Fact Sheet

**The U.S. Environmental Protection Agency (EPA)
Proposes to Reissue a National Pollutant Discharge Elimination System (NPDES) Permit to Discharge Pollutants Pursuant to the Provisions of the Clean Water Act (CWA) to:**

City of Mackay Wastewater Treatment Plant
NPDES Permit No. ID0023027

Public Comment Start Date: January 25, 2018
Public Comment Expiration Date: February 26, 2018

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The EPA Proposes to Reissue NPDES Permit
The EPA proposes to reissue the NPDES permit for the facility referenced above. The draft permit places conditions on the discharge of pollutants from the wastewater treatment plant to the Big Lost River. In order to ensure protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged 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 Certification
Upon the EPA's request, the Idaho Department of Environmental Quality (IDEQ) has provided a draft certification of the permit for this facility under Section 401 of the Clean Water Act. Comments regarding the certification should be directed to:

DEQ Idaho Falls Regional Office
900 N. Skyline Drive, Suite B
Idaho Falls, ID 83402
(208) 528-2650

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."

US EPA Region 10
1200 Sixth Avenue
Suite 900, OWW-191
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:

DEQ Idaho Falls Regional Office
900 N. Skyline Drive, Suite B
Idaho Falls, ID 83402
(208) 528-2650

List of Tables

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
AML	Average Monthly Limit
AWL	Average Weekly Limit
BOD_5	Biochemical oxygen demand, five-day
°C	Degrees Celsius
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CV	Coefficient of Variation
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
FR	Federal Register
Gpd	Gallons per day
HUC	Hydrologic Unit Code
ICIS	Integrated Compliance Information System
IDEQ	Idaho Department of Environmental Quality
I/I	Infiltration and Inflow
LA	Load Allocation
lbs/day	Pounds per day
LTA	Long Term Average
mg/L	Milligrams per liter
mL	Milliliters
µg/L	Micrograms per liter
mgd	Million gallons per day
MDL	Maximum Daily Limit or Method Detection Limit

N	Nitrogen
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
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
RWC	Receiving Water Concentration
SS	Suspended Solids
SSO	Sanitary Sewer Overflow
s.u.	Standard Units
TMDL	Total Maximum Daily Load
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
WLA	Wasteload allocation
WQBEL	Water quality-based effluent limit
WQS	Water Quality Standards
WWTP	Wastewater treatment plant

I. Background Information

A. General Information

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

Table 1: General Facility Information

NPDES Permit #:	ID0023027
Applicant:	City of Mackay Wastewater Treatment Facility
Type of Ownership	Municipal
Physical Address:	203 Main Street Mackay, ID 83251
Mailing Address:	P.O. Box 509 Custer County Mackay, ID 83251
Facility Contact:	Kenneth Day Public Works Supervisor (208) 588-2274
Facility Location:	Latitude 43.90220 Longitude -113.61107
Receiving Water	Big Lost River
Facility Outfall	Latitude 43.90 Longitude -113.61111

B. Permit History

The most recent NPDES permit for the City of Mackay (City) Wastewater Treatment Plant (WWTP) was issued on March 19, 2004, became effective on June 1, 2004, and expired on May 31, 2009. An NPDES application for permit issuance was submitted by the permittee on April 10, 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. Idaho NPDES Authorization

In 2014, the Idaho Legislature revised the Idaho Code to direct the Idaho Department of Environmental Quality (IDEQ) to seek authorization from the EPA to administer the NPDES permit program for the State of Idaho. On August 31, 2016, IDEQ submitted a program package pursuant to CWA Section 402(b) and 40 CFR 123.21.

IDEQ is seeking authorization for a phased NPDES permit program that would begin July 1, 2018. Assuming that IDEQ's request for authorization is approved, IDEQ would obtain permitting for POTWs on July 1, 2018. At that point in time, all documentation required by the permit would be sent to IDEQ rather than to the EPA and any decision under the permit stated to be made by the EPA or jointly between the EPA and IDEQ will be made solely by IDEQ. Permittees will be notified by IDEQ when this transition occurs.

III. Facility Information

A. Treatment Plant Description

Service Area

The City owns and operates the WWTP located in Mackay, Idaho. The collection system has no combined sewers. The facility serves a resident population of 566. There are no major industries discharging to the facility and the facility does not have a pretreatment program.

Treatment Process

The design flow of the facility is 0.18 mgd. Actual flows from the facility range from 0.017 to 0.138 mgd (average monthly) with an average of 0.07 mgd. The treatment process consists of a two cell lagoon system and disinfection using chlorine. Two floating surface aerators are equipped to the first lagoon while the second is a facultative cell. A map showing the location of the treatment facility and discharge is included in Appendix A. Because the design flow is less than 1 mgd, the facility is considered a minor facility.

Outfall Description

The WWTP effluent flows over a v-notch weir into a ditch (approximately 150 feet) leading to the outfall line (approximately 200 feet). The outfall line discharges through outfall 001, above the water line, to the Big Lost River year round.

Effluent Characterization

To characterize the effluent, the EPA evaluated the facility's application form, discharge monitoring report (DMR) data, and additional data provided by the City. The effluent quality is summarized in Table 2. Data are provided in Appendix B, *Water Quality Data*.

Table 2: Effluent Characterization

Parameter	Units	Maximum	Minimum
Biochemical Oxygen Demand (BOD_5)	mg/L	45	2
Total Suspended Solids (TSS)	mg/L	64	1
E. coli bacteria	#/100 mL	404	1
Total Residual Chlorine (TRC)	mg/L	1.0	0.35
pH	s.u.	9.0	6.6
Total Ammonia (as N)	mg/L	16.0	0.77
Flow Rate	mgd	0.18	0.017
Temperature	°C	20.6	2.1
Dissolved Oxygen	mg/L	20	6
Phosphorus	mg/L	6.01	0.98

Compliance History

Overall, the facility has had a good compliance record. An effluent limit violation occurred in February 2017 for percent removal of BOD_5. The removal rate was 47.6%, not meeting the minimum level of 65%. The permittee attributed the low percent removal to dilute influent.

On February 17th, 2017, the EPA sent the City a notice of violation for not submitting a DMR for the month of March 2016, failure to properly preserve BOD effluent samples by exceeding the minimum holding temperature, and failure to maintain adequate laboratory controls and appropriate quality assurance procedures due to expired pH buffer solutions.

Additional compliance information for this facility, including compliance with other environmental statutes, is available on Enforcement and Compliance History Online (ECHO). The ECHO web address for this facility is: https://echo.epa.gov/detailed-facility-report?fid=110009726001

IDEQ conducted an inspection of the facility on September 12, 2016. The inspection encompassed the wastewater treatment process, records review, operation and maintenance, and the collection system. Overall, the results of the inspection were satisfactory and resulted in the compliance reporting recommendations as described above.

IV. Receiving Water

In drafting permit conditions, the EPA must analyze the effect of the facility's discharge on the receiving water. The details of that analysis are provided later in this Fact Sheet. This section summarizes characteristics of the receiving water that impact that analysis.

A. Receiving Water

This facility discharges to the Big Lost River in Custer County, Idaho. The outfall is located downstream (south) of the City. The Big Lost River flows southeast from the City to the Snake River Plain where it infiltrates through sinks into the groundwater. The river is frequently diverted to small channels used for irrigation.

B. Designated Beneficial Uses

This facility discharges to the Big Lost River in the Big Lost Subbasin (HUC 17040218) Water Body Unit US-11 (IDAPA 58.01.02.150.20). At the point of discharge, the Big Lost River is protected for the following designated uses:

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

In addition, Water Quality Standards state that all waters of the State of Idaho are protected for industrial and agricultural water supply, wildlife habitats and aesthetics (IDAPA 58.01.02.100.03.b and c, 100.04 and 100.05).

C. Water Quality

The EPA reviews receiving water quality data when assessing the need for and developing water quality based effluent limits. In determining assimilative capacity of the receiving water, the EPA must account for the amount of the pollutant already present in the receiving water. In situations where some of the pollutant is actually present in the upstream waters, an assumption of "zero background" concentration overestimates the available assimilative

capacity of the receiving water and could result in limits that are not protective of applicable water quality standards.

The water quality for the receiving water is summarized in Table 3. The City collected receiving water data in the Big Lost River between March 2005 and February 2009. The 18 sampling events were conducted at an upstream monitoring station established per previous permit requirements.

Table 3: Receiving Water Quality Data

Parameter	Units	Percentile	Value	Source
Temperature	°C	95th	14.4	City of Mackay March 2005 – February 2009
pH	Standard units	5th – 95th	7.6 – 9.1	
Dissolved Oxygen	mg/L	5th – 95th	9.8 – 13.9	
Ammonia as N	mg/L	maximum	0.16	
Phosphorus as P	mg/L	maximum	0.09	

D. Water Quality Limited Waters

Any waterbody for which the water quality does not, and/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 while maintaining compliance with 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 (40 CFR 122.44(d)(vii)).

The State of Idaho's 2014 Integrated Report Section 5 (section 303(d)) lists the Big Lost River, from Mackay Reservoir Dam to the Beck and Evan Ditch, as category 4a and not supporting Cold Water Aquatic Life nor Salmonid Spawning Beneficial Uses due to temperature.

In May 2004, IDEQ published the *Big Lost River Watershed Subbasin Assessment and TMDL 2004 (2004 TMDL)*. The *2004 TMDL* addressed impairments on Idaho's 1998 303(d) list. The *2004 TMDL* established wasteload allocations for BOD_5, pH, TSS, *E coli*, flow, and chlorine, equal to the limits in the current NPDES permit (*See* Table 59, *2004 TMDL*). At the time the *2004 TMDL* was written, the current permit was in draft form and was out for public notice. The 2004 draft permit limits did not change when the permit was issued. The *2004 TMDL* explained that the current permit "is adequate to maintain water quality on the Big Lost River near and below Mackay." (*See* Page 125, *2004 TMDL).*

In November 2011, IDEQ published the final *Big Lost River Subbasin Total Maximum Daily Load Addendum and Five Year Review 2011* (hereinafter referred to as the *2011 TMDL*). The TMDL included WLAs/LAs for temperature. IDEQ states in the *2011 TMDL* that the WWTP "is too small to provide any measureable pollutant load to the Big Lost River" and therefore the *2011 TMDL* did not require a specific WLA for temperature.

EPA approved the *2011 TMDL* on November 25, 2011. In its approval letter, EPA recommended the monitoring requirement for the Mackay WWTP temperature be increased to include either daily or continuous monitoring.

