Fact Sheet for IPDES Permit No. ID0020818

06/02/2020

Idaho Department of Environmental Quality (DEQ) proposes to reissue an
Idaho Pollutant Discharge Elimination System (IPDES) Permit to discharge pollutants
pursuant to the provisions of IDAPA 58.01.25 to:

City of Soda Springs
9 West 2nd South
Soda Springs, Idaho 83276

Public Comment Start Date:	03/19/2020
Public Comment Expiration Date:	04/20/2020

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Purpose of this Fact Sheet

This fact sheet explains and documents the decisions the Idaho Department of Environmental Quality (DEQ) made in writing the Idaho Pollutant Discharge Elimination System (IPDES) permit for City of Soda Springs POTW.

This fact sheet complies with IDAPA 58.01.25.108.02 of the Idaho Administrative Code, which requires DEQ to prepare a draft permit and accompanying fact sheet for public evaluation before issuing an IPDES permit.

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Acronyms

1Q10	1 day, 10 year low flow
1B3	Biologically based and indicates an allowable exceedance of once every 3 years.
4B3	Biologically based and indicates an allowable exceedance for 4 consecutive days once every 3 years.
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.
30Q5	30 day, 5 year low flow
30Q10	30 day, 10 year low flow
AML	Average Monthly Limit
BOD_5	Biochemical Oxygen Demand, five-day
BMP	Best Management Practices
°C	Degrees Celsius
$CBOD_5$	Carbonaceous Biochemical Oxygen Demand, five-day
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CV	Coefficient of Variation
CWA	Clean Water Act
DEQ	Idaho Department of Environmental Quality
DMR	Discharge Monitoring Report
EPA	U.S. Environmental Protection Agency
IDAPA	Refers to citations of Idaho administrative rules
IDWR	Idaho Department of Water Resources
I/I	Inflow and Infiltration
IPDES	Idaho Pollutant Discharge Elimination System
lbs/day	Pounds per Day
LD_{50}	Dose at which 50% of test organisms die in a specified time period
LTA	Long Term Average
MDL	Maximum Daily Limit or Method Detection Limit
mgd	Million Gallons per Day
mg/L	Milligrams per Liter
mL	Milliliters

O&M	Operations and Maintenance
POC	Pollutant(s) of Concern
POTW	Publicly Owned Treatment Works
QAPP	Quality Assurance Project Plan
RIBs	Rapid Infiltration Basins
RPA	Reasonable Potential Analysis
RPMF	Reasonable Potential Multiplication Factor
RPTE	Reasonable Potential To Exceed
SIU	Significant Industrial User
s.u.	Standard Units
TBEL	Technology-Based Effluent Limits
TMDL	Total Maximum Daily Load
TRC	Total Residual Chlorine
TRE	Toxicity Reduction Evaluation
TSD	Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001)
TSS	Total Suspended Solids
TU_c	Toxic Units, Chronic
WET	Whole Effluent Toxicity
USGS	United States Geological Survey
WLA	Wasteload Allocation
WQBEL	Water Quality-Based Effluent Limit
WQC	Water Quality Criteria
WQS	Water Quality Standards

1 Introduction

This fact sheet provides information on the Idaho Department of Environmental Quality (DEQ) Idaho Pollutant Discharge Elimination System (IPDES) permit for the City of Soda Springs (City). This fact sheet complies with the Rules Regulating the Idaho Pollutant Discharge Elimination System Program (IDAPA 58.01.25), which requires DEQ to prepare a draft permit and accompanying fact sheet for public evaluation before issuing an IPDES permit.

DEQ proposes to reissue the IPDES permit for the City's publicly owned treatment works (POTW). To ensure protection of water quality and human health, the permit places conditions on the type, volume, and concentration of pollutants discharged from the facility to waters of the United States.

This fact sheet includes:

- A map and description of the discharge location;
- A listing of effluent limits and other conditions the facility must comply with;
- Documentation supporting the effluent limits;
- Technical material supporting the conditions in the permit; and
- Information on public comment, public hearing, and appeal procedures.

Terms used in this fact sheet are defined in Section 5, Definitions, of the permit.

Public Comment

The permit application, draft permit, and fact sheet describing the terms and conditions applicable to the permit are available for public review and comment during a public comment period. The public is provided at least 30 days to provide comments to DEQ. Persons wishing to request a public meeting for this facility's draft permit must do so in writing within 14 calendar days of public notice being published that a draft permit has been prepared; requests for public meetings must be submitted to DEQ by 04/02/2020. Requests for extending a public comment period must be provided to DEQ in writing before the last day of the comment period. For more details on preparing and filing comments about these documents, please see the IPDES guidance *Public Participation in the Permitting Process* at *http://www.deq.idaho.gov/media/60178029/ipdes-public-participation-permitting-process-0216.pdf*

For more information, please contact the permit writer.

After the close of the public comment period, DEQ considers information provided by the public, prepares a document summarizing the public comments received, and may make changes to the permit in response to the public comments. DEQ will include the summary and responses to comments in Appendix of the final fact sheet. After the public comment period and prior to issuing the final permit decision, DEQ will provide the applicant an opportunity to submit additional information to respond to public comments. DEQ may request more information from the applicant in order to respond to public comments (IDAPA 58.01.25.109.02.h.).

DEQ will assess the public comment in conjunction with any additional information received from the applicant and develop a proposed permit. The Environmental Protection Agency (EPA)

may take up to 90 days from the publication of public notice of the draft permit to develop and document specific grounds for objections to a proposed permit. If EPA objects to a proposed permit DEQ must satisfactorily address the objections within the time period specified in the memorandum of agreement between EPA and DEQ (40 CFR 123.44). Otherwise, EPA may issue a permit that is in accordance with 40 CFR 121, 122, and 124. If EPA issues the permit, any state, interstate agency, or interested person may request EPA hold a public hearing regarding the objection.

Permit Issuance

Following the public comment periods on a draft permit and after receipt of any comments on the proposed permit from EPA, DEQ will issue a final permit decision, the final permit, and the fact sheet. A final permit decision means a final decision to issue, deny, modify, revoke and reissue, or terminate a permit (IDAPA 58.01.25.107.04.). The final permit and final fact sheet will be posted on the DEQ webpage. Response to comments will be located in the final fact sheet as an appendix.

The public has access to a permit appeals process (IDAPA 58.01.25.204). Appeal of a final IPDES permit decision begins by filing a petition for review with DEQ's hearing coordinator within 28 days after DEQ serves notice of the final permit decision. The permit holder or applicant and any person or entity who filed comments or who participated in the public meeting on the draft permit may file a petition for review. Ultimately, any person aggrieved by a final IPDES action or determination has a right to judicial review by filing a petition for review (IDAPA 58.01.25.204.26).

Documents are Available for Review

The draft IPDES permit and fact sheet can be reviewed or obtained by visiting or contacting the DEQ State office between 8:00 a.m. and 5:00 p.m., Monday through Friday at the address below. The draft permit, and fact sheet can also be found by visiting the DEQ website at "*http://www.deq.idaho.gov/news-public-comments-events/*."

DEQ
1410 N. Hilton St.
Boise, ID 83706
208-373-0502

The fact sheet and draft permits are also available at the DEQ Regional Office:

DEQ Pocatello Regional Office
444 Hospital Way, #300
Pocatello, ID 83201
208-236-6160

Disability Reasonable Accommodation Notice

For technical questions regarding the permit or fact sheet, contact the permit writer at the phone number or e-mail address at the beginning of this fact sheet. Those with impaired hearing or speech may contact a TDD operator at 1-800-833-6384 (ask to be connected to the permit writer

at the above phone number). Additional services can be made available to a person with disabilities by contacting the permit writer.

2 Background Information

2.1 Facility Description

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

Table 1. Facility information.

Permittee	City of Soda Springs, POTW
Facility Physical Address	520 Big Spring Road Soda Springs, Idaho
Facility Mailing Address	9 West 2nd South Soda Springs, Idaho 83276
Facility Contact	Alan Skinner Director of City Services askinner@sodaspringsid.com (208) 547-2600
Certifying Official	Austin Robinson Mayor (208) 547-2600
Facility Location	Latitude: 42.647803° Longitude: -111.607250°
Receiving Water Name	Alexander Reservoir / Bear River
Outfall Location	Latitude: 42.646089° Longitude: -111.609354°
Permit Status	
Application Submittal Date	June 30, 2006

The City owns and operates the Soda Springs POTW located in Soda Springs, Idaho which discharges year-round. The collection system has no combined sewers. The facility serves a resident population of 3,381. There are no major industries discharging to the facility.

2.1.1 Facility Information

The design flow of the facility is 1.7 mgd. The actual flow of the facility is consistently between 0.83 mgd and 1.08 mgd. The treatment process consists of Integrated Fixed Film Activated Sludge, tertiary filtration via moving sand bed filters and disinfection using ultraviolet radiation. The facility completed major upgrades in 2012. A schematic of the wastewater treatment process and a map showing the location of the treatment facility and discharge are included in Appendix A. Because the design flow is greater than 1 mgd, the facility is considered a major facility.

2.1.2 Permit History

The most recent NPDES permit for the City POTW was issued on November 16, 2001, became effective on December 6, 2001, and had an expiration date of December 6, 2006. An NPDES application for permit issuance was submitted by the permittee on June 30, 2006. 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.

2.1.3 Compliance History

A summary of effluent violations in the last 5 years is provided in Table 2. Overall, the facility has had a good compliance record since the 2012 upgrades have been in operation. 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=110012529184

Table 2. Effluent limit violations.

Parameter Exceeding Permit Limits	Units	Date
Ammonia, max daily	mg/L ; lb/day	3/2019
E.coli, max daily	#/100mL	7/2018
TSS, % removal	%	5/2017
BOD_5, % removal	%	4/2017
Ammonia	mg/L ; lb/day	3/2013
Ammonia	mg/L ; lb/day	2/2013
Ammonia	mg/L ; lb/day	1/2013
TSS, % removal	%	1/2013

DEQ conducted an inspection of the facility on February 15, 2018. An area of concern for the facility is the ability to comply with their discharge monitoring report (DMR) reporting deadline of the 10th day of every month. This 2020 permit requires DMR reporting by the 20th day of every month.

In March of 2019 the facility experienced an equipment failure that resulted in reduced treatment of ammonia and an exceedance of its max daily limits for ammonia. The facility promptly reported and remedied the situation and returned to full compliance for ammonia the following week.

2.1.4 Sludge/Biosolids

EPA Region 10, under the authority of the CWA, issues separate sludge-only permits for the purpose of regulating biosolids. Permits for sludge management and disposal are independent of IPDES discharge permits and must be obtained from EPA. The IPDES program will take over permitting of sludge/biosolids in July 2021. In addition, sludge management plans must be submitted to DEQ and must follow the procedures in IDAPA 58.01.16.

