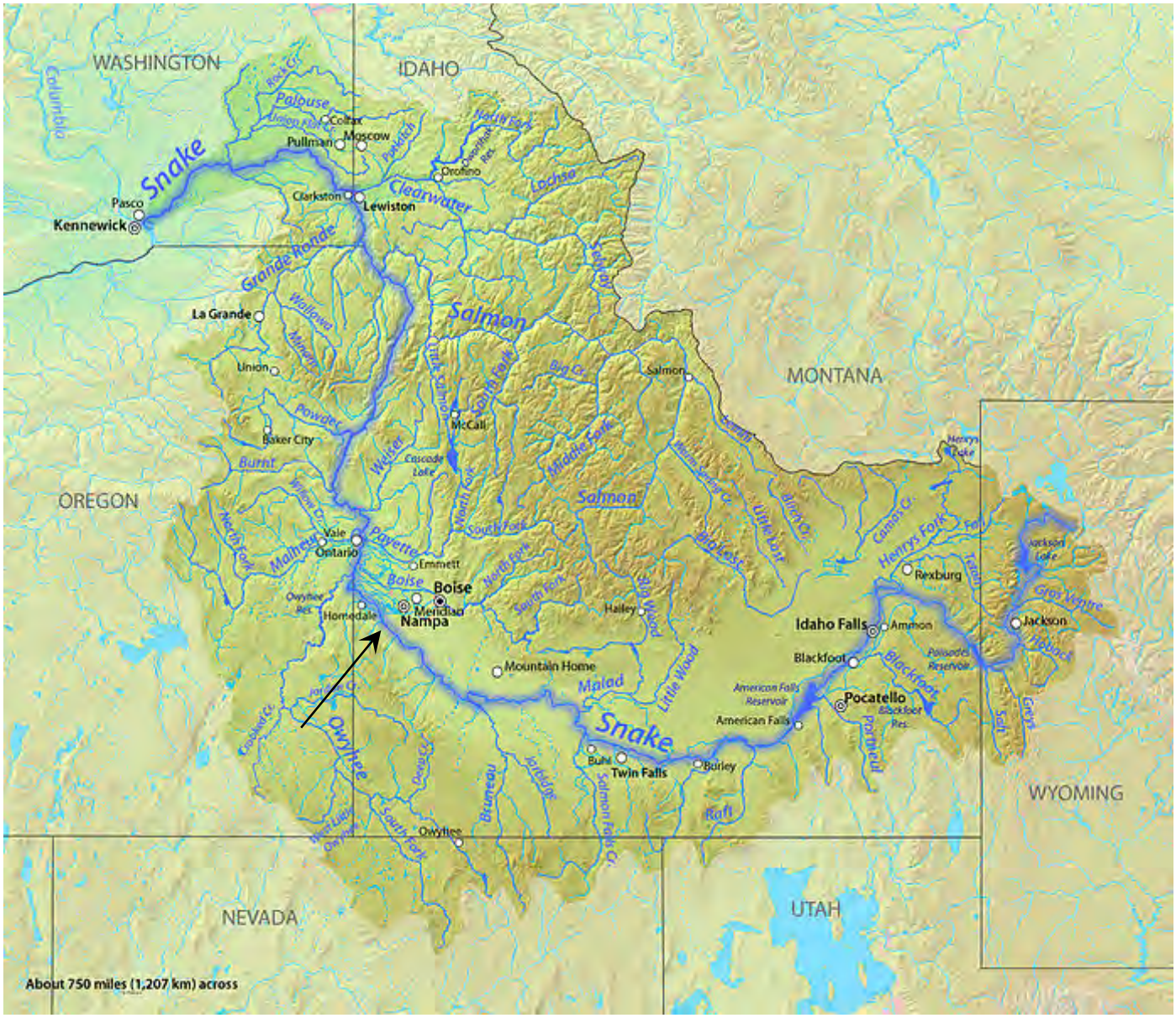
D. Permit Expiration

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

IX. REFERENCES

1. City of Marsing, ID, NPDES permit, effective May 1, 2004 to April 30, 2009.
2. Idaho Administrative Procedures Act (IDAPA), 2006. Section 58, Water Quality Standards and Wastewater Treatment Requirements. Idaho Department of Environmental Quality Rules, Title 01, Chapter 02.
3. U.S. EPA, 1973. *Water Quality Criteria 1972* (EPA R3-73-033).
4. EPA. 1991. Technical Support Document for Water Quality-based Toxics Control. US Environmental Protection Agency, Office of Water, EPA/505/2-90-001.
5. EPA, 2010. U.S. EPA NPDES Permit Writer's Manual, US Environmental Protection Agency, Office of Wastewater Management, EPA-833-K-10-001.
6. U.S. EPA, December 2003, Biological Evaluation for Issuance of a NPDES Permit for the City of Marsing Wastewater Treatment Plant, Marsing, Idaho.
7. Idaho Department of Environmental Quality, Boise Regionl Office, *Mid Snake River/Succor Creek Subbasin Assessment and TMDL*, April 2003

Appendix A – Location Map



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 BOD_5, 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.