In July 2017, IDEQ published the final *Big Lost River Subbasin Temperature Total Maximum Daily Load 2017 Addendum and Five-Year Review (2017 TMDL).* The *2017 TMDL* does not address the Mackay WWTP.

The draft permit maintains or makes more stringent all limits from the current permit; therefore, the draft permit is consistent with the assumptions in the *2011 TMDL*. The draft permit also includes temperature monitoring requirements consistent with EPA's recommendation in its approval of the *2011 TMDL*. The WWTP will be required to monitor effluent temperature daily or continuously (see *Table 6: Proposed Effluent Limits and Monitoring Requirements*).

E. Low Flow Conditions

The Technical Support Document for Water Quality-Based Toxics Control (EPA, 1991) and the Idaho Water Quality Standards recommend the flow conditions for use in calculating water quality-based effluent limits (WQBELs) using steady-state modeling.

Critical low flows for the receiving water are summarized in Table 4*: Critical Flows in Receiving Water*. Low flows were calculated using data from USGS 13127000 Big Lost River Below Mackay Reservoir Near Mackay Idaho stream gage station. The critical low flows were determined using stream flow data from April 1, 2005 to March 31, 2017 and the USGS Surface Water Toolbox.

The existing permit used stream flow data from USGS 13120500 Big Lost River at Howell Ranch Near Chilly Idaho. This station is located upstream from Mackay Reservoir; the reservoir is located upstream of the outfall. The new data utilizes a station located between Mackay Reservoir and Outfall 001. The 1Q10 and 7Q10 critical flows have changed from the current permit by 1 cfs. The notable difference is in the Harmonic Mean Flow. The existing permit uses a Harmonic Mean flow of 120.8 cfs while the draft permit uses 144.98 cfs.

Table 4: Critical Flows in Receiving Water

Flows	Annual Flow (cfs)
1Q10	38.0
7Q10	42.8
30B3	53.4
30Q5	50.6
Harmonic Mean	145.0

Low flows are defined in Appendix C, Part C, *Critical Low Flow Conditions*.

V. Effluent Limitations and Monitoring

Table 5, below, presents the existing effluent limits and monitoring requirements in the Existing Permit. Table 6, below, presents the proposed effluent limits and monitoring requirements in the draft permit. Table 7, below, summarizes the changes in effluent limits and monitoring requirements between the existing and draft permits.

Table 5: Existing Effluent Limits and Monitoring Requirements

Parameter	Units	Effluent Limitations			Monitoring Requirements		
		Average Monthly Limit	Average Weekly Limit	Instantaneous Maximum Limit	Sample Location	Sample Frequency	Sample Type
Parameters With Effluent Limits							
Flow	mgd	--	--	--	Effluent	Continuous	Recording
Biochemical Oxygen Demand (BOD_5)	mg/L	45	65	--	Influent and Effluent	1/month	Grab
	lbs/day	68	98	--			
Total Suspended Solids (TSS)	mg/L	45	65	--	Influent and Effluent	1/month	Grab
	lbs/day	65	98	--			
E. coli Bacteria [1,2]	#/100 ml	126	--	406	Effluent	5/month	Grab
Total Residual Chlorine	mg/L	0.5	0.75	--	Effluent	1/week	Grab
	lbs/day	0.8	1.1	--			
Total Phosphorus as P[3]	mg/L	--	--	--	Effluent	1/month	Grab
Temperature[3]	°C	--	--	--	Effluent	1/month	Grab
Dissolved Oxygen[3]	mg/L	--	--	--	Effluent	1/month	Grab
Total Ammonia as N[3]	mg/L	--	--	--	Effluent	1/month	Grab
BOD_5 Percent Removal	%	65 (minimum)	--	--	--	1/month	Calculation
TSS Percent Removal	%	65 (minimum)	--	--	--	1/month	Calculation
pH	std units	Between 6.5 – 9.0			Effluent	1/week	Grab
Floating, Suspended, or Submerged Matter	--	There shall be no discharge of floating solids, visible foam in other than trace amounts, or oily wastes that produce a sheen on the surface of the receiving water.					

Notes
1. The average monthly E. coli count must not exceed a geometric mean of 126/100 ml based on a minimum of five samples taken every 3-5 days within a calendar month.
2. Reporting is required within 24 hours of a maximum daily limit or instantaneous maximum limit violation.
3. Monitoring shall be conducted once per month starting in January 2006 and lasting for one year.

Table 6: Proposed Effluent Limits and Monitoring Requirements

Parameter	Units	Effluent Limitations			Monitoring Requirements		
		Average Monthly	Average Weekly	Maximum Daily	Sample Location	Sample Frequency	Sample Type
Parameters With Effluent Limits							
Biochemical Oxygen Demand (BOD_5)	mg/L	45	65	--	Influent and Effluent	2/month	Grab
	lbs/day	68	98	--			Calculation
BOD_5 Percent Removal	%	65 (minimum)	--	--	--	1/month	Calculation
Total Suspended Solids (TSS)	mg/L	45	65	--	Influent and Effluent	2/month	Grab
	lbs/day	65	98	--			Calculation
TSS Percent Removal	%	65 (minimum)	--	--	--	1/month	Calculation
E. coli	#/100 ml	126	--	406 (instant. max)	Effluent	5/month	Grab
Total Residual Chlorine (Final)	µg/L	420	--	470	Effluent	1/week	Grab
	lbs/day	0.63	--	0.71			Calculation
Total Residual Chlorine (Interim)	µg/L	500	750	--	Effluent	1/week	Grab
	lbs/day	0.8	1.1	--			Calculation
pH	std units	Between 6.5 – 9.0			Effluent	1/week	Grab
Total Ammonia (as N) (Final)	mg /L	10	--	25	Effluent	1/week	Grab
	lbs/day	15	--	38			Calculation
Floating, Suspended, or Submerged Matter	--	See Paragraph I.B.2 of the permit				1/month	Visual Observation
Report Parameters							
Flow	mgd	Report	--	Report	Effluent	Continuous	Meter
Total Ammonia (as N) (Interim)	mg/L	Report	--	Report	Effluent	1/month	Grab
Temperature	ºC	--	Report	Report Daily and Instantaneous Maximum	Effluent	Daily or Continuous	Grab or Auto Record
Effluent Testing for Permit Renewal							
Permit Application Effluent Testing Data	--				Effluent	1/year	--

Table 7: Changes in Permit Effluent Limits and Monitoring Requirements

Parameter	Existing Permit		Draft Permit	
	Effluent Limits	**Monitoring Frequency**	**Effluent Limits**	**Monitoring Frequency**
Biochemical Oxygen Demand (BOD_5)		1/month		2/month
Total Suspended Solids (TSS)		1/month		2/month
Total Residual Chlorine	AML[1] = 0.5 mg/L & 0.8 lbs/day AWL[2] = 0.75 mg/L & 1.1 lbs/day		**Final Limits** AML[1] = 0.42 mg/L & 0.63 lbs/day MDL[3] = 0.47 mg/L & 0.71lbs/day	
Total Ammonia (as N)	Report	1/month for 1 year[4]	**Final Limits** AML[1] = 10 mg/L & 15 lbs/day MDL[3] = 25 mg/L & 38 lbs/day	1/week
Temperature		1/month for 1 year[4]		Daily or Continuous
Total Phosphorus as P		1/month for 1 year[4]		No Monitoring
Dissolved Oxygen		1/month for 1 year[4]		No Monitoring
Permit Application Effluent Testing Data		No Monitoring		1/year

Notes
1. AML stands for Average Monthly Limit
2. AWL stands for Average Weekly Limit
3. MDL stands for Maximum Daily Limit
4. Monitoring is once per month starting in January 2006 and lasting for one year.

A. Basis for Effluent Limits

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.

B. Pollutants of Concern

Pollutants of concern are those that either have technology-based limits or may need water quality-based limits. The EPA identifies pollutants of concern for the discharge based on those which:

- Have a technology-based limit
- Have an assigned wasteload allocation (WLA) from a TMDL
- Had an effluent limit in the previous permit

- Are present in the effluent monitoring. Monitoring data are reported in the application and DMR and any special studies
- Are expected to be in the discharge based on the nature of the discharge

The wastewater treatment process for this facility includes secondary treatment, as well as disinfection with chlorination. Pollutants expected in the discharge from a facility with this type of treatment, include but are not limited to: five-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), *E. coli* bacteria, total residual chlorine (TRC), pH, ammonia, and temperature.

Based on this analysis, pollutants of concern are as follows:

- BOD_5
- TSS
- *E. coli* bacteria
- TRC
- pH
- Ammonia
- Temperature
- Flow

C. Technology-Based Effluent Limits

Federal Secondary Treatment Effluent Limits

The CWA requires POTWs to meet performance-based requirements based on available wastewater treatment technology. Section 301 of the CWA established a required performance level, referred to as "secondary treatment," which 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 certain municipal WWTPs 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 below in Table 8. For additional information and background refer to Part 5.1 *Technology Based Effluent Limits for POTWs* in the Permit Writers Manual.

Table 8: Secondary Treatment Effluent Limits

Parameter	30-day average	7-day average
BOD_5	30 mg/L	45 mg/L
TSS	30 mg/L	45 mg/L
Removal for BOD_5 and TSS (concentration)	85% (minimum)	---
pH	within the limits of 6.0 - 9.0 s.u.	
Source: 40 CFR 133.102		

Equivalent to Secondary Treatment Effluent Limits

The EPA has additionally established effluent limitations (40 CFR 133.105) that are considered "equivalent to secondary treatment" which apply to facilities meeting certain conditions established under 40 CFR 133.101(g). Three criterion are used to determine if a facility is eligible for the equivalent treatment limits. The federally promulgated equivalent to secondary treatment effluent limits are listed below in Table 9.