The treatment facility removes solids during the treatment of the wastewater at the headworks (grit and screenings). Wasted sludge is thickened and dried onsite before be hauled to the Caribou County Sanitary Landfill for disposal.

2.1.5 Outfall Description

The discharge is continuous through an open pipe to the Alexander Reservoir / Bear River at approximate river mile 200, approximately 450 feet downstream of the confluence with Big Spring Creek.

2.1.6 Wastewater Influent Characterization

The City reported the concentration of influent pollutants in DMRs and results are characterized in Table 3. The tabulated data represents the quality of the influent wastewater received from 1991.

Table 3. Wastewater influent characterization.

Parameter	Units	# of Samples	Average Value	Maximum Value	Data Source
BOD_5	mg/L	319	108	341	1991 - 2018
TSS	mg/L	555	157	319	1991 - 2018

2.1.7 Wastewater Effluent Characterization

To characterize the effluent, DEQ evaluated the facility's application form, DMR data, and raw data (ammonia) supplied by the permittee. The City provided significant upgrades to the treatment facility in 2012 that fully took effect by mid-2013. Only data after June 2013 was used to characterize facility effluent in order to provide the most relevant information. The effluent quality is summarized in Table 4.

Table 4. Effluent characterization (2013 – 2019).

Parameter	Average	Maximum	Minimum	# of samples
BOD, 5-day [mg/L]	7.4	57	2	64
BOD % removal	98.4	100	94	55
Solids, total suspended [mg/L]	6.3	28	<2	51
Solids, suspended percent removal %	97.1	100	80	54
E. coli, MTEC-MF [#/100 mL]	17	387	<2	42
pH [SU]	---	8.6	7.5	52
Nitrogen, ammonia total [as N] [mg/L]	0.16	4.9	<0.05	332
Phosphorus, total [as P] [mg/L]	0.72	4.43	0.04	18
Nitrite + Nitrate total [as N] [mg/L]	3.00	5.56	1.48	22
Oxygen, dissolved [DO] [mg/L]	9.58	40.5	5.6	53

Arsenic, total recoverable [µg/L]	3.28	4	0.8	10
Cadmium, total recoverable [µg/L]	---	<1	<0.5	10
Copper, total recoverable [µg/L]	5.67	23	2	9
Lead, total recoverable [µg/L]	Mostly (<) results	3	<0.5	8
Nickel, total recoverable [µ/L]	2.6	9	1	11
Zinc, total recoverable [µg/L]	255	1670	8	11

2.2 Description of Receiving Water

The City discharges to the Bear River hydraulic basin (HUC 16010201). The river flows from its headwaters in the high Uinta's Wilderness Area in northeastern Utah, meanders approximately 500 miles in and out of Utah, Wyoming and Idaho, and eventually returns to Utah, emptying into the Great Salt Lake only 90 miles from its place of origin.

The confluence of Big Spring Creek and Little Spring Creek with the Bear River is approximately 450 feet upstream of the outfall, contributing flow of approximately 10 cfs, conservatively. An aquaculture facility discharges into Big Spring Creek, contributing elevated loads of nutrients and sediment. The main source of flow in Little Spring Creek is storm water runoff from the City.

The Soda Springs POTW has upstream and downstream monitoring locations that have not been documented as approved by DEQ Pocatello regional office:

- The upstream location is at the Baily Creek Bridge approximately 2 miles above the influence of the facility's discharge, and
- Downstream at the Constitution Bridge approximately 5.1 miles below the facility's discharge.

The point of discharge for Soda Springs POTW according to the 2016 Integrated Report section 305(b) map is assessment unit (AU) Alexander Reservoir (Bear River) [Assessment Unit ID: ID16010201BR001_0L]. The AU is the waterbody segment that has associated beneficial uses which are assessed for support status.

The reservoir is protected for the following designated uses (IDAPA 58.01.02.160.02):

- Cold water aquatic life (CWAL) (not supporting; Causes listed as Total Phosphorus and Total Suspended Solids)
- Salmonid spawning (unassessed; Assumed to be not supporting based on CWAL status)
- Primary contact recreation (unassessed; Assumed to be supporting for antidegradation purposes (see section 3.5))

In addition, Idaho Water Quality Standards state that all waters of the State of Idaho are protected for industrial and agricultural water supply, wildlife habitats and aesthetics (IDAPA58.01.02.100.03.b and c, 100.04 and 100.05). The permit must include any effluent limits necessary to meet the water quality standards.

The ambient background data used for this permit is in Table 5, and is from permittee-collected data.

Table 5. Ambient background data.

Parameter	Units	Percentile	Value	Source (dates)
Temperature	°C	95th	16.98	DMR (1991 – 2001)
pH	Standard units	5th – 95th	7.0 – 8.8	DMR (1991 – 2001)
Ammonia	mg/L	Max	0.20	Permittee (2002-2005)
Hardness	mg/L	5th	219	Permittee (2002 – 2005)

2.2.1 Water Quality Impairments

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 (WLAs) for point source discharges, which are set at levels designed to help restore the water body to a condition that supports existing and designated beneficial uses. Discharge permits must contain limits that are consistent with the assumptions and requirements of WLAs that have been assigned to the discharge in an EPA-approved TMDL.

The EPA-approved Bear River Basin Addendum to the Bear River/Malad Subbasin Assessment and Total Maximum Daily Load (2013) establishes WLAs for total phosphorus and sediment for Soda Springs POTW as a point source discharge to the Alexander Reservoir receiving water reach. These WLAs are designed to meet narrative and numeric criteria and help restore the water body to a condition that supports existing and beneficial uses. The effluent limits and associated requirements contained in the 2020 permit are set at levels consistent with the TMDL.

2.2.2 Critical Conditions

The low flow conditions of a water body are used to determine water quality-based effluent limits (WQBELs). In general, Idaho's water quality standards (WQS) require criteria be evaluated at the following low flow design conditions (See IDAPA 58.01.02.210.03) as defined in Table 6. The 1Q10 represents the lowest one day flow with a recurrence frequency of once in 10 years. The 7Q10 represents lowest average seven consecutive day flow with a recurrence frequency of once in 10 years. The 30Q5 represents the lowest average 30 consecutive day flow with a recurrence frequency of once in five years. 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.

For this permit, DEQ used critical low flows upstream of the discharge from the USGS gage station #10075000 Bear River at Soda Springs, which is located approximately 5.1 miles upstream of Outfall 001. USGS ceased collecting data at this site in 2006. USGS's SWToolbox program was used to calculate the critical low flows using data from 1975 through 2006. The estimated low flows are presented in Table 6.

Table 6. Estimated critical low flows for the Bear River at Soda Springs.

Flows	Annual Flow (cfs)
1Q10	54.6
7Q10	56.6
30Q5	83.3
Harmonic mean	282.4
Source: USGS 10075000 BEAR RIVER AT SODA SPRINGS, ID	

2.3 Pollutants of Concern

DEQ may identify pollutants of concern (POC) for the discharge based on, but not limited to, those which:

- Have a technology-based limit (TBEL)
- Have an assigned WLA from a TMDL
- Had an effluent limit in the previous permit
- Are present in the effluent monitoring data reported in the application, DMRs, or special studies
- Are expected to be in the discharge based on the nature of the discharge
- Are impairing the beneficial uses of the receiving water

The wastewater treatment process for this facility includes both primary and secondary treatment. To determine POCs for further analysis, DEQ evaluated all pertinent and available information such as the permit application, previous DMRs, and raw discharge data provided by the facility.

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

- BOD_5
- TSS
- *E. coli* bacteria
- pH
- Total Ammonia
- Total Phosphorus
- Arsenic
- Nitrate/Nitrite
- Lead
- Copper
- Nickel
- Zinc
- Temperature

3 Effluent Limits and Monitoring

Table 7 presents the effluent limits and monitoring requirements in the 2001 Permit.

Table 7. 2001 Permit - Effluent Limits and Monitoring Requirements.

Parameter	Units	Effluent Limits			Monitoring Requirements		
		Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit	Sample Location	Sample Frequency	Sample Type
Flow	mgd	----	----	----	Effluent	Continuous	Recording
BOD_5	mg/L	30	45	---	Influent and Effluent[a]	2/week	24-hour composite
	lbs/day	430	640		Effluent	2/week	Calculation[b]
TSS	mg/L	30	45	---	Influent and Effluent[a]	2/week	24-hour composite
	lbs/day	430	640	---	Effluent	2/week	Calculation[b]
E. coli[c]	#/100mL	126[e]	---	406[f]	Effluent	2/week[g]	Grab
Total Residual Chlorine[c]	mg/L	0.093[d]	---	0.209	Effluent	5/week	Grab
	lbs/day	1.3	---	3.0	Effluent	5/week	Calculation[b]
Total Ammonia as N[c]	mg/L	2.1	---	2.8	Effluent	1/week	24-hour composite
	lbs/day	30	---	40	Effluent	1/week	Calculation[b]
pH	S.U.	6.5 – 9.0			Effluent	5/week	Grab
Dissolved Oxygen	mg/L	---	---	---	Effluent	2/week	Grab
Nitrate-Nitrite as N	mg/L	---	---	---	Effluent	1/quarter	24-hour composite
Total Phosphorus as P	mg/L	---	---	---	Effluent	1/quarter	24-hour composite
Temperature	°C	---	---	---	Effluent	5/week	Grab
Arsenic, total recoverable	mg/L	---	---	---	Effluent	2/year[h]	24-hour composite
Cadmium, total recoverable	mg/L	---	---	---	Effluent	2/year[h]	24-hour composite
Copper, total recoverable	mg/L	---	---	---	Effluent	2/year[h]	24-hour composite
Lead, total recoverable	mg/L	---	---	---	Effluent	2/year[h]	24-hour composite
Nickel, total recoverable	µg/L	---	---	---	Effluent	2/year[h]	24-hour composite

Zinc, total recoverable	µg/L	---	---	---	Effluent	2/year[h]	24-hour composite
Whole Effluent Toxicity	TU	---	---	---	Effluent	1/quarter[i]	24-hour composite

a. Influent and effluent samples must be collected during the same 24-hour period.
b. Loading is calculated by multiplying the concentration in mg/l by the average daily flow and a conversion factor of 8.34
c. Reporting is required within 24 hours of a maximum daily limit violation.
d. The average monthly effluent limit for chlorine is not quantifiable using EPA approved analytical methods. The permittee will be in compliance with the effluent limits provided the total chlorine residual is at or below the compliance evaluation level of 0.100 mg/L (100 Ig/L).
e. Based on the geometric mean of all samples collected during the month.
f. This limitation is an instantaneous maximum.
g. There must be 3 to 5 days between sampling events.
h. Sampling must occur within 24-hours after a waste hauler has discharged into the headworks. There must be at least 3 months between sampling events.
i. Sampling may occur only during the year 2005