On September 20, 1984, EPA revised the Secondary Treatment Regulations (40CFR 133.102) for facilities that use waste stabilization ponds as the principal process. These revisions established effluent limitations for Treatment Equivalent to Secondary Treatment (40 CFR 133.105). These provisions allow alternative limits for BOD_5 and TSS for such facilities, provided all three of the following criteria are met (40 CFR 133.101(g) and 40 CFR 133.105(d)):

(1) The BOD_5 and TSS effluent concentrations consistently achievable through proper operation and maintenance (§ 133.101(f)) of the treatment works exceed the minimum level of the effluent quality set forth in §§ 133.102(a) and (b).

The regulation at 133.101(f) defines effluent concentrations consistently achievable through proper operation and maintenance as the 95th percentile value for a given pollutant for the 30-day average effluent quality achieved by a treatment works in a

period of at least two years and a 7-day average value equal to 1.5 times the value derived from that value.

Also, 40 CFR133.105(f) states:

"Furthermore, permitting authorities shall require more stringent limitations when adjusting permits if: (1) For existing facilities the permitting authority determines that the 30-day average and the 7- day average BOD_5 and TSS effluent values that could be achievable through proper operating and maintenance of the treatment work, based on an analysis of the past performance of the treatment works, would enable the treatment works to achieve more stringent limitations"

(2) A trickling filter or waste stabilization pond (lagoon) is used as the principal process, and

(3) The treatment works provide significant biological treatment of municipal wastewater. The regulations at § 133.101(k) defines *significant biological treatment* as the use of an aerobic or anaerobic biological treatment process in a treatment works to consistently achieve a 30-day average of at least 65 percent removal of BOD_5.

Requirements for Treatment Equivalent to Secondary

For BOD_5 The City of Marsing does not meet all three criteria for Treatment Equivalent to Secondary. The City does meet all three criteria for TSS.

(1) Marsing does not meet the first criteria for treatment equivalent to secondary treatment. Marsing's BOD_5 effluent concentrations do not consistently exceed the minimum level of effluent quality set forth in § 133.102(a) and (b) shown in Table B-1.

Based on an analysis of past performance of the treatment works Marsing can achieve more stringent limitations than Treatment Equivalent to Secondary Treatment. An analysis of the monitoring data reported from 2007 to 2012 found the 95th percentile 30-day average effluent quality achieved by the treatment works for BOD_5 was 11 mg/L. Therefore, the City of Marsing BOD_5 effluent concentration does not exceed the minimum 30-day average of 30 mg/L.

The 7-day average BOD_5 value is equal to:

1.5 x 11 mg/L = 16.5 mg/L

Therefore, Marsing does not exceed the minimum level of effluent quality for the 7-day average of 45 mg/L. The proposed permit will require secondary treatment concentration limits for BOD_5 as shown in Table B-1.

An analysis of the monitoring data reported from 2007 to 2012 found the 95th percentile 30-day average effluent quality achieved by the treatment works for TSS was 64 mg/L.

The 7-day average TSS value is equal to:

1.5 x 64 mg/L = 96 mg/L

Therefore, Marsing does exceed the effluent quality for the 30-day and 7-day average of 30 mg/L and 45 mg/L for TSS.

(2) Because a waste stabilization pond (lagoon) is used as the primary process, the facility meets the second criteria for both BOD_5 and TSS.

(3) The facility meets the third criteria for BOD_5.

Based on past performance over the last five years the facility does provide significant biological treatment. Over the last five years Marsing achieved a 30-day average of at least 65 percent of BOD_5. In fact the facility achieved removal of 90 percent during the last five years with one exception of 76 percent. Because the facility does not meet all of the criteria set forth in 40 CFR § 133.105, the facility does not qualify for Treatment Equivalent to Secondary Treatment and therefore, the technology-based limits for BOD_5 in the draft permit are based on Secondary Treatment as shown on Table B-1.