Table 9: Equivalent to Secondary Treatment Effluent Limits

Parameter	30-day average	7-day average
BOD_5	45 mg/L	65 mg/L
TSS	45 mg/L	65 mg/L
Removal for BOD_5 and TSS (concentration)	65% (minimum)	---
Source: 40 CFR 133.105		

The existing permit for the City has equivalent to secondary treatment effluent limits for BOD_5, TSS, and percent removal. Using DMR data, the EPA reevaluated treatment limits for the WWTP in reference to the 40 CFR 133.101(g) criteria below:

- Criterion #1 - Consistently Exceeds Secondary Treatment Standards: The first criterion that must be satisfied to qualify for the equivalent to secondary standards is demonstrating that the BOD_5 and TSS effluent concentrations consistently achievable through proper operation and maintenance of the treatment works exceed the secondary treatment standards set forth in §133.102(a) and (b). The regulations at §133.101 (f) define "effluent concentrations consistently achievable through proper operation and maintenance" as
    - (f)(1): For a given pollutant parameter, the 95^{th} percentile value for the 30-day average effluent quality achieved by a treatment works in a period of at least 2 years, excluding values attributable to upsets, bypasses, operational errors, or other unusual conditions, and
    - (f)(2): A 7-day average value equal to 1.5 times the value derived under paragraph (f)(1).
- Criterion #2 – Principal Treatment Process: The second criterion that a facility must meet to be eligible for equivalent to secondary standards is that its principal treatment process must be a trickling filter or waste stabilization pond (i.e., the largest percentage of BOD_5 and TSS removal is from a trickling filter or waste stabilization pond system).
- Criterion #3 – Provide Significant Biological Treatment: The third criterion for applying equivalent to secondary standards is that the treatment works provides significant biological treatment of municipal wastewater. The regulations at §133.101(k) define significant biological treatment as using 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.

The EPA determined that the City of Mackay continues to qualify for equivalent to the secondary treatment standards. (See Appendix E for determination).

Mass-Based Limits

The federal regulation at 40 CFR 122.45(f) requires that effluent limits be expressed in terms of mass, except under certain conditions. The regulation at 40 CFR 122.45(b) requires that effluent limitations for POTWs be calculated based on the design flow of the facility. The mass based limits are expressed in pounds per day and are calculated as follows:

Mass based limit (lb/day) = concentration limit (mg/L) × design flow (mgd) × 8.34[1]

Since the design flow for this facility is 0.18 mgd, the equivalent to secondary technology based mass limits for BOD_5 and TSS are calculated as follows:

Average Monthly Limit = 45 mg/L × 0.18 mgd × 8.34 = 68 lbs/day

Average Weekly Limit = 65 mg/L × 0.18 mgd × 8.34 = 98 lbs/day

Chlorine

Chlorine is often used to disinfect municipal wastewater prior to discharge. The WWTP 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. 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.

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 for chlorine are calculated as follows:

Average Monthly Limit = 0.5 mg/L × 0.18 mgd × 8.34 = 0.75 lbs/day

Average Weekly Limit = 0.75 mg/L × 0.18 mgd × 8.34 = 1.1 lbs/day

The EPA has determined that water quality-based effluent limits, which are more stringent than the above-described technology-based effluent limits, are necessary for chlorine. See 0 for reasonable potential and effluent limit calculations for TRC.

[1] 8.34 is a conversion factor with units (lb ×L)/(mg × gallon×10^6)

D. 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. 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. 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. Effluent limits must also meet the applicable water quality requirements of affected States other than the State in which the discharge originates, which may include downstream States (40 CFR 122.4(d), 122.44(d)(4), see also CWA Section 401(a)(2)).

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 for the discharge in an approved TMDL. If there are no approved TMDLs that specify wasteload allocations for this discharge; all of the water quality-based effluent limits are calculated directly from the applicable water quality standards.

Reasonable Potential Analysis and Need for Water Quality-Based Effluent Limits

The EPA uses the process described in the *Technical Support Document for Water Quality-based Toxics Control* (*TSD*) 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.

In some cases, a dilution allowance or mixing zone is permitted. A mixing zone is a limited area or volume of water where initial dilution of a discharge takes place and within which certain water quality criteria may be exceeded (EPA, 2014). While the criteria may be exceeded within the mixing zone, the use and size of the mixing zone must be limited such that the waterbody as a whole will not be impaired, all designated uses are maintained and acutely toxic conditions are prevented.

The Idaho Water Quality Standards at IDAPA 58.01.02.060 provides Idaho's mixing zone policy for point source discharges. In the State 401 Certification, the IDEQ proposes to authorize mixing zones. The proposed mixing zones are summarized below in Table 10. The EPA also calculated dilution factors for year round critical low flow conditions. All dilution factors are calculated with the effluent flow rate set equal to the design flow of 0.18 mgd.

Table 10: Mixing zones

Criteria Type	Critical Low Flow (cfs)	Mixing Zone (% of Critical Low Flow)	Dilution Factor
Acute Aquatic Life	38.0	25	35.1
Chronic Aquatic Life (except ammonia)	42.8	25	39.4
Chronic Aquatic Life (ammonia)	53.4	25	48.9

The reasonable potential analysis and water quality-based effluent limit calculations were based on mixing zones shown in Table 10. If IDEQ revises the allowable mixing zone in its final certification of this permit, reasonable potential analysis and water quality-based effluent limit calculations will be revised accordingly.

The equations used to conduct the reasonable potential analysis and calculate the water quality-based effluent limits are provided in Appendix C.

Reasonable Potential and Water Quality-Based Effluent Limits

The reasonable potential and water quality-based effluent limit for specific parameters are summarized below. The calculations are provided in Appendix C and 0.

Ammonia

Ammonia criteria are based on a formula which relies on the pH and temperature of the receiving water, 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 table below details the equations used to determine water quality criteria for ammonia. Data were collected by the permittee upstream of Outfall 001 between March 2005 - February 2009. The 95th percentiles as used in the calculation below were 14.4°C and 9.1 s.u. for temperature and pH respectively.

Table 11: Ammonia Criteria

Total ammonia nitrogen criteria (mg N/L):
Annual Basis
Based on IDAPA 58.01.02

INPUT	
1. Receiving Water Temperature (deg C):	14.4
2. Receiving Water pH:	9.10
3. Is the receiving water a cold water designated use?	Yes
4. Are non-salmonid early life stages present or absent?	Present
OUTPUT	
Total ammonia nitrogen criteria (mg N/L):	
Acute Criterion (CMC)	**0.76**
Chronic Criterion (CCC)	**0.42**

Acute Criteria Equation: Cold Water

$$CMC = \frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}}$$

Acute Criteria Equation: Warm Water

$$CMC = \frac{0.411}{1+10^{7.204-pH}} + \frac{58.4}{1+10^{pH-7.204}}$$

Chronic Criteria: Cold Water, Early Life Stages Present

$$CCC = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}}\right) \bullet MIN(2.85, 1.45 \cdot 10^{0.028(25-T)}$$

Chronic Criteria: Cold Water, Early Life Stages Absent

$$CCC = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}}\right) \bullet 1.45 \cdot 10^{0.028(25-T)})$$

A reasonable potential calculation showed that the City's discharge would have the reasonable potential to cause or contribute to a violation of the water quality criteria for ammonia. Therefore, the draft permit contains a water quality-based effluent limit for ammonia. The draft permit requires that the permittee monitor the receiving water for ammonia, pH, and temperature in order to determine the applicable ammonia criteria for the next permit reissuance. See Appendix D for reasonable potential and effluent limit calculations for ammonia. The draft permit provides a compliance schedule for the permittee

to come into compliance with the final ammonia limit (*See Compliance Schedule* under Part VIII below).

pH

The Idaho water quality standards at IDAPA 58.01.02.250.01.a, require pH values of the river to be within the range of 6.5 to 9.0. Mixing zones are generally not granted for pH, therefore the most stringent water quality criterion must be met before the effluent is discharged to the receiving water. Effluent pH data were compared to the water quality criteria and did not exceed the Idaho water quality criteria at any point. Between January 2012 to December 2016 effluent pH ranged from 6.9 to 9 standard units.

The *2004 TMDL* establishes WLAs for pH equal to the range in the existing permit (from 6.0 to 9.0 standard units). The NPDES regulations require that limits be stringent enough to ensure that water quality standards are met, and must be consistent with any available wasteload allocation for the discharge in an approved TMDL. (*See* 40 CFR 122.44(d)(1)(vii)(B)) In the case of pH, the limits to ensure that water quality standards are met are more stringent than the limts consistent with the wasteload allocation from the TMDL.

Dissolved Oxygen (DO) and BOD_5

Idaho water quality standards establish a minimum level of 6 mg/L DO (IDAPA 58.01.02.250). Natural decomposition of organic material in wastewater effluent impacts dissolved oxygen in the receiving water at distances far outside of the regulated mixing zone. The BOD_5 of an effluent sample indicates the amount of biodegradable material in the wastewater and estimates the magnitude of oxygen consumption the wastewater will generate in the receiving water. Nutrients such as ammonia and phosphorus cause excessive plant and algae growth and decay which can also significantly affect the amount of dissolved oxygen available.

The technology-based limits for BOD_5 and WQBEL's for ammonia should ensure that the discharge does not cause or contribute to a violation of dissolved oxygen criteria in the receiving water.

The *2004 TMDL* establishes WLAs for BOD_5 equal to the BOD_5 concentration limits included in both the existing and draft permit. As such, the draft permit limits are consistent with the WLA in the approved TMDL.

E. coli

The Idaho water quality standards state that 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 based on a minimum of five samples taken every three to seven days over a thirty-day period. A mixing zone is not appropriate for bacteria for waters designated for contact recreation. Therefore, the draft permit contains a monthly geometric mean effluent limit for *E. coli* of 126 organisms per 100 ml (IDAPA 58.01.02.251.01.a.).

The Idaho water quality standards also state that a water sample that exceeds certain "single sample maximum" values indicates a likely exceedance of the geometric mean criterion, although it is not, in and of itself, a violation of water quality standards. For waters

designated for primary contact recreation, the "single sample maximum" value is 406 organisms per 100 ml (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. Because a single sample value exceeding 406 organisms per 100 ml indicates a likely exceedance of the geometric mean criterion, the EPA has imposed an instantaneous (single grab sample) maximum effluent limit for *E. coli* of 406 organisms per 100 ml, in addition to a monthly geometric mean limit of 126 organisms per 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 water quality standards for *E. coli*.

Regulations at 40 CFR 122.45(d)(2) require that effluent limitations for continuous discharges from POTWs be expressed as average monthly and average weekly limits, unless impracticable. Additionally, the terms "average monthly limit" and "average weekly limit" are defined in 40 CFR 122.2 as being arithmetic (as opposed to geometric) averages. It is impracticable to properly implement a 30-day geometric mean criterion in a permit using monthly and weekly arithmetic average limits. The geometric mean of a given data set is equal to the arithmetic mean of that data set if and only if all of the values in that data set are equal. Otherwise, the geometric mean is always less than the arithmetic mean. In order to ensure that the effluent limits are "derived from and comply with" the geometric mean water quality criterion, as required by 40 CFR 122.44(d)(1)(vii)(A), it is necessary to express the effluent limits as a monthly geometric mean and an instantaneous maximum limit.