Table 8. 2020 Permit - Effluent Limits and Monitoring Requirements

Parameter	Units	Effluent Limits				Monitoring Requirements			Reporting Frequency (DMR Months)
		Average Monthly Limit	Average Weekly Limit	Monthly Geometric Mean	Maximum Daily Limit	Sample Location	Sample Frequency	Sample Type	
Flow	mgd	----	----	---	----	Effluent	Continuous	Recording	Monthly
BOD_5	mg/L	30	45	---	---	Influent and Effluent	2/week	24-hour composite	Monthly
	lbs/day	430	640	---	---	Effluent		Calculation[a]	Monthly
BOD_5 % removal	%	85%	---	---	---	---	1/month	Calculation[b]	Monthly
TSS	mg/L	30	45	---	---	Influent and Effluent	2/week	24-hour composite	Monthly
	lbs/day	222	283	---	---	Effluent		Calculation[a]	
	lbs/day	Annual average limit: 194				Effluent	1/year	Calculation[a]	
TSS % removal	%	85%	---		---	---	1/month	Calculation[b]	Monthly
E. Coli Bacteria[d]	# / 100mL	---	---	126[c]	---[e]	Effluent	5/month	Grab[f]	Monthly
pH[d]	S.U.	6.5 – 9.0				Effluent	5/week	Grab or Recording	Monthly
Temperature[g]	°C	Report (Monthly average, Instantaneous max)				Effluent	Continuous	Recording	Monthly
Temperature[h]	°C	Report (Monthly average, Instantaneous max)				Effluent	5/week	Grab[f]	Monthly
Total Phosphorus (as P)	mg/L	Report	Report	---	---	Effluent	1/week	24-hour composite	Monthly
	lbs/day	13.0	Report	---	---			Calculation[a]	
	lbs/day	Annual average limit: 5.82					1/year	Calculation[a]	
Zinc, total recoverable[d,i]	mg/L	0.83	---	---	1.44	Effluent	2/month[j]	24-hour composite	Monthly
	lbs/day	11.8	---	---	20.4			Calculation[a]	
Copper, total Recoverable [d,i] (Final limit)	µg/L	20	---	---	34	Effluent	2/month[j]	24-hour composite	Monthly
	lbs/day	0.28	---	---	0.49			Calculation[a]	

Copper, total Recoverable [d,i] (Interim limit)	µg/L	22	---	---	34	Effluent	2/month[j]	24-hour composite	Monthly
	lbs/day	0.31	---	---	0.49			Calculation[a]	
Total Ammonia (as N)	mg/L	Report	---	---	Report	Effluent	1/week	24-hour composite	Monthly
	lbs/day	Report	---	---	Report	Effluent		Calculation[a]	
Arsenic, total Recoverable[i]	µg/L	Report	---	---	---	Effluent	1/quarter	24-hour composite	Quarterly[k]
Whole Effluent Toxicity	TU	---	---	---	---	Effluent	1/year	24-hour composite	Yearly

a. Loading (lb/day) is calculated by multiplying the concentration (mg/L) by the corresponding flow (mgd) for the day of sampling by a conversion factor of 8.34. For more information on calculating, averaging, and reporting loads and concentrations see the NPDES Self-Monitoring System User Guide (EPA 833-B-85-100, March 1985).
b. Percent Removal. The monthly average percent removal must be calculated from the arithmetic mean of the influent values and the arithmetic mean of the effluent values for that month using the following equation: (average monthly influent concentration – average monthly effluent concentration) ÷ average monthly influent concentration x 100. Influent and effluent samples must be taken over approximately the same time period.
c. Geometric mean of five or more samples collected 3-7 days apart over a calendar month.
d. Exceedance of a maximum daily limit, instantaneous maximum limit, or instantaneous minimum limit, for this parameter requires 24-hour reporting in accordance with 2.2.7 of the permit. For *E. coli*, the maximum daily threshold that triggers 24-hour reporting is 406 organisms/100mL. Please see section 2.2.7 of the permit for additional 24-hour reporting requirements.
e. Idaho's water quality standards for primary contact recreation include a single sample value of 406 organisms/100 mL. Exceedance of this value indicates likely exceedance of the 126 organisms/100 mL average monthly effluent limit; however, it is not an enforceable limit for a daily value, nor is exceeding this value a violation of water quality standards. If this value is exceeded at any point within the month, the facility should consider collecting more than the 5 samples per month required in this permit to determine compliance with the monthly geometric mean according to IDAPA 58.01.02.251.01.a..
f. A grab sample is an individual sample collected over a 15-minute period or less.
g. Continuous temperature monitoring must begin 12/01/2020.
h. Grab samples collected five times per week are acceptable for temperature monitoring until continuous monitoring is required.
i. Metals sampling must be conducted between 12 and 24 hours of hauled septage entering the headworks.
j. The first sample must be collected during the first 14 days of the month and the second sample after the first 14 days. Routine samples must be collected at least 5 days apart. Samples required to be collected to coincide with hauled septage may be used as the routine sample for the period of the month it is collected if the sample maintains the 5 day buffer requirement.
k. Quarters are defined as: January 1-March 31; April 1-June 30; July 1-September 30; and October 1-December 31.

Annual average limit for total phosphorus and TSS:

- The annual average total phosphorus and TSS loading limits are 5.82 lb/day and 194 lb/day, respectively.
- The annual average total phosphorus and TSS loads must be calculated as the sum of all daily loads calculated for total phosphorus and TSS during a calendar year, divided by the number of days sampled for total phosphorus and TSS respectively during that year.
- The annual average total phosphorus and TSS loads must be reported on the December monitoring period DMR submitted by January 20th.

Effluent Limit Changes from the Previous Permit:

- TSS monthly loading limit changed from 430 lbs/day to 222 lbs/day and the average weekly loading limit changed from 640 lbs/day to 283 lbs/day. A TSS annual average limit of 194 lbs/day is added.
- The total residual chlorine limit is discontinued.
- The *E. coli* maximum daily limit has been discontinued.
- The total ammonia limit has been discontinued.
- Total Phosphorus average monthly limit (AML) 13.0 lbs/day and annual average limit of 5.82 lbs/day are added to the permit.
- Zinc monthly average limit and maximum daily limit are included in this permit. In the previous permit zinc monitoring coincided with hauled waste entering the headworks. In this permit twice per month monitoring is required to assess compliance with the zinc limit and thoroughly assess the discharge potential to the Bear River.
- Copper monthly average interim limit and maximum daily interim limit are included in this permit. In the previous permit copper monitoring coincided with hauled waste entering the headworks. In this permit twice per month monitoring is required to assess compliance with the copper limit and thoroughly assess the discharge potential to the Bear River.
- All metals monitoring are required to coincide with hauled septage entering the treatment train. Zinc and copper sampling required to coincide with hauled septage may be used to meet the 2/month routine sampling required in the permit.

3.1 Basis for effluent limits

Regulations require that effluent limits in an IPDES permit must be either technology-based or water quality-based.

Technology-based effluent limits (TBELs) are published as regulation by the EPA according to the treatment processes used to reduce specific pollutants and the level of treatment achievable using available technology. DEQ may develop a TBEL on a case-by-case basis (40 CFR 125.3, IDAPA 58.01.25.302, and IDAPA 58.01.25.303).

Water quality based effluent limits (WQBELs) are calculated to ensure the water body receiving the effluent will comply with the Surface Water Quality Standards (IDAPA 58.01.02).

DEQ must apply the most stringent of these limits to each POC. These limits are described below.

3.2 Technology-Based Effluent Limits

IDAPA 58.01.25.302 requires that IPDES permits include applicable TBELs and standards, while 40 CFR 125.3(a)(1) states that TBELs for POTWs must be based on secondary treatment standards or as specified in 40 CFR 133. The following section explains secondary treatment effluent limits for the conventional pollutants discharged by POTWs: 5-day biochemical oxygen demand (BOD5), total suspended solids (TSS), and pH. These effluent limits are given in 40 CFR 133 and are outlined in Table 9.

Table 9. Secondary treatment effluent limits.

Parameter	30-day average	7-day average
BOD_5	30 mg/L	45 mg/L
$cBOD_5$	25 mg/L	40 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.	

In addition, Idaho rules and federal regulations include special considerations to allow treatment equivalent to secondary (TES) for treatment facilities with waste stabilization ponds (lagoons) and trickling filters. These provisions allow alternative limits for BOD_5 and TSS for such facilities provided the following requirements are met (40 CFR 133.101(g) and 40 CFR 133.105(d)). This facility does not employ waste stabilization ponds (lagoons) and trickling filters, and therefore does not meet the requirements for TES.

3.2.1 Mass-Based Limits

The state regulation at IDAPA 58.01.25.303.06 requires that effluent limits be expressed in terms of mass, except under certain conditions. The regulation at IDAPA 58.01.25.303.02 requires that effluent limits 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[i]

Since the design flow for this facility is 1.7 mgd, the mass-based limits for:

BOD_5:

Average Monthly Limit = 30 mg/l × 1.7 mgd × 8.34 = 425 lbs/day

Average Weekly Limit = 45 mg/l × 1.7 mgd × 8.34 = 638 lbs/day

TSS:

Average Monthly Limit = 30 mg/l x 1.7 mgd x 8.34 = 425lbs/day

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

Average Weekly Limit = 45 mg/l x 1.7 mgd x 8.34 = 638lbs/day

Zinc:

Average Monthly Limit = 0.83 mg/l x 1.7 mgd x 8.34 = 11.8lbs/day

Daily Max Limit = 1.44 mg/l x 1.7 mgd x 8.34 = 20.4lbs/day

Copper:

Average Monthly Limit = 0.020 mg/l x 1.7 mgd x 8.34 = 0.28 lbs/day

Daily Max Limit = 0.034 mg/l x 1.7 mgd x 8.34 = 0.49 lbs/day

3.3 Water Quality-Based Effluent Limits

3.3.1 Statutory and Regulatory Basis

Section 301(b)(1)(C) of the Clean Water Act (CWA) requires the development of limits in permits necessary to meet WQS. The IPDES regulation IDAPA 58.01.25.302.06 implementing Section 301(b)(1)(C) of the CWA requires that permits include limits for all pollutants or parameters that are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any State or Tribal WQS 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 (IDAPA 58.01.25.103.03, IDAPA 58.01.25.302.06, see also CWA Section 401(a)(2)).