For TSS Marsing meets the third criteria by achieving 65 percent removal 88 percent of the time. Therefore, the City of Marsing cannot meet secondary treatment limits for TSS, and the proposed permit continues to require Treatment Equivalent to Secondary for TSS. These values are a monthly average limit of 45 mg/L, a weekly average limit of 65 mg/L, and a minimum removal of 65%.

Mass-based Limits

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

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

The mass limits for BOD_5 and TSS are calculated as follows, using 0.30 mgd for design flow, the same value used to calculate load limits in the current permit:

BOD_5

Average Monthly Limit = 30 mg/L × 0.30 mgd × 8.34 = 75.0 lbs/day

Average Weekly Limit = 45 mg/L × 0.30 mgd × 8.34 = 112 lbs/day

TSS

Average Monthly Limit = 45 mg/L × 0.30 mgd × 8.34 = 112 lbs/day

Average Weekly Limit = 65 mg/L × 0.30 mgd × 8.34 = 162 lbs/day

Chlorine

Chlorine is often used to disinfect municipal wastewater prior to discharge. The Water Pollution Control Federation's *Chlorination of Wastewater* (1976) states that a properly designed and maintained wastewater treatment facility can achieve adequate disinfection if a 0.5 mg/L chlorine residual is maintained after 15 minutes of contact time. 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. For technology-based effluent limits, the AWL is calculated to be

1.5 times the AML, consistent with the "secondary treatment" limits for BOD_5 and TSS. This results in an AWL for chlorine of 0.75 mg/L.

Finally, since the federal regulations at 40 CFR 122.45 (b) and (f) require limitations for POTWs to be expressed as mass based limits using the design flow of the facility, mass based limits are calculated as follows:

Monthly average limit = 0.5 mg/L x 0.30 mgd x 8.34 = 1.3 lbs/day

Weekly average limit = 0.75 mg/L x 0.30 mgd x 8.34 = 1.9 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. 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 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.

The *Technical Support Document for Water Quality-Based Toxics Control* (EPA, 1991) (TSD) 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.

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 IDEQ draft certification proposes the following minimum mixing zones that result in no reasonable potential to violate IDEQ's water quality standards for ammonia and total residual chlorine. The dilution ratios used in the spreadsheet in Appendix C are also shown.

Minimum Dilution Ratios for No Reasonable Potential to Violate the IDEQ Water Quality Standards		
	Ammonia	**Chlorine**
Acute	51	27
Chronic	190	46
Minimum Mixing Zone for No Reasonable Potential to Violate the IDEQ Water Quality Standards (Percent of Receiving Water Flow)		
Acute	0.523	0.272
Chronic	1.64	0.415

The minimum dilution ratio calculations for ammonia are shown below.

Qe = maximum effluent flow = 0.30 mgd = 0.464 CFS

1Q10 = upstream low flow = 4440 CFS

$$\text{Acute dilution ratio} = \frac{0.464 + 4440(0.00523)}{0.464} = 51$$

30B3 = 5320 CFS

$$\text{Chronic dilution ratio} = \frac{0.464 + 5320(0.0164)}{0.464} = 190$$

If IDEQ does not grant the mixing zones in its final certification of this permit, the water quality-based effluent limits will be re-calculated such that the criteria are met before the effluent is discharged to the receiving water.

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.

Wasteload allocations are determined in one of the following ways:

1. TMDL-Based Wasteload Allocation

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

To ensure that these waters will come into compliance with water quality standards Section 303(d) of the CWA requires States to develop TMDLs for those water bodies that will not meet water quality standards even after the imposition of technology-based effluent limitations. The first step in establishing a TMDL is to determine the assimilative capacity (the loading of pollutant that a water body can assimilate without exceeding water quality standards). The next step is to divide the assimilative capacity into allocations for non-point sources (load allocations), point sources (wasteload allocations), natural background loadings and a margin of safety to account for any uncertainties. Permit limitations are then developed for point sources that are consistent with the wasteload allocation for the point source.

The State of Idaho developed the *Mid Snake River/Succor Creek Subbasin Assessment and TMDL* (IDEQ) , April 2003 (TMDL). This TMDL reported that the Snake River from Swan Falls to Boise River, the segment including the Marsing WWTP discharge outfall, was impaired by temperature, nutrients and dissolved oxygen. The Subbasin Assessment established a TMDL for nutrients, and concluded that dissolved oxygen would be addressed by the nutrient TMDL. The TMDL proposed no action for flow alteration, and listed temperature as a concern. EPA approved this TMDL in January 2004. The TMDL resulted in the following Waste Load Allocation for the Marsing WWTP: Total Phosphorus - 4 kg/day.