The *2004 TMDL* establishes WLAs for *E. coli* equal to the *E. coli* limits included in both the existing and draft permit. As such, the draft permit limits are consistent with the WLA in the approved TMDL.

TSS

The *2004 TMDL* establishes WLAs for TSS equal to the TSS limits included in both the existing and draft permit. As such, the draft permit limits are consistent with the WLA in the approved TMDL.

Chlorine

The Idaho state water quality standards at IDAPA 58.01.02.210 establish an acute criterion of 19 µg /L, and a chronic criterion of 11 µg/L for the protection of aquatic life. A reasonable potential calculation showed that the discharge from the facility would have the reasonable potential to cause or contribute to a violation of the chronic water quality criteria for chlorine. Therefore, the draft permit contains a water quality-based effluent limit that is more stringent than the technology-based effluent limit for chlorine. See 0 for reasonable potential and effluent limit calculations for TRC.

The *2004 TMDL* establishes WLAs for TRC equal to the TRC limits in the existing permit. The NPDES regulations require that limits be stringent enough to ensure that water quality standards are met, and must be consistent with any available wasteload allocation for the discharge in an approved TMDL. (*See* 40 CFR 122.44(d)(1)(vii)(B)) In the case of chlorine, the limits to ensure that water quality standards are met are more stringent than the limits consistent with the wasteload allocation from the TMDL.

Regulations at 40 CFR 122.45(d)(2) require that all effluent limitations for continuous discharges from POTWs be expressed as average monthly and average weekly limits, unless impracticable. Additionally, EPA recommends that in lieu of an average weekly limit for POTWs, a maximum daily limit should be established for toxic pollutants and pollutant parameters in water quality permitting. TRC has reasonable potential to violate water quality, therefore a maximum daily limit will be used in lieu of an average weekly limit. The draft permit provides a compliance schedule for the permittee to come into compliance with the final TRC limit (*See Compliance Schedule* under Part VIII below).

Residues

The Idaho water quality standards require that surface waters of the State be free from floating, suspended or submerged matter of any kind in concentrations impairing designated beneficial uses. The draft permit contains a narrative limitation prohibiting the discharge of such materials.

Temperature

The existing permit does not contain an effluent limit for temperature. In addition, the *2011 TMDL* did not assign a WLA for the City of Mackay WWTP for Temperature. Instead, IDEQ concluded that the facility was too small to impact the Big Lost River temperature load. Therefore, the *2011 TMDL* concluded that the "the existing NPDES permit is maintained as the wasteload allocation for this facility." Since the existing permit did not contain an effluent limit for temperature, there is no WLA in the *2011 TMDL*, and there is no reasonable potential to include a temperature effluent limit, the proposed permit does not contain an effluent limit. Instead, consistent with the EPA's approval letter for the *2011 TMDL*, the permit includes daily effluent monitoring requirements for effluent temperature with the option to conduct continuous monitoring.

Flow

The *2004 TMDL* establishes a WLA in terms of monitoring. Both the existing permit and *2004 TMDL* require reporting of the 30-day average flow. The draft permit includes continuous monitoring and reporting of the 30-day average and maximum daily flow. As such, the draft permit limit is consistent with the requirements for WLA for flow in the approved TMDL.

E. Antibacksliding

Section 402(o) of the Clean Water Act and federal regulations at 40 CFR §122.44 (l) generally prohibit the renewal, reissuance or modification of an existing NPDES permit that contains effluent limits, permit conditions or standards that are less stringent than those established in the previous permit (i.e., anti-backsliding) but provides limited exceptions. None of the effluent limits or conditions in this permit are becoming less stringent; therefore, there is no backsliding in this permit.

VI. 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 also requires the permittee to perform effluent monitoring required by part 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 DMRs or on the application for renewal, as appropriate, to the 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 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 12: Effluent Monitoring Changes from the Existing Permit

Parameter	Existing Monitoring Requirement	Draft Permit Monitoring Requirement	Reason for Change
BOD_5	1/month	2/month	Variation within DMR data is high; 64% (CV = 0.64).
TSS	1/month	2/month	Variation within DMR data is high; 75% (CV = 0.75).
Ammonia	1/month for 1 year	1/week	Reasonable Potential to exceed WQS. More monitoring is required.
Temperature	1/month for 1 year	Daily or Continuous	Consistent with TMDL recommendations.
Phosphorus	1/month for 1 year	No monitoring	The facility has completed monitoring. Nutrients are not a concern for this water body.
DO	1/month for 1 year	No monitoring	The facility has completed monitoring. DO is not a concern for this water body.
Permit Application Effluent Testing Data	No monitoring	1/year	This is a standard requirement in Region 10 permits.

C. Surface Water Monitoring

In general, surface water monitoring may be required for pollutants of concern to assess the assimilative capacity of the receiving water for the pollutant. In addition, surface water monitoring may be required for pollutants for which the water quality criteria are dependent and to collect data for TMDL development if the facility discharges to an impaired water body. Table 13 presents the proposed surface water monitoring requirements for the draft permit. Surface water monitoring results must be submitted with the DMR.

The facility has reasonable potential to exceed ammonia aquatic life criteria. Therefore, surface water monitoring will be required for ammonia, and its dependent parameters,

temperature, and pH. The Idaho water quality criteria for ammonia become more stringent as temperature and pH values increase.

Table 13: Surface Water Monitoring in Draft Permit

Parameter	Units	Frequency	Sample Type	Sample Location
Flow	cfs	1/quarter	Grab	Upstream
Temperature	°C	1/quarter	Grab	Upstream
pH	standard units	1/quarter	Grab	Upstream
Total Ammonia as N	mg/L	1/quarter	Grab	Upstream
For quarterly monitoring frequency, quarters are defined as: January 1 to March 31; April 1 to June 30; July 1 to September 30; and, October 1 to December 31.				

D. Electronic Submission of Discharge Monitoring Reports

The draft permit requires that the permittee continue to submit DMR data electronically using NetDMR. NetDMR is a national web-based tool that allows DMR data to be submitted electronically via a secure Internet application.

VII. Sludge (Biosolids) Requirements

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

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.

VIII. Other Permit Conditions

A. Compliance Schedules

Compliance schedules are authorized by federal NPDES regulations at 40 CFR 122.47 and Idaho WQS at IDAPA 58.01.02.400.03. Compliance schedules allow a discharger to phase in, over time, compliance with water quality-based effluent limitations when limitations are in the permit for the first time. The EPA has found that a compliance schedule is appropriate for TRC and Total Ammonia (as N) because the City cannot immediately comply with the new water quality based effluent limits on the effective date of the permit.

The draft permit incorporates the compliance schedule for ammonia and TRC as provided by IDEQ in the draft CWA 401 certification. The final effluent limits are effective on November 1, 2023. The interim limits for TRC are the same as the limits under the existing permit. The permit establishes interim monitoring requirements upon the effective date of the permit.

B. Quality Assurance Plan

The City is required to update the Quality Assurance Plan within 180 days of the effective date of the final permit. The Quality Assurance Plan must include descriptions of standard operating procedures the permittee must 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 EPA and IDEQ upon request.

C. Operation and Maintenance Plan

The permit requires the City 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. Any existing Operation and Maintenance Plans may be modified to meet the requirements under this section. The plan must be retained on site and made available to the EPA and the IDEQ upon request.

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

Sanitary Sewer Overflows (SSOs) are not authorized under this permit. 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, tribal 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 the Guide for Evaluating Capacity, Management, Operation, and Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems (EPA 305-B-05-002). This guide identifies some of the criteria used by the EPA inspectors to evaluate a collection system's management, operation and maintenance program activities. Owners/operators can review their own systems against the checklist (Chapter 3) to reduce the occurrence of sewer overflows and improve or maintain compliance.

E. Environmental Justice

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. "Overburdened" communities can include minority, low-income, tribal, and indigenous populations or communities that potentially experience disproportionate environmental harms and risks. 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 City of Mackay 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 WWTP 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.

For more information, please visit http://www.epa.gov/compliance/ej/plan-ej/ and Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*,

F. Design Criteria

The permit includes design criteria requirements. This provision requires the permittee to compare influent flow and loading to the facility's design flow and loading and prepare a facility plan for maintaining compliance with NPDES permit effluent limits when the flow or loading exceeds 85% of the design criteria values for three consecutive months. For the City,

the trigger for developing a facility plan is 0.153 mgd average monthly flow for three consecutive months.

G. Pretreatment Requirements

Idaho does not have an approved state pretreatment program per 40 CFR 403.10, thus, the EPA is the Approval Authority for Idaho POTWs. Since the City does not have an approved POTW pretreatment program per 40 CFR 403.8, the EPA is also the Control Authority of industrial users that might introduce pollutants into the Mackay WWTP.

Special Condition II.E of the permit reminds the Permittee that it cannot authorize discharges which may violate the national specific prohibitions of the General Pretreatment Program.

Although, not a permit requirement, the Permittee may wish to consider developing the legal authority enforceable in Federal, State or local courts which authorizes or enables the POTW to apply and to enforce the requirement of sections 307 (b) and (c) and 402(b)(8) of the Clean Water Act, as described in 40 CFR 403.8(f)(1). Where the POTW is a municipality, legal authority is typically through a sewer use ordinance, which is usually part of the city or county code. The EPA has a Model Pretreatment Ordinance for use by municipalities operating POTWs that are required to develop pretreatment programs to regulate industrial discharges to their systems (EPA, 2007). The model ordinance should also be useful for communities with POTWs that are not required to implement a pretreatment program in drafting local ordinances to control nondomestic dischargers within their jurisdictions.

H. Standard Permit Provisions

Sections III, IV and V of the draft permit contain standard regulatory language that must be included in all NPDES permits. The standard regulatory language covers requirements such as monitoring, recording, and reporting requirements, compliance responsibilities, and other general requirements.

IX. 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. A review of the threatened and endangered species located in Custer County, Idaho, designated by the USFWS (as of 1/5/2018), included the following species; North American Wolverine, Bull Trout, and 23 migratory birds. USFWS does not list Bull Trout within the Big Lost River nor does it list the Big Lost River as critical habitat for Bull Trout.