The regulations require the permitting authority to make this evaluation using procedures that account for existing controls on point and non-point 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 WQS are met and must be consistent with any available TMDL WLA for the discharge. If there are no approved TMDLs that specify WLAs for this discharge, all of the WQBELs are calculated directly from the applicable WQS.

3.3.2 Pollutants with WLA in the Bear River Basin Addendum to the Bear River/Malad Subbasin Assessment and Total Maximum Daily Load (2013)

Total Phosphorus

The Bear River TMDL 2013 assigns a WLA for total phosphorus of 5.82 lbs/day to the Soda Springs POTW. The 2013 Bear River TMDL expresses how the WLA should be interpreted:

> *"Wasteload allocations are annual averages, unless allocations vary during the year, in which case the wasteload allocations are averages for the seasonal periods specified by the allocations. NPDES permit limits based on the WLAs should be expressed in the permits in a manner consistent with these averaging periods."*

The IPDES regulations require that IPDES permits include effluent limits consistent with the assumptions and requirements of any WLA assigned to the discharge as part of an approved TMDL (IDAPA 58.01.25.303.07.ix). To be consistent with the averaging period, the permit

includes the WLA as an annual average. In addition, the IPDES regulations require that effluent limits for continuous discharges from POTWs be expressed as average monthly and average weekly limits, unless impracticable (IDAPA 58.01.025.303.04). Therefore, DEQ calculated average monthly limits for TP based on the assumption that the WLA represents the long term average (LTA). The Soda Springs POTW discharges to a receiving water body that has phosphorus listed as a cause of impairment. The discharge to the river also lacks a diffuser which limits the rate of mixing and can potentially lead to localized impacts in the near field. To avoid near field effects on this stretch a monthly phosphorus limit is included in this permit. A maximum daily limit or weekly average limit was not included as it is not appropriate for nutrients that are not by themselves acutely or chronically toxic (see DEQ 2017a, ELDG section 3.7.1.3).

Calculating the Average Monthly Limit

LTA = 5.82 lbs/day:

This number is incorporated directly into the permit as an annual average limit.

$AML = LTA \times \exp[z\sigma_n - 0.5\sigma_n^2]$ *(from Table 29 of the ELDG)*

Where:

CV = coefficient of variation = 1.30 (based on facility data from June 2013 - Nov 2017)

n = 4 (number of samples in a month)

$\sigma_8^2 = \ln(CV^2/n + 1) = \ln(1.30^2/4 + 1) = 0.352$

$\sigma_8 = 0.594$

Z = percentile exceedance probability for AML (95%) = 1.645

$AML = 5.82 \times \exp[(1.645 \times 0.594) - (0.5 \times 0.352)]$

$AML = 5.82 \times 2.23 = 12.96$ lbs/day

(DEQ has determined that weekly limits for non-toxic forms of nutrients are impracticable)

TSS

The Bear River TMDL 2006 (page 16) provides an annual TSS WLA of 32,217 kg/yr for Soda Springs POTW.

Further discussion on the Soda Springs POTW is provided in the 2006 TMDL text:

Page 19:

"RW2 - Alexander Reservoir - This water body is listed on the §303(d) list for sediment (Table 1-1). Beneficial uses affected are cold water aquatic life and salmonid spawning. Within the reservoir, Soda Creek is the only major tributary. Point sources

include Soda Springs POTW and Clear Springs Foods fish hatchery. None of the three appear to be a source of excess suspended solids (Table 1-3)."

Page 75
"For point sources, recommended targets followed those for nonpoint sources or were based on the facility's NPDES permit. For example, the suspended solids target for waste water treatment plants was 30 mg/L based on the permit requirements for Soda Springs, Grace, Preston, and Franklin POTWs."

Page 205
"Recommended total suspended solids wasteload allocations of less than 1,500 kg/year (Grace) to over 30,000 kg/year (Soda Springs and Preston) are based on the NPDES requirements of a monthly average no greater than 30 mg/L (Table 3-14). At these wasteload allocations, no reductions are necessary."

In translating the wasteload allocation into permit limits, DEQ followed procedures in the ELDG. The first step in developing limits is to determine the time frame over which the WLAs apply. The Bear River TMDL 2006 expresses the WLA as an annual load.

The TSS WLA can be expressed as an annual average using the following calculation:

(32,217 kg/yr × 2.2 lb/kg) ÷ 365 days/year = 194 lbs/day

This number is incorporated directly into the permit as an annual average limit.

The IPDES regulations at IDAPA 58.01.25.303.04(b) require that permit limits for publicly owned treatment works (POTWs) be expressed as average monthly limits (AMLs) and average weekly limits (AWLs), unless impracticable. The WLA must be statistically converted to average weekly and average monthly permit limits.

<u>Calculating the Average Monthly Limit</u>

The Average Monthly Limit (AML) can be calculated by setting the annual average equal to the Long Term Average (LTA).

LTA = 194 lbs/day:

$AML = LTA \times \exp[z\sigma_n - 0.5\,\sigma_n^2]$ *(from Table 29 of the ELDG)*

Where:

CV = coefficient of variation = 0.24 (based on facility data from June 2013 - December 2017)

n = 8 (number of samples in a month)

$\sigma_8^2 = \ln(CV^2/n + 1) = \ln(0.24^2/8 + 1) = 0.007$

$\sigma_8 = 0.085$

Z = percentile exceedance probability for AML (95%) = 1.645

$AML = 194 \times \exp[(1.645 \times 0.085) - (0.5 \times 0.007)]$

$AML = 194 \times 1.15 = 222.2$ lbs/day

Calculating the Average Weekly Limit

The AWL is calculated by multiplying the AML by the following relationship (from Table 32 of the ELDG):

$$AWL = \frac{\exp[Z_m \sigma_{n/4} - 0.5\sigma_{n/4}^2] \times AML}{\exp[Za\ \sigma_8 - 0.5\ \sigma_8^2]}$$

Where:

CV = coefficient of variation = 0.024 (based on facility data from Dec 2012 - Nov 2017)

$\sigma_8^2 = \ln(CV^2/n + 1) = \ln(0.024^2/8 + 1) = 0.007$

$\sigma_8 = 0.085$

n/4 = number of samples per week = 2

$\sigma_{n/4}^2 = \ln(CV^2/n/4 + 1) = \ln(0.24^2/2 + 1) = 0.028$

$\sigma_{n/4} = 0.169$

Zm = percentile exceedance probability for AWL (99%) = 2.326

Za = percentile exceedance probability for AML (95%) = 1.645

$$AWL = \frac{\exp[(2.326 \times 0.169) - (0.5 \times 0.028)] \times 222.2}{\exp[(1.645 \times 0.085) - (0.5 \times 0.007)]}$$

AWL = 283.1 lbs/day

These water quality based loading limits are compared with the technology-based effluent limits in Table 10, below.

Table 10. TSS mass limits comparison.

Comparison of technology-based and water quality-based mass limits for TSS		
Parameter	Average Monthly Limit	Average Weekly Limit
Technology-based	425 lbs/day	638 lbs/day
Water quality-based	**222** lbs/day	**283** lbs/day
Most Stringent	**222** lbs/day	**283** lbs/day

The water quality-based mass limits are selected and applied to the average monthly limit and average weekly limit in the 2020 permit. The technology-based concentration limits of 30mg/L average monthly and 45mg/L average weekly are retained; the facility must meet both the technology-based concentration limits and the water quality-based mass limits.

3.3.3 Reasonable Potential Analysis (RPA) and Need for Water Quality-Based Effluent Limits

DEQ uses the process described in the *Effluent Limit Development Guidance* (DEQ 2017a) 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 (WQC) for a given pollutant, DEQ compares the maximum projected receiving water concentration to the WQC for that pollutant. If the projected receiving water concentration exceeds the criteria, there is reasonable potential, and a WQBEL 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 (IDAPA 58.01.02.060). 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 2016 Integrated Report places Soda Springs POTW's outfall in the reservoir, but because the retention time in the reservoir is calculated as less than 15 days this segment is not considered non-flowing water (IDAPA 58.01.02.060.01.h.iv) (see Appendix B for retention time calculations). Visible flow in the water body at the point of discharge was observed during a permit development site visit supporting the fact that the discharge is to flowing water (see Appendix A for photo of discharge location).

The mixing zones for this facility's pollutants are summarized in Table 11. All dilution factors are calculated with the effluent flow rate set equal to the design flow of 1.7 mgd. The calculated mixing zones do not impede receiving water beneficial uses. At the mixing zone percentages below there are reasonable potentials to cause or contribute an exceedance of WQS for zinc and copper which require new limits in this permit.

Table 11. Authorized mixing zones for City of Soda Springs.

Parameter	Authorized Mixing Zone	
	Aquatic life Acute	Aquatic life Chronic
Copper	25%	25%
Zinc	25%	25%

The RPA and WQBEL calculations were based on mixing zones shown in Table 11. The equations used to conduct the RPA and calculate the WQBELs are provided in Appendix B. If DEQ revises the allowable mixing zone before final issuance of the permit, the RPA and WQBEL calculations will be revised accordingly.

The effluent discharge under critical conditions (facility design flow and river 7Q10 flow) was analyzed using CorrMix/CorVue software to estimate the mixing zone properties. The model

predicts an effluent plume that does not exceed WQC in greater than 25% (11.25 m) of stream width (45 m) when the average monthly limit is discharged (Figure 1). This permit requires the permittee to submit a Mixing Zone Data Report to support a more robust mixing zone study in the future.