2. Mixing zone based WLA

When the State authorizes a mixing zone for the discharge, the WLA is calculated by using a simple mass balance equation. The equation takes into account the available dilution provided by the mixing zone and the background concentrations of the pollutant.

3. Criterion as the Wasteload Allocation

In some cases a mixing zone cannot be authorized, either because the receiving water is already at, or exceeds, the criterion, the receiving water flow is too low to provide dilution, or the facility can achieve the effluent limit without a mixing zone. In such cases, the criterion becomes the wasteload allocation. Establishing the criterion as the wasteload allocation ensures that the effluent discharge will not contribute to an exceedance of the criteria.

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-2.

Table B-2 Water Quality Criteria for Ammonia	
Acute Criterion	**Chronic Criterion**
$\frac{0.275}{1+10^{7.204-pH}}+\frac{39}{1+10^{pH-7.204}}$	$\left(\frac{0.0577}{1+10^{7.688-pH}}+\frac{2.487}{1+10^{pH-7.688}}\right)\times MIN\left(2.85,1.45\times10^{0.028\times(25-T)}\right)$

The acute and chronic criteria are derived from the annual 95th percentiles of pH and temperature. The permittee reported ambient data for ammonia, temperature and pH from May, 2005 to October, 2008. The 95th percentile values for each of pH and temperature from the surface water monitoring data will be used below to derive the ammonia criteria.

95th Percentile Ambient pH	8.73
95th Percentile (from Fruitland Snake) Ambient Temperature °C	23.5
Highest Background Ammonia mg/L	0.05
Highest Discharge Ammonia mg/L	35
Coefficient of Variation	0.36

The ammonia acute standard is 1.40 mg/L and the chronic standard is 0.41 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 Snake 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 indicate an exceedance of the geometric mean criterion, the EPA has included an instantaneous (single grab sample) maximum effluent limit for *E. coli* of 406 organisms/100 ml, in addition to a monthly geometric mean limit of 126 organisms/100 ml, which directly implements the water quality criterion for *E. coli*. This will ensure that the discharge will have a low probability of exceeding the geometric mean criterion for *E. coli* and

provide warning of and opportunity to avoid possible non-compliance with the geometric mean criterion.

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 Snake River. The City of Marsing does not have a reasonable potential to violate the water quality standards for chlorine in the Snake. 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 1.9 lbs/day and the weekly limit of 2.8 lbs/day.

Total Phosphorus

The WLA from the TMDL for phosphorus is 4 kg/day. The allocation is based on the operation at design capacity and monthly monitoring of total phosphorus. The TMDL states: "The target shown to result in attainment of water quality standards and support of designated uses in the reach is an instream concentration of less than or equal to 0.07 mg/L TP. Transport and deposition of phosphorus, and the resulting algal growth within the reach, is seasonal in nature. Therefore, application of the 0.07 mg/L TP target is also seasonal in nature, extending from the beginning of May through the end of September." Therefore the effluent limit for total phosphorus will apply from May 1 through September 30.

Effluent limits in NPDES permits for POTWs that discharge continuously must be expressed as average monthly and average weekly limits (40 CFR 122.45(d)(2)).

Monthly average allocation = 4 kg/day = 8.8 lb/day

Weekly limit is derived by multiplying by 1.5

8.8 lbs/day x 1.5 = 13.2 lbs/day

Appendix C: Reasonable Potential Calculations

Part A of this appendix explains the process the EPA has used to determine if the discharge authorized in the draft permit the potential to cause or contribute to a violation of Idaho's federally approved water quality standards. Part B demonstrates how the water quality-based limits (WQBELs) in the draft permit were calculated.

Reasonable Potential Analysis

The EPA uses the process described in the *Technical Support Document for Water Quality-based Toxics Control* (EPA, 1991) to determine reasonable potential. To determine if there is reasonable potential for the discharge to cause or contribute to an exceedance of water quality criteria for a given pollutant, the EPA compares the maximum projected receiving water concentration to the water quality criteria for that pollutant. If the projected receiving water concentration exceeds the criteria, there is reasonable potential, and a water quality-based effluent limit must be included in the permit. This following section discusses how the maximum projected receiving water concentration is determined

Mass Balance

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

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

where,

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

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

$$C_d = \frac{C_e \times Q_e + C_u \times Q_u}{Q_e + Q_u} \qquad \text{Equation 2}$$

The above form of the equation is based on the assumption that the discharge is rapidly and completely mixed with 100% of the receiving stream.