The EPA finds that this permitting action will have no effect on any threatened or endangered species located in the vicinity of the Big Lost River in Mackay, Idaho. https://ecos.fws.gov/ipac/

There are no federally listed, endangered, or threatened species within the vicinity of the discharge under NOAA Fisheries jurisdiction.

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 the EPA to consult with NOAA Fisheries when a proposed discharge has the potential to adversely affect EFH (i.e., reduce quality and/or quantity of EFH).

According to information obtained from the NOAA Fisheries website (as of 1/5/2018), there is no designated EFH in the vicinity of the City of Mackay WWTP discharge. http://www.habitat.noaa.gov/protection/efh/efhmapper/index.html

The EPA has provided NOAA Fisheries with copies of the draft permit and fact sheet during the public notice period. Any comments received from NOAA Fisheries regarding EFH will be considered prior to reissuance of this permit.

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. A copy of the draft 401 certification is provided in Appendix F.

D. Antidegradation

The IDEQ has completed an antidegradation review which is included in the draft 401 certification for this permit. (*See* **Error! Reference source not found.**) The EPA has reviewed this antidegradation analysis and finds that it is consistent with the State's water quality standards and the State's antidegradation implementation procedures. Comments on the 401 certification including the antidegradation review can be submitted to the IDEQ as set forth below (see State Certification on Page 39 of this Fact Sheet).

E. Permit Expiration

The permit will expire five years from the effective date.

X. References

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control.* US Environmental Protection Agency, Office of Water, EPA/505/2-90-001. https://www3.epa.gov/npdes/pubs/owm0264.pdf

EPA, 2007. *EPA Model Pretreatment Ordinance*, Office of Wastewater Management/Permits Division, January 2007.

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EPA, 2011. *Introduction to the National Pretreatment Program*, Office of Wastewater Management, EPA 833-B-11-011, June 2011.

EPA. 2014. Water Quality Standards Handbook Chapter 5: General Policies. Environmental Protection Agency. Office of Water. EPA 820-B-14-004. September 2014. https://www.epa.gov/sites/production/files/2014-09/documents/handbook-chapter5.pdf

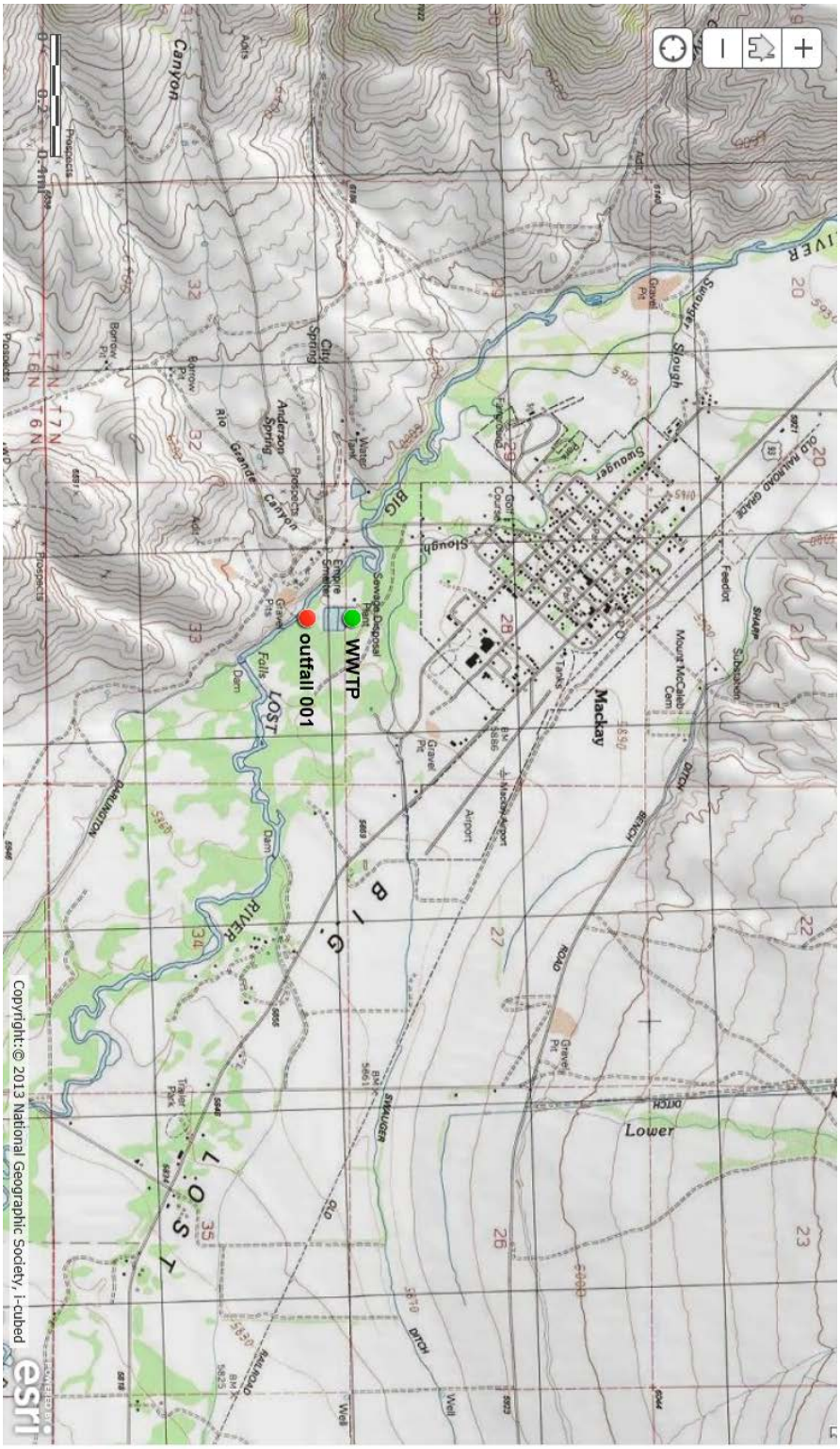
IDAPA 58.01.02. *Idaho water quality standards and wastewater treatment requirements.*

IDEQ. 2004. *Big Lost River Watershed Subbasin Assessment and TMDL*. May, 2004.

IDEQ. 2011. *Big Lost River Subbasin Total Maximum Daily Load Addendum and Five Year Review*. November, 2011.

Water Pollution Control Federation. Subcommittee on Chlorination of Wastewater. *Chlorination of Wastewater.* Water Pollution Control Federation. Washington, D.C. 1976.

Appendix A. Facility Information



Reference

EPA GeoPlatform using the 2013 Naitonal Geographic Society, i-cubed baselayer. Coordinates provided by the City of Mackay in 2009 application.