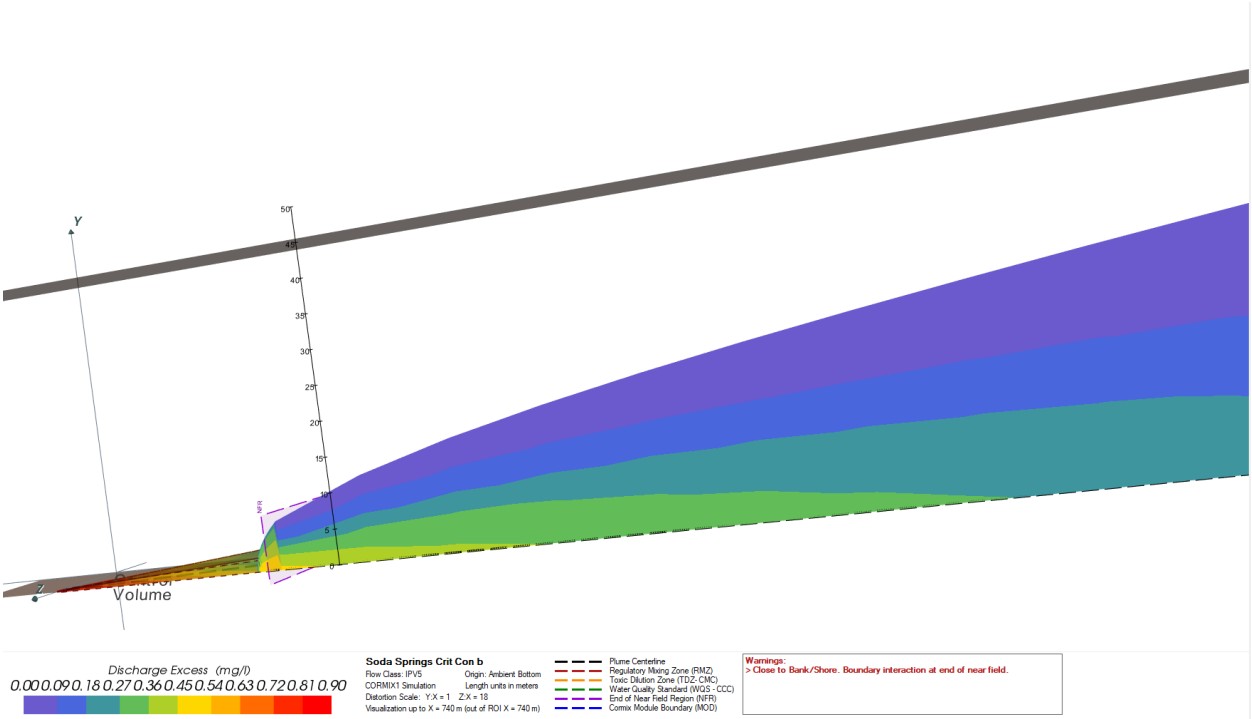

Figure 1. Zinc (95th percentile) critical conditions plume.

The observed zinc concentrations in the facility's effluent that exceeded WQC since 2013 were rare, but significant. The mixing zone provided in this permit has little effect in preventing effluent limit violations as the 2 exceedances recorded since 2013 (1,670 µg/l and 959 µg/l) were well above the permit limit provided by the mixing zone. The other 9 zinc data points recorded were well below the WQC value of 230 µg/l. The median value of all reported zinc concentrations is 18µg/l. DEQ will use the next permit cycle to provide adequate data for metal effluent concentrations to assess the frequency of the metal spikes.

The available copper data is similar to the zinc data as described above. The facility collected 9 samples since 2013 with a median concentration of 2µg/l. However one sample during that period exhibited a value 23µg/l, resulting in a reasonable potential analysis that determined a permit limit was required during this permit cycle. This analysis used the conservative WQC as recommended in the DEQ's Implementation Guidance for the Idaho Copper Criteria for Aquatic Life (see section 3.3.4.7).

DEQ determined that mixing zones provided in this permit will not unreasonably interfere with aquatic life. The infrequent occurrences of the recorded pollutant spikes and the results of the mixing zone model under conservative low flow conditions support this finding. Additionally, the WET testing data provided (see Section 5.2) revealed no indication that effluent concentrations reasonably believed to be found in the mixing zone would be toxic to aquatic life.

3.3.4 Reasonable Potential and Water Quality-Based Effluent Limits

The reasonable potential and WQBELs for specific parameters are summarized below. The calculations are provided in Appendix B.

3.3.4.1 Ammonia

Ammonia criteria are based on a formula that 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, the criteria become more stringent as pH and temperature increase. The table below details the equations used to determine WQC for ammonia.

Table 12. Ammonia criteria.

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

INPUT	
1. Receiving Water Temperature (deg C):	16.9
2. Receiving Water pH:	8.60
3. Is the receiving water a cold water designated us	Yes
4. Are non-salmonid early life stages present or abse	Present
OUTPUT	
Total ammonia nitrogen criteria (mg N/L):	
Acute Criterion (CMC)	**1.77**
Chronic Criterion (CCC)	**0.79**

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

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

See Appendix B for reasonable potential and effluent limit calculations for ammonia.

A reasonable potential calculation showed that the Soda Springs POTW discharge would not have the reasonable potential to cause or contribute to a violation of the water quality criteria for ammonia during critical conditions. See Appendix B for ammonia reasonable potential calculations. Based on these findings the ammonia limit from the previous permit is removed, but monitoring will continue. See the anti-backsliding section for further information.

3.3.4.2 E. coli

The Idaho WQS state that waters of the State of Idaho designated for recreation (primary or secondary) 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 30-day period. A mixing zone is not appropriate for bacteria for waters designated for contact recreation. Therefore, the 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 WQS 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 WQS. 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.). For waters designated only for secondary contact recreation, the single sample maximum value is 576 organisms per 100 mL (IDAPA 58.01.02.251.01.b.i). When a single sample maximum is exceeded, additional samples should be taken to assess compliance with the geometric mean criterion.

Monitoring of the effluent five times per month will ensure compliance with the criterion can be assessed. If the single sample maximum is exceeded, the permittee may choose to monitor more frequently than the permit requires, ensuring adequate disinfection and compliance with permit effluent limits exists.

Regulations at IDAPA 58.01.25.303.04 require that effluent limits 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 IDAPA 58.01.25.10.06 and 07 respectively 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. Therefore, the permit monthly effluent limit is a geometric mean for *E. coli* of 126 organisms per 100 mL.

3.3.4.3 Chlorine, Total Residual

Ultraviolet radiation replaced chlorine disinfection; chlorine is not used for primary or backup disinfection. Therefore total residual chlorine monitoring is discontinued.

3.3.4.4 pH

The Idaho WQS at IDAPA 58.01.02.250.01.a. requires pH values of the receiving water to be within the range of 6.5 to 9.0. Mixing zones are generally not granted for pH; therefore the most stringent WQC must be met before the effluent is discharged to the receiving water.

3.3.4.5 Phosphorus, Total (as P)

Total phosphorus has no numeric criteria; however, dischargers are required to meet narrative criteria in IDAPA 58.01.02.200. In this permit the WLA for total phosphorus from the 2013 Bear River TMDL Addendum has been applied.

3.3.4.6 Arsenic

The Idaho state water quality standards at IDAPA 58.01.02.210.01.b. establish arsenic criteria for the protection of human health of 10µg/L for both consumption of water and fish, and water only.

Because Soda Springs has detectable concentrations of arsenic, DEQ evaluated the detected concentrations of arsenic against the 2010 arsenic criterion. The facility does not have reasonable potential to exceed the criterion. See Appendix B for the RPA.

3.3.4.7 Copper

The copper BLM was approved by EPA on May 2, 2019. This permit requires data to be collected to adequately administer the new copper BLM method of evaluating site specific copper toxicity. DEQ's Implementation Guidance for the Idaho Copper Criteria for Aquatic Life describes how to administer the BLM in situations when limited or no data is available to develop site specific limits, as is the case here. The guidance suggests using the minimum of the potential conservative criteria estimates when no site specific data is available. In this case, they are estimated copper criteria 10th percentile values of 5.3µg/L for acute criteria and 3.3µg/L for chronic criteria for the site class plains, plateaus, and broad valleys (PPBV) (see Table 13). Conducting an RPA with these water quality criteria values reveals a reasonable potential to

exceed (RPTE) water quality criteria with a 25% mixing zone included. Because RPTE exists a copper limit is required in this permit and is included in Table 8.

Because this limit is in an IPDES permit for the first time and the permittee may have some difficulty meeting the limit consistently, a copper compliance schedule is included in the permit. The compliance schedule includes time to develop a receiving water monitoring plan, identify a sampling location, obtain sampling equipment, collect necessary data, evaluate current treatment potential, and if necessary, design and construct facility upgrades to meet final limits. The permit includes an interim copper limit that is performance based. The performance based monthly limit is the 99th percentile value of previous copper effluent values from the data collected during the 2001 permit cycle (22µg/L), and the maximum daily limit value is retained from the RPA spreadsheet (34µg/L) as this value is greater than any recorded value from the facility. Mass based limits have been calculated from the concentration limits and are also included.

Table 13. Potential conservative criteria estimates.

Regional Classification		Estimated copper criteria 10th percentile	
		Acute (µg/L)	Chronic (µg/L)
Basin	Bear River	7.9	4.9
Ecoregion	Northern Basin and Range	13.0	8.1
Stream Order	NA[a]	---	---
Site Class	Plains, Plateaus, and Broad Valleys	5.3	3.3
Site class + river/stream	NA[a]	---	---

a. Assessment Unit is Alexander Reservoir (Bear River) [ID16010201BR001_0L].

3.3.4.8 Nitrate/Nitrite

EPA's recommended water quality criterion for human health is 10 mg/L and the 95th percentile effluent concentration is 4.95 mg/L. The facility is still be required to monitor Nitrate + Nitrite for permit reapplication as required in the IPDES application Part B.6, Effluent Testing Data (greater than or equal to 0.1 mgd only).

3.3.4.9 Zinc

Based on the facility data collected from 2013, the facility has a reasonable potential to exceed water quality criteria when allowed a mixing zone of 25% and will require a monthly average and max daily limit. The facility data consisted of 11 samples, 2 of which were substantially higher than the other 9 samples. The source of the two spikes in zinc should be evaluated in order to avoid future spikes. In the 2001 NPDES permit, zinc monitoring was required to coincide with hauled septage entering the headworks. This permit retains that requirement. The facility has the ability to control the amount of septage entering the headworks from the 3,000 gallon septage holding tank, and based on conversations with the facility, staff state they intend to gradually introduce septage into the headworks. This gradual incorporation of septage into the facility will allow 2/month monitoring to accurately and consistently assess the zinc

concentration in the effluent. DEQ expects gradual incorporation of septage will control zinc concentrations in the effluent, and 2/month monitoring will consistently assess zinc effluent concentrations.

3.3.4.10 Cadmium

Based on the data provided by the facility for cadmium all samples from 2013 to 2018 have been non-detects. Based on this finding, cadmium monitoring has been discontinued in this permit. However, the facility is still required to monitor cadmium for permit reapplication as required in the IPDES application Part D, Expanded Effluent Testing Data.

3.3.4.11 Temperature

Segments of the Bear River are currently listed as not supporting its beneficial uses of cold water aquatic life and salmonid spawning due to temperature excursions above water quality criteria for those uses. The segment of the Bear River [ID16010202BR009_06] near Soda Springs is on Idaho's 303(d) list, which identifies this water system as in need of a TMDL to address beneficial use support. The Soda Springs POTW's discharge is to the Alexander Reservoir (Bear River) [ID16010201BR001_0L] segment of the Bear River according to 2016 Integrated Report which is not listed as impaired for temperature. This permit does not require temperature limits but monitoring of the effluent will continue. The DEQ Pocatello Regional Office has been collecting necessary temperature data on the Bear River. The permittee is required to collect downstream temperature data to support the copper BLM development. Effluent temperature monitoring in this permit is required to be recorded continuously. Continuously recorded temperature data is required beginning on 12/01/2020 to allow the facility time to acquire necessary equipment.