If the mixing zone is based on less than complete mixing with the receiving water, the equation becomes:

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

Where:

% MZ = the percentage of the receiving water flow available for mixing.

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

$$C_d = C_e \qquad \text{Equation 4}$$

A dilution factor (D) can be introduced to describe the allowable mixing. Where the dilution factor is expressed as:

$$D = \frac{Q_e + Q_u \times \%MZ}{Q_e} \qquad \text{Equation 5}$$

After the dilution factor simplification, the mass balance equation becomes:

$$C_d = \frac{C_e - C_u}{D} + C_u \qquad \text{Equation 6}$$

If the criterion is expressed as dissolved metal, the effluent concentrations are measured in total recoverable metal and must be converted to dissolved metal as follows:

$$C_d = \frac{CF \times C_e - C_u}{D} + C_u \qquad \text{Equation 7}$$

Where C_e is expressed as total recoverable metal, C_u and C_d are expressed as dissolved metal, and CF is a conversion factor used to convert between dissolved and total recoverable metal.

The above equations for C_d are the forms of the mass balance equation which were used to determine reasonable potential and calculate wasteload allocations.

Maximum Projected Effluent Concentration

When determining the projected receiving water concentration downstream of the effluent discharge, the EPA's Technical Support Document for Water Quality-based Toxics Controls (TSD, 1991) recommends using the maximum projected effluent concentration (Ce) in the mass balance calculation (see equation 3, page C-5). To determine the maximum projected effluent concentration (Ce) the EPA has developed a statistical approach to better characterize the effects of effluent variability. The approach combines knowledge of effluent variability as estimated by a coefficient of variation (CV) with the uncertainty due to a limited number of data to project an estimated maximum concentration for the effluent. Once the CV for each pollutant parameter has been calculated, the reasonable potential multiplier (RPM) used to derive the maximum projected effluent concentration (Ce) can be calculated using the following equations:

First, the percentile represented by the highest reported concentration is calculated.

$p_n = (1 - \text{confidence level})^{1/n}$ Equation 8

where,
p_n = the percentile represented by the highest reported concentration
n = the number of samples
confidence level = 99% = 0.99

and

$$RPM = \frac{C_{99}}{C_{P_n}} = \frac{e^{Z_{99} \times \sigma - 0.5 \times \sigma^2}}{e^{Z_{P_n} \times \sigma - 0.5 \times \sigma^2}}$$ Equation 9

Where,

σ^2 = $\ln(CV^2 + 1)$
Z_{99} = 2.326 (z-score for the 99th percentile)
Z_{Pn} = z-score for the P_n percentile (inverse of the normal cumulative distribution function at a given percentile)
CV = coefficient of variation (standard deviation ÷ mean)

The maximum projected effluent concentration is determined by simply multiplying the maximum reported effluent concentration by the RPM:

$$C_e = (RPM)(MRC)$$ Equation 10

where MRC = Maximum Reported Concentration

Maximum Projected Effluent Concentration at the Edge of the Mixing Zone
Once the maximum projected effluent concentration is calculated, the maximum projected effluent concentration at the edge of the acute and chronic mixing zones is calculated using the mass balance equations presented previously.

Reasonable Potential
The discharge has reasonable potential to cause or contribute to an exceedance of water quality criteria if the maximum projected concentration of the pollutant at the edge of the mixing zone exceeds the most stringent criterion for that pollutant.

Results of Reasonable Potential Calculations
It was determined that chlorine and ammonia do not have a reasonable potential to cause or contribute to an exceedance of water quality criteria at the edge of the mixing zone. The results of the calculations are presented in Table C-1.

Details of the calculations for reasonable potential are shown below.

Reasonable Potential Calculation

Facility:	Marsing
Water Body Type	Freshwater

Water Designation	Annual Basis (IDAPA 58.01.02 03. b)	
Aquatic Life - Acute Criteria - Criterion Max. Concentration (CMC)	**2392.7**	1Q10
Aquatic Life - Chronic Criteria - Criterion Continuous Concentration (CCC)	**2522.0**	7Q10 or 4B3
Ammonia	**2866.8**	30B3 or 30Q10
Human Health - Non-Carcinogen	**11464.0**	30Q5
Humn Health - carcinogen	**18143.6**	Harmonic Mean F

	Annual	Notes:
Receiving Water Temp, °C	23.56	95th percentile
Receiving Water pH	8.73	95th percentile