Appendix B. Water Quality Data

A. Treatment Plant Effluent Data

	Effluent	Effluent	Effluent	Effluent	See Comments	See Comments	Percent Removal	Effluent	Effluent	See Comments	See Comments	Percent Removal	Effluent	Effluent	Effluent	Effluent	See Comments	See Comments	Effluent	Effluent
	Flow, in conduit or thru treatment plant	Flow, in conduit or thru treatment plant	BOD, 5-day, 20 deg. C	BOD, 5-day, 20 deg. C	BOD, 5-day, 20 deg. C	BOD, 5-day, 20 deg. C	BOD, 5-day, percent removal	Solids, total suspended	Solids, total suspended	Solids, total suspended	Solids, total suspended	Solids, suspended percent removal	pH	pH	Chlorine, total residual	Chlorine, total residual	Chlorine, total residual	Chlorine, total residual	E.Coli	E.Coli
	DAILY MX	MO AVG	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MN % RMV	MO AVG	MO AVG	WKLY AVG	WKLY AVG	MN % RMV	MAXIMUM	MINIMUM	MO AVG	MO AVG	WKLY AVG	WKLY AVG	INST MAX	MO GEOMEAN
	Mgal/d	Mgal/d	lb/d	mg/L	lb/d	mg/L	%	lb/d	mg/L	lb/d	mg/L	%	SU	SU	lb/d	mg/L	lb/d	mg/L	#/100mL	#/100mL
1/31/2012	0.124	0.111	3.7	4	3.7	4	98.8	13.6	14	13.6	14	98.2	8.4	7.8	0.39	0.39	0.41	0.41	1	1
2/29/2012	0.136	0.128	20.1	19	20.1	19	94	8.4	8	8.4	8	98.1	8.1	7.8	0.42	0.4	0.46	0.42	1	1
3/31/2012	0.142	0.1229	5.1	6	5.1	6	97.2	5.1	6	5.1	6	99	8.9	8.1	0.39	0.43	0.47	0.56	1	1
4/30/2012	0.117	0.087	22.2	30	22.2	30	92	25.9	35	25.9	35	97.2	8.9	8.2	0.32	0.44	0.37	0.45	2	1.1
5/31/2012	0.069	0.058	5.2	11	5.2	11	95.5	5.7	12	5.7	12	96.6	8.8	8	0.21	0.43	0.24	0.48	35	5.3
6/30/2012	0.076	0.055	3.5	8	3.5	8	96.4	3.9	9	3.9	9	97.2	8.9	8.3	0.2	0.43	0.26	0.49	1	1
7/31/2012	0.064	0.049	6.3	15	6.3	15	97.7	3.8	9	3.8	9	99.2	8.9	8	0.19	0.48	0.24	0.52	1	1
8/31/2012	0.049	0.041	11.5	41	11.5	41	92.1	2.8	10	2.8	10	99.1	8.9	8	0.14	0.43	0.2	0.56	29	1.96
9/30/2012	0.047	0.044	14	42	14	42	94.2	15	45	15	45	97	8.9	8.3	0.18	0.48	0.19	0.59	219	12
10/31/2012	0.062	0.049	13	36	13	36	85.5	13	36	13	36	94.7	8.9	8.1	0.19	0.46	0.22	0.49	166	18.9
11/30/2012	0.087	0.073	10.8	16	10.8	16	90	7.4	11	7.4	11	99.9	8.8	7.7	0.28	0.46	0.39	0.57	130	15.6
12/31/2012	0.117	0.097	32	36	32	36	73.3	36.5	41	36.5	41	83.9	8.6	8.2	0.28	0.41	0.34	0.53	70	3.6
1/31/2013	0.147	0.138	16.3	14	16.3	14	86.7	8.1	7	8.1	7	96.5	8.7	8.1	0.4	0.35	0.54	0.44	242	3
2/28/2013	0.147	0.129	3.2	3	3.2	3	98.4	11.5	10	11.5	10	95.6	8.3	7.9	0.39	0.36	0.43	0.39	1	1
3/31/2013	0.126	0.104	4.6	5	4.6	5	96.3	1	1	1	1	99.7	8.2	7.8	0.42	0.47	0.5	0.55	16	1.74
4/30/2013	0.081	0.059	20.5	37	20.5	37	76.7	23.8	43	23.8	43	84.1	8.7	8.2	0.23	0.45	0.45	0.5	56	20.7
5/31/2013	0.056	0.039	3.4	8	3.4	8	97.6	7.2	17	7.2	17	98.3	8.7	8	0.17	0.48	0.22	0.51	49	2.2
6/30/2013	0.031	0.024	3.1	15	3.1	15	94.1	6.1	30	6.1	30	92.7	8.9	8.1	0.09	0.45	0.1	0.49	1	1
7/31/2013	0.035	0.024	1.3	7	1.3	7	96.6	5.3	28	5.3	28	91.4	8.6	7.7	0.09	0.45	0.11	0.49	1	1
8/31/2013	0.05	0.032	3.1	17	3.1	17	91.4	1.1	6	1.1	6	99.3	8.4	7.7	0.13	0.46	0.23	0.52	29	3.2
9/30/2013	0.046	0.031	4.1	16	4.1	16	91.3	3.4	13	3.4	13	93.6	8.9	7.7	0.15	0.49	0.19	0.54	120	5.6
10/31/2013	0.049	0.037	7.2	28	7.2	28	95.8	5.4	21	5.4	21	97.6	8.7	8.1	0.14	0.45	0.17	0.49	88	8.5
11/30/2013	0.058	0.055	4.6	10	4.6	10	95.3	6.9	15	6.9	15	91.9	8.7	8.1	0.21	0.46	0.22	0.49	354	5.5
12/31/2013	0.151	0.128	10.3	10	10.3	10	90.1	4.1	4	4.1	4	97.6	8.1	7.6	0.44	0.39	0.55	0.47	242	3.4
1/31/2014	0.156	0.134	25.1	22	25.1	22	91.1	3.4	3	3.4	3	99.1	7.9	7.3	0.45	0.43	0.51	0.45	240	6.9
2/28/2014	0.134	0.129	15.2	14	15.2	14	96.4	8.9	8	8.9	8	98.7	8.7	7.8	0.39	0.4	0.42	0.42	24	1.9
3/31/2014	0.119	0.097	10.2	13	10.2	13	96.7	5.5	7	5.5	7	98.4	8.6	7.4	0.43	0.5	0.56	0.57	1	1
4/30/2014	0.098	0.062	11	22	11	22	66.2	13.9	28	13.9	28	65.4	8.9	8.4	0.26	0.46	0.37	0.55	105	2.5
5/31/2014	0.053	0.049	5.4	14	5.4	14	94.5	6.6	17	6.6	17	95.9	8.8	7.6	0.16	0.46	0.2	0.5	30	1.97
6/30/2014	0.026	0.022	0.4	4	0.4	4	98.3	1.9	17	1.9	17	95.8	8.3	7.5	0.09	0.47	0.1	0.51	1	1
7/31/2014	0.032	0.017	2.9	13	2.9	13	94.9	3.8	22	3.8	22	88.9	8.6	8	0.07	0.42	0.08	0.47	25	3.8
8/31/2014	0.069	0.038	4.7	26	4.7	26	93.4	4.7	26	4.7	26	97.3	8.7	7.3	0.12	0.39	0.16	0.46	25	1.9
9/30/2014	0.054	0.028	9.1	34	9.1	34	80.9	5	27	5	27	91	8.8	7.1	0.08	0.38	0.1	0.43	70	2.3
10/31/2014	0.042	0.029	8.7	35	8.7	35	80.9	10.7	43	10.7	43	91.8	8.9	8.1	0.12	0.5	0.16	0.52	162	7.4
11/30/2014	0.091	0.062	7.3	11	7.3	11	92.6	20.6	31	20.6	31	91.3	8.8	8.2	0.23	0.46	0.36	0.48	404	17
12/31/2014	0.12	0.094	8.1	12	8.1	12	94.9	2	3	2	3	98.3	8.7	8.1	0.37	0.48	0.45	0.5	10	2.6
1/31/2015	0.126	0.116	17.3	18	17.3	18	93.8	0.96	1	0.96	1	99.8	8.2	7.8	0.41	0.42	0.45	0.46	1	1
2/28/2015	0.124	0.107	2.4	3	2.4	3	98.1	0.8	1	0.8	1	96.7	8.4	7.9	0.48	0.41	0.53	0.54	69	2.3
3/31/2015	0.114	0.074	6.9	9	6.9	9	97	10.8	14	10.8	14	98.4	8.8	8.3	0.28	0.47	0.33	0.51	5	1.4
4/30/2015	0.056	0.044	7.1	26	7.1	26	90.3	11.5	42	11.5	42	90.9	9	8.2	0.17	0.45	0.21	0.5	1	1
5/31/2015	0.058	0.037	11.1	23	11.1	23	85	16.9	35	16.9	35	96.8	8.6	8	0.14	0.44	0.21	0.5	59	3.6
6/30/2015	0.035	0.02	1.4	5	1.4	5	97.3	6.5	24	6.5	24	95.6	8.8	7.9	0.09	0.49	0.13	0.51	2	1.1
7/31/2015	0.06	0.05	2	45	2	45	89	1.8	40	1.8	40	89.2	9	8.1	0.07	0.46	0.08	0.51	9	1.8
8/31/2015	0.044	0.025	5.1	35	5.1	35	85.9	5.9	41	5.9	41	83.1	8.6	8	0.09	0.43	0.11	0.47	1	1
9/30/2015	0.03	0.023	4.1	23	4.1	23	93.7	1.6	9	1.6	9	97.6	8.9	8.2	0.09	0.44	0.1	0.5	31.8	2
10/31/2015	0.04	0.032	11.8	40	11.8	40	84.5	12.4	42	12.4	42	86.5	8.6	8.1	0.13	0.48	0.14	0.5	112.4	3.58
11/30/2015	0.081	0.066	3.9	5	3.9	8	95.3	7.9	16	7.9	16	92.7	8.5	7.8	0.22	0.46	0.26	0.5	128.4	6.06
12/31/2015	0.11	0.101	25.9	30	25.9	30	66.7	5.18	6	5.2	6	96.8	8.1	7.2	0.38	0.45	0.44	0.48	72.7	5.18
1/31/2016	0.131	0.123	11.5	12	11.5	12	90.9	6.7	7	6.7	7	93.5	7.3	6.9	0.37	0.42	0.47	0.48	249.2	14.8
2/29/2016	0.132	0.1229	19.5	18	19.5	18	82.2	2.2	2	2.2	2	97.4	7.9	6.9	0.42	0.42	0.46	0.46	33.2	2.01
3/31/2016																				
4/30/2016	0.08	0.06	8.4	19	8.4	19	90.5	16.4	37	16.4	37	87.1	8.9	7.9	0.25	0.49	0.31	0.6	36.9	2.06
5/31/2016	0.1	0.051	0.71	2	0.71	2	97	3.89	11	3.89	11	80	8.8	8	0.18	0.42	0.27	0.46	1	1
6/30/2016	0.073	0.065	6.9	24	6.9	24	97.1	4.7	16	4.7	16	97.1	8.7	8	0.19	0.49	0.24	0.51	36.9	3.24
7/31/2016	0.039	0.032	3	10	3	10	94.2	3.6	12	3.6	12	96.7	8.7	8.1	0.13	0.47	0.15	0.49	1	1
8/31/2016	0.023	0.019	6.25	42	6.25	42	67.2	1.3	9	1.3	9	84.2	8.9	8.6	0.07	0.46	0.09	0.49	1	1
9/30/2016	0.065	0.056	0.61	3	0.61	3	98.9	1.02	5	1.02	5	85	9	8	0.13	0.46	0.18	0.52	1	1
10/31/2016	0.057	0.049	9	23	9	23	92.8	0.79	2	0.79	2	99.2	8.6	7.2	0.21	0.5	0.22	0.55	1	1
11/30/2016	0.058	0.049	12.3	33	12.3	33	87.8	8.6	23	8.6	23	94.9	8.8	7.1	0.2	0.49	0.22	0.52	54.6	5.94
12/31/2016																				
Average	0.08	0.07	8.87	19.00	8.87	19.05	90.91	7.65	18.24	7.65	18.24	93.96	8.63	7.87	0.23	0.45	0.29	0.50	66.55	4.03
Minimum	0.023	0.017	0.4	2	0.4	2	66.2	0.79	1	0.79	1	65.4	7.3	6.9	0.07	0.35	0.08	0.39	1	1
Maximum	0.156	0.138	32	45	32	45	98.9	36.5	45	36.5	45	99.9	9	8.6	0.48	0.5	0.56	0.6	404	20.7
Count	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
Std Dev	0.04	0.04	6.97	12.16	6.97	12.11	7.99	6.85	13.61	6.85	13.61	6.29	0.33	0.38	0.12	0.04	0.15	0.04	92.93	4.74
CV	0.48	0.56	0.79	0.64	0.79	0.64	0.09	0.90	0.75	0.90	0.75	0.07	0.04	0.05	0.53	0.08	0.51	0.09	1.40	1.18
95th Percentile	0.1	0.1	22.6	41.2	22.6	41.2	98.3	21.1	42.2	21.1	42.2	99.4	8.9	8.3	0.4	0.5	0.5	0.6	243.1	15.8
5th Percentile	0.03	0.02	1.21	3	1.21	3	72.39	0.99	1.85	0.99	1.85	83.78	8.07	7.1	0.08	0.39	0.10	0.42	1	1

Reference

Discharge Monitoring Reports 01/2012 – 12/2016.

	Effluent Oxygen, dissolved [DO]	Effluent Nitrogen, ammonia total [as N]	Effluent Phosphorous, total [as P]
	MINIMUM	DAILY MX	DAILY MX
	mg/L	mg/L	mg/L
1/31/2006	6.3	9	1.91
2/28/2006	6.4	7.39	1.32
3/31/2006	6.1	6.2	0.98
4/30/2006	6.9	2.59	1.26
5/31/2006	10.7	8.59	6.01
6/30/2006	10.8	2.41	1.44
7/31/2006	6.4	0.77	2.6
8/31/2006	7.3	9.6	2.85
9/30/2006	7	16	2.95
10/31/2006	8.6	13	3.4
11/30/2006	9.5	12.1	3.13
12/31/2006	6.5	10.6	3.04
Average	7.71	8.19	2.57
Minimum	6.1	0.77	0.98
Maximum	10.8	16	6.01
Count	12	12	12
Std Dev	1.74	4.60	1.38
CV	0.23	0.56	0.53
95th Percentile	10.75	14.35	4.57
5th Percentile	6.21	1.67	1.13
90th Percentile	10.58	12.91	3.37

Reference

Discharge Monitoring Reports 2006.