3.3.4.12 Lead and Nickel

Lead and nickel do not have a reasonable potential to violate water quality standards (see Appendix B). Based on these findings they have been removed from the monitoring requirements in the permit. However they are still be required to monitor for reapplication as required in the IPDES application Part D, Expanded Effluent Testing Data.

3.4 Narrative Criteria

DEQ must incorporate the narrative criteria described in IDAPA 58.01.02.200 when it determines permit limits and conditions. Narrative WQC limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge which have the potential to adversely affect designated uses, cause acute or chronic toxicity to biota, impair aesthetic attributes, or adversely affect human health.

DEQ considers the toxicity of the wastewater discharge by requiring whole effluent toxicity (WET) testing when it receives information indicating that toxicity may be present. If WET testing results indicate toxicity, effluent limits are necessary. WET testing is required for this facility because it is a major POTW facility that has the potential to discharge toxic pollutants.

The Idaho WQS 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 permit requires the permittee to comply with all narrative criteria.

3.5 Antidegradation

DEQ's antidegradation policy provides three levels of protection to water bodies in Idaho subject to Clean Water Act (CWA) jurisdiction (IDAPA 58.01.02.051).

- Tier I of antidegradation protection is designed to ensure that existing uses and the water quality necessary to protect those uses is maintained and protected (IDAPA 58.01.02.051.01; 58.01.02.052.01). A Tier I review is performed for all new or reissued permits or licenses (IDAPA 58.01.02.052.07).
- Tier II protection applies to any water bodies considered to be high quality waters (where the water quality exceeds levels necessary to support propagation of fish, shellfish, wildlife, and recreation in and on the water) and provides that water quality will be maintained and protected unless allowing for lower water quality is deemed by the state as necessary to accommodate important economic or social development in the area. In allowing any lowering of water quality DEQ must ensure adequate water quality to protect existing uses fully and must assure that there will be achieved the highest statutory and regulatory requirements for all new and existing point sources (IDAPA 58.01.02.051.02; 58.01.02.052.08).
- Tier III protection applies to water bodies that have been designated by the Idaho Legislature as outstanding national resource waters and provides that water quality is to be maintained and protected (IDAPA 58.01.02.051.03; 58.01.02.052.09).

DEQ employs 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).

3.5.1 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 uses and the level of water quality necessary to protect existing 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.

Water bodies not supporting existing or designated beneficial uses must be identified as water quality-limited, and a 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 limits that are consistent with wasteload allocations in the approved TMDL. The Alexander Reservoir (Bear River) [ID16010201BR001_0L] at Soda Springs is not supporting the cold water aquatic life and, therefore, is assumed not supporting salmonid spawning beneficial uses (although it is currently listed as unassessed) according to DEQ most recent integrated report (2016).

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 2013 Bear River/Malad Subbasin TMDL establishes WLAs for TSS and phosphorus. The effluent limits and associated requirements contained in the 2020 permit are set at levels that ensure compliance with the narrative and numeric criteria in the WQS and the wasteload allocations established in the 2013 Bear River/Malad Subbasin TMDL. Therefore, DEQ has determined the permit will protect and maintain existing and designated beneficial uses in the Bear River in compliance with the Tier I provisions of Idaho's WQS (IDAPA 58.01.02.051.01 and 58.01.02.052.07).

The removal of the ammonia limit conforms to a Tier I antidegradation review because the last 5 years of effluent ammonia data showed no reasonable potential to exceed water quality criteria.

3.5.2 High-Quality Waters (Tier II Protection)

The Alexander Reservoir (Bear River) [ID16010201BR001_0L**]** is currently unassessed for primary contact recreation, although it is assumed supporting. This is based on the fully supporting status for primary contact recreation of AU ID16010201BR002_06, which is located approximately 0.35 miles upstream of the facility's discharge. As such, the water quality relevant to contact recreation of the Bear River must be maintained and protected, unless a lowering of water quality is insignificant or is deemed necessary to accommodate important social or economic development (IDAPA 58.01.02.052.08).

To determine whether degradation will occur, DEQ must evaluate how the discharge will affect water quality for each pollutant of concern that is relevant to primary contact recreation of the Bear River (IDAPA 58.01.02.052.06). In general, this pertains to *E. coli*, any pollutant concentrations that may impact recreational uses such as fishing or swimming, and nutrients that may facilitate algal blooms. In this permit the parameters specific to recreational uses are *E. coli*, TSS, and nutrients.

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 existing 2001 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).

The ammonia limit has been removed from this permit as compared to the previous permit. Because, the Alexander Reservoir (Bear River) is not supporting CWAL, a Tier II analysis including a loss of assimilative capacity analysis is not necessary. However when comparing what is currently permitted for ammonia to the last 5 years of ammonia effluent data the analysis reveals an increase of assimilative capacity (See Appendix B (f) for calculations).

The reissued permit includes new limits for phosphorus, copper, and zinc. There is no increase in the facility's design flow from the previous permit, and no reductions of treatment capability have occurred at the facility. Thus, DEQ finds that this permit does not result in water quality degradation, as defined at IDAPA 58.01.02.052.06, that would impact the primary contact recreation beneficial use.

The reissued permit does not include the max daily limit of 406 #/100 mL for *E.coli* that was included in the previous permit. The Idaho WQS state that a water sample exceeding the single

sample maximum values indicates a likely exceedance of the geometric mean criterion, although it is not a violation of WQS by itself. For waters designated for primary contact recreation, the "single sample maximum" value is 406 #/100 mL (IDAPA 58.01.02.251.01.b.ii.). Removing the max daily limit does not affect the assimilative capacity of the river because the Idaho WQC for *E. coli* is a monthly geomean of 126 organisms per 100 mL which is retained in this permit as the limit. Because the WQC for this particular parameter is a geometric mean and not an instantaneous concentration level, the single sample maximum value is only an indicator of a potential exceedance of WQC and not a limit, or direct measure of WQC.

DEQ has determined that chlorine residual limits are no longer warranted. The facility no longer uses chlorine disinfection treatment because it has been replaced with UV disinfection and, therefore, does not represent a potential increase in pollutant load to the river.

Table 14. Comparison of 2001 and 2020 limits.

Pollutant	Units	2001 Permit			2020 Permit			Degradation[a]	Change[b]
		Average Monthly Limit	Average Weekly Limit	Single Sample Limit	Average Monthly Limit	Average Weekly Limit	Single Sample Limit		
Pollutants with limits in the 2001 and 2019 permit									
Five-Day BOD	mg/L	30	45	---	30	45	---	No	NC
	lb/day	430	640	---	430	640	---		
	% removal	85	---	---	85	---	---		
TSS	mg/L	30	45	---	30	45	---	No	MS
	lb/day	430	640	---	222	283	---		
	% removal	85	---	---	85	---	---		
	lb/day	---			Annual average limit: 194				
pH	standard units	6.5–9.0 all times			6.5–9.0 all times			No	NC
E. coli	#/100 mL	126	---	406[c]	126	---	[c]--	No	LS
Total Residual Chlorine	mg/L	0.093	---	0.209	---	---	---	No[d]	NA
	lbs/day	1.3	---	3.0	---	---	---		
Pollutants with limits in the 2001 permit and not in the 2020 permit									
Total Ammonia as N	mg/L	2.1	---	2.8	---	---	---	No	LS
	lbs/day	30	---	40	---	---	---		
Pollutants with new limits in the 2020 permit									
Zinc, total recoverable	mg/L	---	---	---	0.83	---	1.44	No	MS
	lbs/day	---	---	---	11.8	---	20.4		
Copper, total recoverable	mg/L	---	---	---	20	---	34	No	MS
	lbs/day	---	---	---	0.28	---	0.49		
Total Phosphorus as P	mg/L	---	---	---	Report	Report	---	No	MS
	lbs/day	---	---	---	13.0	---	---		
	lbs/day	---	---	---	Annual average limit: 5.82				
Pollutants with no limits in both the 2001 and 2020 permit									
Dissolved Oxygen	mg/L	---	---	---	---	---	---	No	NC
Nitrate-Nitrite as N	mg/L	---	---	---	---	---	---	No	NC
Temperature	°C	---	---	---	---	---	---	No	NC
Arsenic, total recoverable	mg/L	---	---	---	---	---	---	No	NC
Cadmium, total recoverable	mg/L	---	---	---	---	---	---	No	NC
Lead, total recoverable	mg/L	---	---	---	---	---	---	No	NC

a. No = No degradation, Yes - S = Increase in pollutant load or concentration resulting in significant degradation, Yes – I = Increase in pollutant load or concentration resulting in insignificant degradation
b. MS = More stringent pollutant load or concentration limit, LS = Less stringent pollutant load or concentration limit, NC = No change in pollutant load or concentration limit
c. Geometric mean of five or more samples collected 3-7 days apart over a 30-day period. Idaho's water quality standards for primary contact recreation include a single sample value of 406 organisms/100 mL. Exceedance of this value indicates likely exceedance of the 126 organisms/100 mL average monthly effluent limit; however, it is not an enforceable limit for a daily value, nor is exceeding this value a violation of water

quality standards. If this value is exceeded at any point within the month, the facility should consider monitoring according to IDAPA 58.01.02.251.01 to determine compliance with the monthly geomean.

d. Chlorine limits are no longer applicable to this discharge as chlorine disinfection has been removed as a unit process.

3.6 Antibacksliding

Section 402(o) of the CWA and regulations at IDAPA 58.01.25.200 generally prohibit the renewal, reissuance, or modification of an existing IPDES permit that contains effluent limits, permit conditions, or standards that are less stringent than those established in the existing permit (i.e., antibacksliding) but provides limited exceptions. For explanation of the antibacksliding exceptions refer to section 4.1 of the Effluent Limit Development Guidance (DEQ 2017a).

DEQ compared the effluent limits in the 2001 permit with this 2020 permit in Table 14 above.
Effluent Limit Changes from the Previous Permit

- TSS monthly loading limit changed from 430 lbs/day to 222 lbs/day and the average weekly loading limit changed from 640 lbs/day to 283 lbs/day. A TSS annual average limit of 194 lbs/day is added. The reissued permit is thus more stringent regarding TSS limits.
- The total residual chlorine limit is discontinued. This is because the facility has replaced its chlorine disinfection treatment with UV disinfection. The CWA 402(o)(2)(B)(i) and IDAPA 58.01.25.200.02.a. allow this because it is a substantial alteration to the facility that occurred after permit issuance which justifies the removal of the limits.
- Total Phosphorus average monthly limit (AML) of 13.0 lbs/day is added to the permit. A total phosphorus annual average limit of 5.82 lbs/day is added. The reissued permit is thus more stringent regarding total phosphorus limits.
- Zinc average monthly limit of 0.83 mg/L (11.8 lbs/day) and maximum daily limit of 1.44 mg/L (20.4 lbs/day) with weekly monitoring requirements is added to this permit. The reissued permit is thus more stringent regarding zinc limits.
- Copper average monthly limit of 20 µg/L (0.28 lbs/day) and maximum daily limit of 34µg/L (0.49 lbs/day) with weekly monitoring requirements is added to this permit. The reissued permit is thus more stringent regarding copper limits.
- The Ammonia limit in the previous permit has been removed from this permit. This is less stringent and discussed below.