Pollutant			AMMONIA, Criteria as Total NH3	CHLORINE (Total Residual)
Effluent Data	# of Samples (n)		11	58
	Coeff of Variation (Cv)		0.36	0.13
	Effluent Concentration, µg/L (Max. or 95th Percentile)		34,700	450
	Calculated 50th percentile Effluent Conc. (when n>10)			
Mizing Zone Used	Aquatic Life - Acute		51	27.0000
	Aquatice Life - Chronic			46.0000
	Ammonia		190	
	Human Health - Non-Carcinogen			11464.0
	Humn Health - carcinogen			18143.6
Receiving Water Data	90th Percentile Conc., µg/L		50.0	0.0
	Geo Mean, µg/L			
Water Quality Criteria	Aquatic Life Criteria, µg/L	Acute	1,395	19
		Chronic	413	11
	Human Health Water and Organism, µg/L		-	-
	Human Health, Organism Only, µg/L		-	-
	Metal Criteria Translator, decimal	Acute	-	-
		Chronic	-	-
	Carcinogen?		N	N

Aquatic Life Reasonable Potential

σ	σ2=ln(CV^2+1)		0.349	0.129
Pn	=(1-confidence level)$^{1/n}$	99%	0.658	0.924
Multiplier	=exp(2.3262σ-0.5σ^2)/exp(invnorm(P_N)σ-0.5σ^2)	99%	2.0	1.1
Max. conc.(ug/L) at		Acute	1,379	18.715968
		Chronic	407	10.985464
Reasonable Potential? Limit Required?			**NO**	**NO**

Appendix D –IDEQ Draft 401 Certification

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DEPARTMENT OF
ENVIRONMENTAL QUALITY

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June 25, 2015

Mr. Michael J. Lidgard
NPDES Permits Unit Manager
EPA Region 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

Subject: FINAL 401 Water Quality Certification for the City of Marsing WWTF, ID-0020427

Dear Mr. Lidgard:

The Boise Regional Office of the Department of Environmental Quality (DEQ) has reviewed the above-referenced permit for the City of Marsing. Section 401 of the Clean Water Act requires that states issue certifications for activities which are authorized by a federal permit and which may result in the discharge to surface waters. In Idaho, DEQ is responsible for reviewing these activities and evaluating whether the activity will comply with Idaho's Water Quality Standards, including any applicable water quality management plans (e.g., total maximum daily loads). A federal discharge permit cannot be issued until DEQ has provided certification or waived certification either expressively, or by taking no action.

This letter is to inform you that DEQ is issuing the attached final 401 certification subject to the terms and conditions contained therein. Please contact me directly at (208) 373-0564 to discuss any questions or concerns regarding the content of this certification.

Sincerely,

Lance Holloway
Surface Water Manager
Boise Regional Office

c: John Drabek, EPA Region 10
Michael McIntyre, DEQ State Office

Idaho Department of Environmental Quality

Draft §401 Water Quality Certification

June 25, 2015

NPDES Permit Number(s): ID0020427, City of Marsing Wastewater Treatment Facility (WWTF)

Receiving Water Body: Snake River

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

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

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

Antidegradation Review

The WQS contain an antidegradation policy providing three levels of protection to water bodies in Idaho (IDAPA 58.01.02.051).

- Tier 1 Protection. The first level of protection applies to all water bodies subject to Clean Water Act jurisdiction and ensures that existing uses of a water body and the level of water quality necessary to protect those existing uses will be maintained and protected (IDAPA 58.01.02.051.01; 58.01.02.052.01). Additionally, a Tier 1 review is performed for all new or reissued permits or licenses (IDAPA 58.01.02.052.07).
- Tier 2 Protection. The second level of protection applies to those water bodies considered high quality and ensures that no lowering of water quality will be allowed unless deemed necessary to accommodate important economic or social development (IDAPA 58.01.02.051.02; 58.01.02.052.08).
- Tier 3 Protection. The third level of protection applies to water bodies that have been designated outstanding resource waters and requires that activities not cause a lowering of water quality (IDAPA 58.01.02.051.03; 58.01.02.052.09).

DEQ is employing a water body by water body approach to implementing Idaho's antidegradation policy. This approach means that any water body fully supporting its beneficial uses will be considered high quality (IDAPA 58.01.02.052.05.a). Any water body not fully supporting its beneficial uses will be provided Tier 1 protection for that use, unless specific circumstances warranting Tier 2 protection are met (IDAPA 58.01.02.052.05.c). The most recent federally approved Integrated Report and supporting data are used to determine support status and the tier of protection (IDAPA 58.01.02.052.05).