	Maximum Daily Value		Average Daily Value		
Parameter	**value**	**unit**	**value**	**unit**	**count**
pH (min)	6.6	*s.u.*			
pH(max)	9	*s.u.*			
Flow Rate	0.18	*mgd*	0.07	*mgd*	1030
Temp (winter)	5.6	*C*	3.54	*C*	254
Temp (summer)	20.6	*C*	16.36	*C*	256
BOD5	41	*mg/L*	21.1	*mg/L*	34
Fecal Coliform	303.8	*#/100*	2.57	*#/100*	170
TSS	64	*mg/L*	24.3	*mg/L*	34
Ammonia	16	*mg/L*	7.85	*mg/L*	14
Chlorine	1	*mg/L*	0.4	*mg/L*	700
DO	20 (min = 6)	*mg/L*	11.02	*mg/L*	437
Phosphorus	6.01	*mg/L*	2.42	*mg/L*	14
Temp	20.6 (min = 2.1)	*C*	9.9	*C*	662

Reference

Data provided in 2009 application, sections A.12 and B.6.

B. Receiving Water Data

	Temp	pH	DO	Ammonia as N	Phosphorus as P
	C	S.U.	mg/L	mg/L	mg/L
3/28/2005	6.9	8.2	11.2	<0.05	<0.05
6/27/2005	9.8	8.1	10.3	<0.05	<0.05
9/30/2005	13.7	8.7	12.1	<0.05	<0.05
12/14/2005	2.1	7.7	13.7	<0.05	0.09
2/14/2006	4.8	8.6	14.7		
2/27/2006	7.6	8.6	11.1	0.05	<0.05
5/30/2006	11.7	8.8	10.1	<0.05	<0.05
7/27/2006	12.5	8.6	11.9	<0.05	<0.05
10/16/2006	8.3	9.2	12.8	<0.05	<0.05
2/21/2007	6.9	8.1	12.7	0.16	<0.05
5/23/2007	12.1	7.6	11.6	<0.05	<0.05
9/19/2007	9.1	7.3	10.6	<0.05	<0.05
12/10/2007	5	9.1	11.5	<0.05	<0.05
3/16/2008	4.5	8.5	12.9	<0.05	<0.05
5/27/2008	10	8.3	12.2	<0.05	<0.05
7/14/2008	18.5	8.6	8.2	<0.05	0.08
11/17/2008	7.1	8.8	12.5	<0.05	<0.05
2/4/2009	2.3	8.9	12.1	<0.05	0.06
Average	8.49	8.43	11.79		
Minimum	2.1	7.3	8.2	0.05	0.06
Maximum	18.5	9.2	14.7	0.16	0.09
Count	18	18	18	17	17
Std Dev	4.20	0.52	1.46		
CV	0.49	0.06	0.12		
95th Percentile	14.42	9.12	13.85		
5th Percentile	2.27	7.56	9.82		

Reference

Big Lost River Surface Water Monitoring conducted by the City of Mackay and provided in 2009 application.

Appendix C. Reasonable Potential and WQBEL Formulae

A. 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.

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:

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

The above equation for C_d is the form of the mass balance equation which was 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.

$$p_n = (1 - \text{confidence level})^{1/n} \qquad \text{Equation 7}$$

where,

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

and

$$\text{RPM} = \frac{C_{99}}{C_{P_n}} = \frac{e^{Z_{99} \times \sigma - 0.5 \times \sigma^2}}{e^{Z_{P_n} \times \sigma - 0.5 \times \sigma^2}} \qquad \text{Equation 8}$$

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:

$$C_e = (\text{RPM})(\text{MRC}) \qquad \text{Equation 9}$$

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.

B. WQBEL Calculations

Calculate the Wasteload Allocations (WLAs)

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

$$C_e = WLA = D \times (C_d - C_u) + C_u \qquad \text{Equation 10}$$

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

$$LTA_a = WLA_a \times e^{(0.5\sigma^2 - z\sigma)} \qquad \text{Equation 11}$$

$$LTA_c = WLA_c \times e^{(0.5\sigma_4^2 - z\sigma_4)} \qquad \text{Equation 12}$$

where,

σ^2 = $\ln(CV^2 + 1)$
Z_{99} = 2.326 (z-score for the 99th percentile probability basis)
CV = coefficient of variation (standard deviation ÷ mean)
σ_4^2 = $\ln(CV^2/4 + 1)$

For ammonia, because the chronic criterion is based on a 30-day averaging period, the Chronic Long Term Average (LTAc) is calculated as follows:

$$LTA_c = WLA_c \times e^{(0.5\sigma_{30}^2 - z\sigma_{30})} \qquad \text{Equation 13}$$

where,

σ_{30}^2 = $\ln(CV^2/30 + 1)$

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

Derive the maximum daily and average monthly effluent limits

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

$$MDL = LTA \times e^{(z_m\sigma - 0.5\sigma^2)} \qquad \text{Equation 14}$$

$$AML = LTA \times e^{(z_a\sigma_n - 0.5\sigma_n^2)} \quad \text{Equation 15}$$

where σ, and σ² are defined as they are for the LTA equations above, and,

σ_n^2 = $\ln(CV^2/n + 1$

z_a = 1.645 (z-score for the 95th percentile probability basis)

z_m = 2.326 (z-score for the 99th percentile probability basis)

n = number of sampling events required per month. With the exception of ammonia, if the AML is based on the LTA_c, i.e., $LTA_{minimum} = LTA_c$), the value of ''n'' should is set at a minimum of 4. For ammonia, In the case of ammonia, if the AML is based on the LTA_c, i.e., $LTA_{minimum} = LTA_c$), the value of ''n'' should is set at a minimum of 30.

C. Critical Low Flow Conditions

The low flow conditions of a water body are used to determine water quality-based effluent limits. In general, Idaho's water quality standards require criteria be evaluated at the following low flow receiving water conditions (See IDAPA 58.01.02.210.03) as defined below:

Acute aquatic life	1Q10 or 1B3
Chronic aquatic life	7Q10 or 4B3
Non-carcinogenic human health criteria	30Q5
Carcinogenic human health criteria	harmonic mean flow
Ammonia	30B3 or 30Q10

1. The 1Q10 represents the lowest one day flow with an average recurrence frequency of once in 10 years.
2. The 1B3 is biologically based and indicates an allowable exceedance of once every 3 years.
3. The 7Q10 represents lowest average 7 consecutive day flow with an average recurrence frequency of once in 10 years.
4. The 4B3 is biologically based and indicates an allowable exceedance for 4 consecutive days once every 3 years.
5. The 30Q5 represents the lowest average 30 consecutive day flow with an average recurrence frequency of once in 5 years.
6. The harmonic mean is a long-term mean flow value calculated by dividing the number of daily flow measurements by the sum of the reciprocals of the flows.
7. The 30B3 is biologically based and indicates an allowable exceedance for 30 consecutive days once every 3 years.
8. The 30Q10 represents the lowest average 30 consecutive day flow with an average recurrence frequency of once in 10 years.

Appendix D. Reasonable Potential and WQBEL Calculations

Reasonable Potential Analysis (RPA) and Water Quality Effluent Limit (WQBEL) Calculations

Facility Name	Mackay, City of
Facility Flow (mgd)	0.18
Facility Flow (cfs)	0.28

Critical River Flows	(IDAPA 58.01.02 03. b)	Annual Crit. Flows	Annual Crit. Flows
Aquatic Life - Acute Criteria - Criterion Max. Concentration (CMC)	1Q10	38	38.0
Aquatic Life - Chronic Criteria - Criterion Continuous Concentration (CCC)	7Q10 or 4B3	43	42.8
Ammonia	30B3/30Q10 (seasonal)	53	53.4
Human Health - Non-Carcinogen	30Q5	51	50.6
Human Health - carcinogen	Harmonic Mean Flow	145	145.0

Receiving Water Data		Notes:	Annual Crit. Flows
Hardness, as mg/L $CaCO_3$	*** Enter Hardness on WQ Criteria tab ***	5th % at critical flows	
Temperature, °C	Temperature, °C	95th percentile	14.4
pH, S.U.	pH, S.U.	95th percentile	9.1

Pollutants of Concern			AMMONIA, default: cold water, fish early life stages present	CHLORINE (Total Residual)
Effluent Data	Number of Samples in Data Set (n)		12	58
	Coefficient of Variation (CV) = Std. Dev./Mean (default CV = 0.6)		0.56	0.08
	Effluent Concentration, µg/L (Max. or 95th Percentile) - (C_e)		14,350	490
	Calculated 50th % Effluent Conc. (when n>10), Human Health Only			
Receiving Water Data	90th Percentile Conc., µg/L - (C_u)		50	0
	Geometric Mean, µg/L, Human Health Criteria Only			
Applicable Water Quality Criteria	Aquatic Life Criteria, µg/L	Acute	760.857	19.
	Aquatic Life Criteria, µg/L	Chronic	422.567	11.
	Human Health Water and Organism, µg/L		--	--
	Human Health, Organism Only, µg/L		--	--
Percent River Flow Default Value = 25%	Aquatic Life - Acute	1Q10	25%	25%
	Aquatic Life - Chronic	7Q10 or 4B3	--	25%
	Ammonia	30B3 or 30Q10	25%	25%
	Human Health - Non-Carcinogen	30Q5	--	25%
	Human Health - carcinogen	Harmonic Mean	--	25%
Calculated Dilution Factors (DF) (or enter Modeled DFs)	Aquatic Life - Acute	1Q10	35.1	35.1
	Aquatic Life - Chronic	7Q10 or 4B3		39.4
	Ammonia - Chronic	30B3 or 30Q10	48.9	48.9
	Human Health - Non-Carcinogen	30Q5		46.4
	Human Health - carcinogen	Harmonic Mean		131.2