The 2001 permit contains a maximum daily limit (i.e. single sample limit) of 406 #/100 mL. This limit has been removed in the 2020 permit, consistent with IDAPA 58.01.02.251.01. This limit removal is allowed under IDAPA 58.01.25.200.03.c because:

- The use is unassessed in 2016 Integrated Report (DEQ 2016) but, the primary contact use is assumed supported based on information available (i.e., the receiving water is not impaired for E. coli) based on the AU [ID16010201BR002_06] approximately 0.35 miles upstream of the reservoir assessed as supporting PCR; and
- The resulting water quality effects comport with the state's anti-degradation policy.

The ammonia limit in the previous permit has been removed in this permit because the facility no longer has reasonable potential to exceed water quality criteria. In 2012 the facility upgraded to

an integrated fixed film activated sludge plant. This upgrade employed tertiary filtration via moving bed sand filters that accounts for substantial improvement in ammonia treatment. The raw facility data from 2013 through October 2019 is comprised of 332 data points. Of those data points, 184 points were ≤ 0.05mg/L (the minimum quantifiable value). Conservatively converting those less than values to 0.05mg/L, the 95th percentile value is 0.55mg/L and the average value is 0.16mg/L. As seen in Table 12 acute and chronic WQC for ammonia is 1.7mg/L and 0.79mg/L respectively. The 2001 fact sheet calculated an average effluent ammonia concentration of 2.6mg/L using data from before the 2011 upgrades. The removal of an effluent limit from one permit to the next is allowable by IDAPA 58.01.25.200.02.a that allows an exception to IDAPA 58.01.25.200.02 anti-backsliding prohibitions when substantial alterations occurred that justify the change.

4 Monitoring Requirements

Idaho regulations IDAPA 58.01.02 and 58.01.25 require that monitoring be included in permits to determine compliance with effluent limits and other permit restrictions. Monitoring may also be required to gather data to assess the need for future effluent limits or to monitor effluent impacts on receiving water quality. Permittees are responsible for conducting the monitoring and reporting the results on monthly DMRs and in annual reports.

4.1 Influent Monitoring

Flow, TSS, and BOD monitoring requirements are listed below in Table 15. 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 15. Influent monitoring requirements

Parameter	Monitoring Period	Units	Sample Frequency	Sample Type	Report	Reporting Frequency (DMR Months)
Flow	01/01 to 12/31	mgd	Continuous	Recording	Average monthly, Max daily average	Monthly
BOD_5	01/01 to 12/31	mg/L	2/Week	24-Hour Composite	Average monthly	Monthly
TSS	01/01 to 12/31	mg/L	2/Week	24-Hour Composite	Average monthly	Monthly
Hauled waste received	01/01 to 12/31	gallons	1/Month	Recording	Monthly total	Monthly

4.2 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 16 presents the effluent monitoring requirements in the permit. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. The samples must be representative of the volume and nature of the monitored discharge. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

Table 16. Effluent monitoring requirements.

Parameter	Units	Minimum Frequency	Sample Type	Report	Reporting Frequency (DMR Months)
Parameters with effluent limits					
BOD_5	mg/L	2/week	24-hr composite	Monthly average, Weekly average, % removal	Monthly
	lbs/day	2/week	Calculated[a]		
	% Removal	1/month	Calculated[b]		
TSS	mg/L	2/week	24-hr composite	Monthly average, Weekly average, % removal	Monthly
	lbs/day	2/week	Calculated[a]		
	% Removal	1/month	Calculated[b]		
E.coli	#/100mL	5/month[c]	Grab	Geometric mean	Monthly
pH	SU	5/week	Grab	Minimum and maximum values	Monthly
Phosphorus	mg/L	1/week	24-hour composite	Average monthly / Annual average	Monthly
	lbs/day	2/week	Calculated[a]		
Copper, total recoverable	µg/L	2/month	24-hour composite	Average monthly / Maximum daily	Monthly
	lbs/day	2/month	Calculated[a]		
Zinc	µg/L	2/month	24-hour composite	Average monthly / Maximum daily	Monthly
	lbs/day	2/month	Calculated[a]		
Parameters without effluent limits					
Temperature	°C	Continuous	Recording	Monthly Average / Instantaneous Maximum	Monthly
Flow	mgd	Continuous	Recording	Average monthly / Maximum daily average	Monthly
Ammonia[d]	mg/L	1/week	24-hour composite	Average monthly / Maximum daily	Monthly
Arsenic, total recoverable	µg/L	1/quarter	24-hour composite	Quarterly average	Quarterly[e]

a. Loading rates (lb/day) are calculated by multiplying the effluent concentration (mg/L) by the effluent flow (mgd) for the day of sampling and a conversion factor (8.43). For more information see Equation 1 in the ELDG.
b. Percent Removal = (average monthly influent concentration – average monthly effluent concentration) ÷ average monthly influent concentration x 100. Influent and effluent samples must be taken over approximately the same time period.
c. This frequency complies with State of Idaho Water Quality Standards for E. coli (e.g. minimum of 5 samples taken every 3 to 7 days over a 30-day period).
d. Ammonia samples must be taken concurrently with pH and temperature samples.
e. Quarters are defined as: January 1-March 31; April 1-June 30; July 1-September 30; and October 1-December 31

4.2.1 Effluent Monitoring Changes from the 2001 Permit

Changes in monitoring are presented in Table 17.

Table 17. Effluent monitoring changes from 2001 permit to 2020 permit.

Parameter	2001 Permit	2020 Permit
E. coli	2/week	5/month
Chlorine, total residual	5/week	Discontinued
Arsenic, total recoverable	2/year	1/quarter
Copper, total recoverable	2/year	2/month
Cadmium, total recoverable	2/year	Reapplication monitoring
Lead, total recoverable	2/year	Reapplication monitoring
Nickel, total recoverable	2/year	Reapplication monitoring
Zinc, total recoverable	2/year	2/month
Total Phosphorus	1/quarter	1/week
Nitrate/Nitrite	1/quarter	Reapplication monitoring
Temperature	5/week	continuous
Whole Effluent Toxicity	1/quarter	1/year
Dissolved Oxygen	2/week	Reapplication monitoring

The following discusses the change in effluent monitoring frequencies from the 2001 permit.

4.2.2 E.coli

E. coli monitoring changes to 5/month in order to calculate the geometric mean.

4.2.3 Chlorine, Total residual

Total residual chlorine monitoring is discontinued in this 2020 permit because chlorine disinfection has been replaced with UV disinfection.

4.2.4 Dissolved Oxygen

Dissolved oxygen monitoring has been decreased from 2/week to what is required for reapplication monitoring. BOD, temperature, and nutrients are parameters that can influence DO levels in the effluent. By monitoring these parameters it is possible to determine potential DO issues that may result. Because this facility's DO data has a 10th percentile value of 7.9 mg/L over the last 5 years, which is well above the 6.0 mg/L required for CWAL (IDAPA 58.01.02.250.02.a.), DEQ believes this reduction in monitoring is warranted.

4.2.5 Total Phosphorus

The total phosphorus sample frequency has changed from 1/quarter to 1/week in order to adequately assess compliance with the new effluent limit.

4.2.6 Copper

Copper sample frequency has increased from 2/year to 2/month because effluent data revealed a limit was necessary to avoid exceedances of water quality criteria. Copper and all other metals

require sampling to occur between 12 and 24 hours of hauled septage entering the treatment system.

4.2.7 Arsenic

Arsenic sample frequency has changed from 2/year to 1/quarter to better document its presence in the effluent. Metals require sampling to occur between 12 and 24 hours of hauled septage entering the treatment system.

4.2.8 Cadmium, Lead, and Nickel

Cadmium, lead, and nickel monitoring have been reduced to the sampling required for reapplication, due to the insignificant levels present in previous testing. Metals require sampling to occur between 12 and 24 hours of hauled septage entering the treatment system.

4.2.9 Zinc

Zinc sampling frequency has increased from 1/quarter to 2/month in order adequately assess compliance with the new effluent limit. Metals require sampling to occur between 12 and 24 hours of hauled septage entering the treatment system.

4.2.10 Nitrate/ Nitrite

Nitrate plus nitrite data from the previous permit did not show reasonable potential to exceed EPA's recommended criterion of 10mg/l. DEQ in this case is utilizing EPA's recommended criterion to assess Idaho's narrative criteria for toxic substances. Therefore monitoring requirements were reduced in this permit to reapplication monitoring requirements.

4.2.11 Temperature

Temperature monitoring changes from 5/week grab samples to continuously recorded data to better understand the thermal impact to the receiving water. The permit provides approximately one year to install the necessary thermal recording device. In the meantime, the permittee may continue submitting 5/week grab samples.

4.2.12 WET testing

WET testing has been changed from once a quarter for one entire year to once a year within alternating quarters. This decision was made to provide yearly monitoring and still address seasonal differences.

4.3 Receiving Water Monitoring

In general, surface water monitoring may be required for pollutants of concern to assess the pollutant-specific assimilative capacity of the receiving water. 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 18 and Table 19 present the proposed surface water monitoring requirements for the 2020 permit. Surface water monitoring results must be submitted with the DMR.

Upstream monitoring must account for the contribution of pollutants from Big Spring Creek. If the permittee finds it is infeasible to collect samples of the Bear River from a location that is upstream of the discharge and also downstream of the confluence of Big Spring Creek then the

permittee must monitor for pH, hardness, dissolved zinc, and dissolved copper in Big Spring Creek. This monitoring must be associated with all upstream monitoring events for those parameters in Table 18.

Table 18. Upstream receiving water monitoring requirements.

Parameter	Units	Sample Frequency	Sample Type	Report	Reporting Frequency
Flow	cfs	Once every 2 weeks	Measured	Monthly average	Monthly (All Months)
pH	S.U.	Quarterly[a]	Grab	Maximum and minimum value	Quarterly
Hardness, as CaCO3	mg/L	Quarterly[a]	Grab	Quarterly average	Quarterly
Dissolved Zinc	ug/L	Quarterly[a]	Grab	Quarterly average	Quarterly
Dissolved Copper	ug/L	Quarterly[a]	Grab	Quarterly average	Quarterly

a. 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.