Pollutants of Concern

The City of Marsing WWTF discharges the following pollutants of concern: five-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), *E. coli* (bacteria), pH, total residual chlorine (TRC), temperature, total phosphorus, and ammonia. Effluent limits have been developed for BOD_5, TSS, *E. coli*, pH, TRC, and total phosphorus. No effluent limits are proposed for temperature and ammonia.

Receiving Water Body Level of Protection

The City of Marsing WWTF discharges to the Snake River within the Middle Snake-Succor Subbasin assessment unit (AU) 17050103SW001_07 (Snake River – Marsing [RM 525] to State Line). This AU has the following designated beneficial uses: cold water aquatic life, primary contact recreation and domestic water supply. In addition to these uses, all waters of the state are protected for agricultural and industrial water supply, wildlife habitat, and aesthetics (IDAPA 58.01.02.100).

The cold water aquatic life use in the Snake River is not fully supported due to excess nutrient/eutrophication biological indicators, flow regime alterations, and water temperature (2012 Integrated Report). The primary contact recreation beneficial use is fully supported. As such, DEQ will provide Tier 1 protection only for the aquatic life use and Tier 2 protection, in addition to Tier 1, for the recreational benefit use (IDAPA 58.01.02.051.02; 58.01.02.051.01).

Protection and Maintenance of Existing Uses (Tier 1 Protection)

As noted above, a Tier 1 review is performed for all new or reissued permits or licenses, applies to all waters subject to the jurisdiction of the Clean Water Act, and requires demonstration that existing uses and the level of water quality necessary to protect existing uses shall be maintained and protected. In order to protect and maintain designated and existing beneficial uses, a permitted discharge must comply with narrative and numeric criteria of the Idaho WQS, as well as other provisions of the WQS such as Section 055, which addresses water quality limited waters. The numeric and narrative criteria in the WQS are set at levels that ensure protection of designated beneficial uses. The effluent limitations and associated requirements contained in the City of Marsing WWTF permit are set at levels that ensure compliance with the narrative and numeric criteria in the WQS.

Water bodies not supporting existing or designated beneficial uses must be identified as water quality limited, and a total maximum daily load (TMDL) must be prepared for those pollutants causing impairment. A central purpose of TMDLs is to establish wasteload allocations for point source discharges, which are set at levels designed to help restore the water body to a condition

that supports existing and designated beneficial uses. Discharge permits must contain limitations that are consistent with wasteload allocations in the approved TMDL.

Prior to the development of the TMDL, the WQS require the application of the antidegradation policy and implementation provisions to maintain and protect uses (IDAPA 58.01.02.055.04).

The Snake River (AU 17050103SW001_07) cold water aquatic life use is impaired by excess water temperature (heat). A TMDL for temperature has not yet been developed. As noted above, prior to the development of a TMDL, the tier 1 protection provisions must be applied to protect and maintain uses. The effluent limits and associated requirements in the permit are set at levels to ensure compliance with the narrative and numeric water quality criteria, and therefore, ensure protection and maintenance of existing uses prior to the development of a temperature TMDL.

The EPA-approved *Mid-Snake River/Succor Creek TMDL* (2003) establishes wasteload allocations for total phosphorus. These wasteload allocations are designed to ensure the Snake River will achieve the water quality necessary to support its existing and designated aquatic life beneficial uses and comply with the applicable numeric and narrative criteria. The effluent limitations and associated requirements contained in the City of Marsing WWTF permit are set at levels that comply with these wasteload allocations.

In sum, the effluent limitations and associated requirements contained in the City of Marsing WWTF permit are set at levels that ensure compliance with the narrative and numeric criteria in the WQS and the wasteload allocations established in the *Mid-Snake River/Succor Creek TMDL*. Therefore, DEQ has determined the permit will protect and maintain existing and designated beneficial uses in the Snake River in compliance with the Tier 1 provisions of Idaho's WQS (IDAPA 58.01.02.051.01 and 58.01.02.052.07).

High-Quality Waters (Tier 2 Protection)

The Snake River is considered high quality for primary contact recreation. As such, the water quality relevant to primary contact recreation uses of the Snake River must be maintained and protected, unless a lowering of water quality is deemed necessary to accommodate important social or economic development.

To determine whether degradation will occur, DEQ must evaluate how the permit issuance will affect water quality for each pollutant that is relevant to primary contact recreation uses of the Snake River (IDAPA 58.01.02.052.05). These include the following: *E. coli* bacteria and total phosphorus. Effluent limits are set in the proposed and existing permit for *E. coli* bacteria and new limits are proposed for total phosphorus.