Aquatic Life Reasonable Potential Analysis				
σ	$\sigma^2=\ln(CV^2+1)$		0.522	0.080
P_n	$=(1\text{-confidence level})^{1/n}$, where confidence level =	99%	0.681	0.924
Multiplier (TSD p. 57)	$=\exp(z\sigma-0.5\sigma^2)/\exp[\text{normsinv}(P_n)\sigma-0.5\sigma^2]$, where	99%	2.6	1.1
Statistically projected critical discharge concentration (C_e)			37810.54	526.36
Predicted max. conc.(ug/L) at Edge-of-Mixing Zone		Acute	1125.38	14.99
(note: for metals, concentration as dissolved using conversion factor as translator)		Chronic	821.55	13.35
Reasonable Potential to exceed Aquatic Life Criteria			YES	YES

Aquatic Life Effluent Limit Calculations				
Number of Compliance Samples Expected per month (n)			30	4
n used to calculate AML (if chronic is limiting then use min=4 or for ammonia min=30)			30	4
LTA Coeff. Var. (CV), decimal	(Use CV of data set or default = 0.6)		0.560	0.080
Permit Limit Coeff. Var. (CV), decimal	(Use CV from data set or default = 0.6)		0.560	0.080
Acute WLA, ug/L	C_d = (Acute Criteria x MZ_a) - C_u x (MZ_a-1)	Acute	25,010.7	667.2
Chronic WLA, ug/L	C_d = (Chronic Criteria x MZ_c) - C_u x (MZ_c-1)	Chronic	18,283.9	433.7
Long Term Ave (LTA), ug/L	WLAc x $\exp(0.5\sigma^2-z\sigma)$, Acute	99%	8,505.3	555.8
(99th % occurrence prob.)	WLAa x $\exp(0.5\sigma^2-z\sigma)$; ammonia n=30, Chronic	99%	14,497.7	395.5
Limiting LTA, ug/L	used as basis for limits calculation		8,505.3	395.5
Average Monthly Limit (AML), ug/L , where % occurrence prob =		95%	10,006	422.1
Maximum Daily Limit (MDL), ug/L , where % occurrence prob =		99%	25,011	474.8
Average Monthly Limit (AML), mg/L			10.0	0.42
Maximum Daily Limit (MDL), mg/L			25.0	0.47
Average Monthly Limit (AML), lb/day			15	0.63
Maximum Daily Limit (MDL), lb/day			38	0.71

References

Idaho Water Quality Standards http://adminrules.idaho.gov/rules/current/58/0102.pdf
Technical Support Document for Water Quality-based Toxics Control, US EPA, March 1991, EPA/505/2-90-001

Appendix E. Basis for Equivalent to Secondary Treatment Limits

City of Mackay Data Evaluation for Treatment Equivalent to Secondary Limits:

The EPA conducted a DMR review of BOD_5 and TSS effluent concentrations and percent removal. As discussed in Part V.C of this Fact Sheet, the facility must meet all three criteria to be eligible for equivalent to secondary treatment limits.

The average monthly effluent concentrations reported by the City of Mackay were reviewed for a five year period (2012-2016) in accordance with Criterion #1, shown below.

	Effluent 95th Percentile of 30-day average	Secondary Treatment Standard 30-day Average	Exceeds Secondary Treatment Standard?
BOD_5 (mg/L)	41.2	30	Yes
TSS (mg/L)	42.2	30	Yes
	1.5 x Average 95th Percentile	7-day Average	Exceeds Limit?
BOD_5 (mg/L)	61.7	45	Yes
TSS (mg/L)	63.2	45	Yes

The data above show that the WWTP consistently exceeds the secondary treatment standards set forth in 40 CFR133.102(a) and (b). No upsets, bypasses, operational errors, or other unusual conditions were reported by the facility during the period analyzed. Therefore, the facility meets Criterion #1.

The City complies with Criterion #2 as the treatment lagoon qualifies as a waste stabilization pond.

With respect to Criterion #3, DMR values for 30-day average BOD_5 removal rates were considered for the 2012-2016, five-year period. The WWTP was calculated to have a consistent (5^{th} percentile) 30-day average removal rate of 72%. The facility treatment works include a facultative lagoon which utilizes aerobic and anaerobic biological treatment to consistently achieve a 30-day average of at least 65 percent removal of BOD_5. Therefore the facility meets Criterion #3.

The City satisfies the requirements of Criteria 1 through 3, and therefore has continued eligibility for equivalent to the secondary treatment standards for BOD_5 and TSS.

Appendix F. CWA 401 State Certification

Idaho Department of Environmental Quality

Draft §401 Water Quality Certification

December 12, 2017

NPDES Permit Number(s): ID-002302-7 City of Mackay

Receiving Water Body: Big Lost 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 I 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 I review is performed for all new or reissued permits or licenses (IDAPA 58.01.02.052.07).
- Tier II 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 III 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 I protection for that use, unless specific circumstances warranting Tier II 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 Mackay Waste Water Treatment Plant (WWTP) discharges the following pollutants of concern: five-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), *E. coli*, total residual chlorine (TRC), pH, ammonia, and temperature. Effluent limits have been developed for BOD_5, TSS, TRC, *E. coli*, pH, and ammonia. No effluent limits are proposed for temperature.

Receiving Water Body Level of Protection

The Mackay WWTP discharges to the Big Lost River within the Big Lost Subbasin, assessment unit (AU) ID17040218SK011_05 (Big Lost River – Mackay Dam to Beck and Even Ditch). This AU has the following designated beneficial uses: cold water aquatic life, salmonid spawning, primary contact recreation, 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).

According to DEQ's 2014 Integrated Report, this AU is not fully supporting one or more of its assessed uses. The cold water aquatic life and salmonid spawning uses are not fully supported. The cause of impairment is temperature. DEQ will provide Tier I protection (IDAPA 58.01.02.051.01) for the aquatic life uses. The primary contact recreation beneficial use is unassessed. DEQ must provide an appropriate level of protection for the primary contact recreation use using information available at this time (IDAPA 58.01.02.052.05.b). As such, DEQ will provide Tier II protection (IDAPA 58.01.02.051.02) for the primary contact recreation use.

Protection and Maintenance of Existing Uses (Tier I Protection)

A Tier I 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 and designated uses and the level of water quality necessary to protect existing and designated uses shall be maintained and protected. In order to protect and maintain existing and designated 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 existing and designated beneficial uses. The effluent limitations and associated requirements contained in the Mackay WWTP 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 EPA-approved Big Lost River TMDL (December, 2011) establishes load allocations for temperature, but did not establish a wasteload allocation for the Mackay WWTP. These load allocations are designed to ensure the Big Lost 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.

In sum, the effluent limitations and associated requirements contained in the Mackay WWTP permit are set at levels that ensure compliance with the narrative and numeric criteria in the WQS and the wasteload allocations established in the Big Lost TMDL. In previous TMDL documents, approved in 2004, DEQ set wasteload allocations equal to the then-current NPDES permit, while also requiring temperature monitoring. The current permit incorporated those requirements, while the proposed permit proposes additional limits which will ensure beneficial uses will not be further degraded. Therefore, DEQ has determined the permit will protect and maintain existing and designated beneficial uses in the Big Lost in compliance with the Tier I provisions of Idaho's WQS (IDAPA 58.01.02.051.01 and 58.01.02.052.07).

High-Quality Waters (Tier II Protection)

The Big Lost River is considered high quality for primary contact recreation and domestic water supply. As such, the water quality relevant to contact recreation and domestic water supply uses of the Big Lost 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 and domestic water supply uses of the Big Lost River (IDAPA 58.01.02.052.05). These include the following: *E. coli.* Effluent limits are set in the proposed and existing permit for this pollutant.

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 or license (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 Mackay WWTP 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 pollutant of concern relevant to recreational uses receiving Tier II 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

[a] NC = no change

The proposed permit limits for *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 this pollutant.

Conditions Necessary to Ensure Compliance with Water Quality Standards or Other Appropriate Water Quality Requirements of State Law

Compliance Schedule

Pursuant to IDAPA 58.01.02.400.03, DEQ may authorize compliance schedules for water quality–based effluent limits issued in a permit for the first time. The Mackay WWTP cannot immediately achieve compliance with the effluent limits for ammonia. Allowing a compliance schedule for the de-chlorination facility will allow the city to look to a long term chlorine compliance solution that can be incorporated into the main treatment improvement project that will meet the new ammonia limits. Combining these two projects into one and having them constructed at the same time will allow the City of Mackay to maximize their funding opportunities and be able to accomplish their goals by keeping their construction cost as low as practicable. This will help to keep their sewer rates at a reasonable level for the ratepayers. The city will be able to save money by simplifying the bid process and reducing engineering costs, bidding costs and other soft costs associated with these types of public works projects. Therefore, DEQ authorizes a compliance schedule and interim requirements as set forth below. This compliance schedule provides the permittee a reasonable amount of time to achieve the final effluent limits as specified in the permit. At the same time, the schedule ensures that compliance with the final effluent limit is accomplished as soon as possible. Interim and final limits for total

residual chlorine and the new ammonia limits are displayed in Table 2. Milestones and target dates for completion are found in Table 3.

Table 2. Ammonia and Total Residual Chlorine Limits.

Pollutant	Units	Current Permit			Proposed Permit		
		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							
Ammonia	mg/L	Monitor and Report			10		25
	lb/day	Monitor and Report			15		38
TRC (final)	µg/L	500	750	—	420		470
	lb/day	0.8	1.1	—	0.63		0.71
TRC (interim)	µg/L	500	750				
	lb/day	0.8	1.1				

Table 3. Milestones and Deadline for Ammonia Compliance Schedule.

Milestone	Deadline Date
Submit Letter Of Interest (LOI) for State Revolving Fund (SRF) grant for Facility Planning Study (FPS)	November 1, 2018
Accept grant offer	July 31, 2019
Finish FPS and Environmental Impact Document	August 31, 2020
Hold bond Election	November 30, 2020
Submit LOI for SRF Construction Loan	Nov 30, 2020
Submit final SRF Loan Application	July 31, 2021
Complete Design	February 28, 2022
Solicit bids	March 31, 2022
Complete construction	October 31, 2023

Mixing Zones

Pursuant to IDAPA 58.01.02.060, DEQ authorizes the following mixing zones for the Mackay WWTP, found in Table 4.

Table 4. Authorized Mixing Zones.

Pollutant	Authorized Mixing Zone
Ammonia	25%
Five-Day BOD	25%
TRC (final)	25%
TRC (interim)	25%

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 Troy Saffle at 208.528.2650 or troy.saffle@deq.idaho.gov.

DRAFT

Erick Neher
Regional Administrator
Idaho Falls Regional Office