For a reissued permit or license, the effect on water quality is determined by looking at the difference in water quality that would result from the activity or discharge as authorized in the current permit and the water quality that would result from the activity or discharge as proposed in the reissued permit or license (IDAPA 58.01.02.052.06.a). For a new permit or license, the effect on water quality is determined by reviewing the difference between the existing receiving water quality and the water quality that would result from the activity or discharge as proposed in the new permit or license (IDAPA 58.01.02.052.06.a).

Pollutants with Limits in the Current and Proposed Permit

For pollutants that are currently limited and will have limits under the reissued permit, the current discharge quality is based on the limits in the current permit (IDAPA 58.01.02.052.06.a.i), and the future discharge quality is based on the proposed permit limits (IDAPA 58.01.02.052.06.a.ii). For the City of Marsing WWTF permit, this means determining the permit's effect on water quality based upon the limits for *E. coli* in the current and proposed permits. Table 1 provides a summary of the current permit limits and the proposed or reissued permit limits.

Table 1. Comparison of current and proposed permit limits for pollutants of concern relevant to uses receiving Tier 2 protection.

Pollutant	Units	Current Permit			Proposed Permit			Change[a]
		Average Monthly Limit	Average Weekly Limit	Single Sample Limit	Average Monthly Limit	Average Weekly Limit	Single Sample Limit	
Pollutants with limits in both the current and proposed permit								
E. coli	no./100 mL	126		406	126		406	NC
Pollutants with new limits in the proposed permit								
Total Phosphorus	lb/day (May–Sept)	—	—	Report	8.8	13		D
Pollutants with no limits in both the current and proposed permit								
Total Phosphorus	lb/day (October–April)	Report 1/month grab			Report 1/week grab			D

[a] NC = no change, I = increase, D = decrease.

The proposed permit limits for pollutants of concern that have limits in both the current and proposed permit in Table 1, *E. coli*, are the same as those in the current permit ("NC" in change column). Therefore, no adverse change in water quality and no degradation will result from the discharge of these pollutants.

New Permit Limits for Pollutants Currently Discharged

When new limits are proposed in a reissued permit for pollutants in the existing discharge, the effect on water quality is based upon the current discharge quality and the proposed discharge quality resulting from the new limits. Current discharge quality for pollutants that are not currently limited is based upon available effluent water quality data (IDAPA 58.01.02.052.06.a.i). Future effluent water quality is based upon proposed permit limits (IDAPA 58.01.02.052.06.a.ii).

The proposed permit for City of Marsing WWTF includes new limits for total phosphorus from May-September (Table 1). These limits were included in the permit to be consistent with the wasteload allocations in the approved *Mid-Snake River/Succor Creek TMDL*. The total phosphorus limits in the proposed permit reflect a maintenance or improvement in water quality from current conditions. Therefore, no adverse change in water quality and no degradation will occur with respect to these pollutants.

Pollutants with No Limits

There is one pollutant of concern, total phosphorus, relevant to Tier 2 protection of recreation that currently is not limited (October-April) and for which the proposed permit also contains no limit (Table 1). For such pollutants, a change in water quality is determined by reviewing

whether changes in production, treatment, or operation will increase the discharge of these pollutants (IDAPA 58.01.02.052.06.a.ii). With respect to total phosphorus, there is no reason to believe this pollutant will be discharged in quantities greater than those discharged under the current permit. This conclusion is based upon the fact that there have been no changes in the design flow, influent quality, or treatment processes that would likely result in an increased discharge of this pollutant. Because the proposed permit does not allow for any increased water quality impact from this pollutant, DEQ has concluded that the proposed permit should not cause a lowering of water quality for the pollutant with no limit. As such, the proposed permit should maintain the existing high water quality in the Snake River.

In sum, DEQ concludes that this discharge permit complies with the Tier 2 provisions of Idaho's WQS (IDAPA 58.01.02.051.02 and IDAPA 58.01.02.052.06).

Mixing Zones

Pursuant to IDAPA 58.01.02.060, DEQ authorizes a mixing zone that utilizes 2% of the critical flow volumes of Snake River for ammonia and 1% of the critical flow volumes of Snake River for chlorine.

Other Conditions

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

Right to Appeal Final Certification

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

Questions or comments regarding the actions taken in this certification should be directed to Lance Holloway, Boise Regional Office, (208) 373-0461, Lance.Holloway@deq.idaho.gov.

DRAFT

Aaron Scheff
Regional Administrator
Boise Regional Office