Table 19. Downstream receiving water monitoring requirements

Parameter	Units	Sample Frequency	Sample Type	Report	Reporting Frequency
pH[a]	S.U.	1/month	Recorded or Grab[b]	Instantaneous maximum, Instantaneous minimum	Monthly (All Months)[c]
Temperature	°C	1/month	Recorded or Grab[b]	Monthly average/ Maximum daily average	
Dissolved Calcium (Ca^{2+})	mg/L	1/month	Grab	Monthly average	
Dissolved Magnesium (Mg^{2+})	mg/L	1/month	Grab	Monthly average	
Dissolved Sodium (Na^{+})	mg/L	1/month	Grab	Monthly average	
Dissolved Potassium (K^{+})	mg/L	1/month	Grab	Monthly average	
Dissolved Copper	ug/L	1/month	Grab	Monthly average	
Sulfate (SO_4^{-})	mg/L	1/month	Grab	Monthly average	
Chloride (Cl^{-})	mg/L	1/month	Grab	Monthly average	
Alkalinity	mg/L as $CaCO_3$	1/month	Grab	Monthly average	
Dissolved Organic Carbon	mg C/L	1/month	Grab	Monthly average	

a. The permittee may choose to collect pH data using a recording device or grab sample. The recording device must be set to record at one-hour or more frequent intervals for a 24-hour period, once per month. pH grab samples must be taken between 5 A.M and 8 A.M. on the same day as sample collection of other downstream receiving water parameters.
b. pH and temperature must be analyzed within 15 minutes of sample collection if collected as a grab sample.
c. All monitoring for copper BLM development is required for two years beginning 08/01/2022

All downstream monitoring must meet the requirements of the Implementation Guidance for the Idaho Copper Criteria for Aquatic Life Using the Biotic Ligand Model (DEQ 2017b). This document can be accessed at *http://www.deq.idaho.gov/media/60180840/58-0102-1502-implementation-guidance-idaho-copper-criteria-aquatic-life-1117.pdf.* Specifics regarding analysis method, preservative, holding times, and reporting limits can be found in section 5 of the guidance document.

4.3.1 Receiving Water Monitoring Changes from the 2001 Permit

Monitoring has been discontinued for certain parameters in the 2001 permit. When the 2001 permit was in development, data was required to properly access nutrients and solids in the Bear River for the now completed TMDL. Changes in monitoring are presented in Table 20.

Table 20. Changes in Receiving Water monitoring frequency from 2001 permit.

Parameter	2001 Permit		2020 Permit		Rationale
	Upstream	Downstream	Upstream	Downstream	
Dissolved Oxygen	1/quarter	1/quarter	----	----	Supported TMDL development
Total Phosphorus	1/quarter	1/quarter	----	----	Supported TMDL development
Total Ammonia as N	Once every 2 weeks	Once every 2 weeks	----	----	Supported TMDL development
Nitrate / Nitrite	1/quarter	1/quarter	----	----	Supported TMDL development
Dissolved Copper	---	----	1/quarter	1/month	Support future permit development/ Copper BLM support
Temperature	Once every 2 weeks	Once every 2 weeks	----	1/month	Copper BLM support
pH	----	Once every 2 weeks	1/quarter	1/month	Support future permit development
Turbidity	1/quarter	1/quarter	----	----	Supported TMDL development
Total Residual Chlorine	---	1/quarter	----	----	Upgraded to UV disinfection
Hardness as $CaCO_3$	---	1/quarter	1/quarter	----	Support future permit development
Dissolved Zinc	---	----	1/quarter	----	Support future permit development
Dissolved Organic Carbon	----	----	----	1/month	Copper BLM support
Dissolved Calcium (Ca^{2+})	----	----	----	1/month	Copper BLM support
Dissolved Potassium (K^+)	----	----	----	1/month	Copper BLM support
Alkalinity	----	----	----	1/month	Copper BLM support
Dissolved Magnesium (Mg^{2+})	----	----	----	1/month	Copper BLM support
Sulfate (SO_4^-)	----	----	----	1/month	Copper BLM support
Dissolved Sodium (Na^+)	----	----	----	1/month	Copper BLM support
Chloride (Cl^-)	----	----	----	1/month	Copper BLM support

Monitoring of the Bear River used to support the development of the 2013 TMDL has been discontinued in this permit.

Downstream monitoring of the Bear River described in Table 19 is required for two years to support development of a copper WQC using the biotic ligand model.

4.3.2 Copper Biotic Ligand Model (BLM) Parameters

Hardness-dependent copper criteria do not take into account the effects of other physicochemical properties that affect toxicity, leading to hardness-dependent copper criteria being either overprotective or under protective of aquatic life (DEQ 2017b). The biotic ligand model (BLM) based criteria outlined in the US Environmental Protection Agency's (EPA's) revised national recommended freshwater aquatic life criterion for copper takes into consideration copper toxicity influenced by a wide variety of water characteristics. Therefore, DEQ has updated the copper criteria for aquatic life to the EPA-recommended 304(a) criteria (EPA 2007a).

In order to use the BLM, the input parameters necessary from the receiving water are temperature, pH, dissolved copper, dissolved organic carbon (DOC), major cations (calcium, magnesium, sodium, and potassium), major anions (sulfate and chloride), and alkalinity. These parameters must be sampled using the frequency and methodology requirements indicated in Implementation Guidance for the Idaho Copper Criteria for Aquatic Life Using the Biotic Ligand Model (DEQ 2017b).

4.4 Permit Renewal Monitoring

The permit renewal monitoring requires data collected to characterize the effect of the effluent on the Bear River. At a minimum, three samples of the final wastewater effluent for the parameters listed in Table 21 and Table 22 are required so that DEQ can assess the surface water impacts.

Table 21. Effluent monitoring required for all permit renewals.

Parameter	Units	Sample Type	Report
pH	s.u.	Grab	Minimum and maximum value
Flow	mgd	Continuous	Maximum daily value, average daily value, number of samples
Temperature (February)	^{o}C	Grab	
Temperature (August)	^{o}C	Grab	
BOD_5	mg/L	24-hour composite	Maximum daily value, average daily value, analytical method and ML or MDL
TSS	mg/L	24-hour composite	
E. Coli	#/100 mL	Grab	

The facility has a design flow greater than 0.1 mgd and must also complete three scans of effluent testing for the parameters in Table 22.

Table 22. Effluent testing required for permit renewals of facilities with flow greater than 0.1 mgd.

Parameter	Units	Sample Type	Report
Ammonia (as N)	mg/L	24-hour composite	Maximum daily value, average daily value, analytical method and ML or MDL
Chlorine, Total Residual	mg/L	Grab	
Dissolved oxygen	mg/L	Grab	
Total Kjeldahl Nitrogen	mg/L	24-hour composite	

Nitrate plus Nitrite	mg/L	24-hour composite	
Oil and grease	mg/L	Grab	
Phosphorus, Total (as P)	mg/L	24-hour composite	
Total dissolved solids	mg/L	24-hour composite	

Soda Springs POTW has a design flow greater than 1.0 mgd, therefore is required to include the testing in Table 23, in addition to the parameters in Table 21 and Table 22.

Table 23. Effluent testing required for permit renewals of facilities with flow greater than 1.0 mgd.

Required Testing	Application Forms	Report
Expanded Effluent Testing	IPDES permit application part D	Maximum daily value, average daily value, analytical method and ML or MDL
Whole Effluent Toxicity	IPDES permit application part E	TU, Full Lab Report

An individual scan includes all parameters in Table 21 and Table 22.

The permittee must conduct one permit renewal monitoring sampling event of the effluent according to the following schedule:

- 2022: Third quarter: July – September
- 2023: Fourth quarter: October – December
- 2024: First quarter: January – March

This schedule spreads monitoring over the permit effective period, as well as captures a range of seasons.

5 Special Conditions

5.1 Compliance Schedule

IDAPA 58.01.25.305 allow for compliance schedules in IPDES permits to provide additional time for permittees to achieve compliance.

The permit includes a compliance schedule for copper to allow the permittee time to gather data, evaluate facility performance and construct potential upgrades if necessary. If permit compliance is not immediately achievable, the compliance schedule outlines actions to take to meet permit limits by 2028. This compliance schedule requires data to be collected that will be used to develop site specific WQS for copper, which in turn will be utilized to develop new final copper limits. The permittee will be made aware of the site specific final limit for copper as this information is necessary to evaluate the facility's capability of complying with the final limit.

Table 24. Compliance schedule

Task Number	*Time* From Effective Date	Date Due	Task Activity
1	1 year 11 months	6/1/2022	**Complete Required Sampling and Analytical Work or Studies:** Develop a receiving water monitoring plan that will assure monitoring required in Table 20 is completed. Deliverable: A receiving water monitoring plan must be submitted through the IPDES E-Permitting system for review. The plan must describe the process that assures the permittee will collect 24 monthly samples in a 24 to 30 month period as required by the permit.
2	2 years	7/1/2022	**Status/Progress Report:** The Permittee must begin collecting copper data the receiving water as in Table 20 to acquire data necessary to properly implement the copper BLM model. Deliverable: The permittee must provide DEQ with a Progress Report through the IPDES E-Permitting system which provides notification that data collection is commencing
3	2.5 years	1/2/2023	**Status/Progress Report:** The Permittee must continue collecting copper data from effluent and the receiving water as in Table 8 and Table 20 to acquire data necessary to properly implement the copper BLM model. Deliverable: All individual data results must be submitted through the IPDES E-Permitting system. The report must include all effluent and receiving water copper BLM data collected to date.
4	3 years	7/3/2023	**Status/Progress Report:** The Permittee must continue collecting copper data from effluent and the receiving water as in Table 8 and Table 20 to acquire data necessary to properly implement the copper BLM model. Deliverable: All individual data results must be submitted through the IPDES E-Permitting system. The report must include all effluent and receiving water copper BLM data collected to date.
5	3.5 years	1/1/2024	**Status/Progress Report:** The Permittee must continue collecting copper data from effluent and the receiving water as in Table 8 and Table 20 to acquire data necessary to properly implement the copper BLM model. Deliverable: All individual data results must be submitted through the IPDES E-Permitting system. The report must include all effluent and receiving water copper BLM data collected to date.
6	4 years 2 months	9/2/2024	**Status/Progress Report:** The Permittee must continue collecting copper data from effluent and the receiving water as in Table 8 and Table 20 to acquire data necessary to properly implement the copper BLM model. Deliverable: All individual data results must be submitted through the IPDES E-Permitting system. The report must include all effluent and receiving water copper BLM data collected to date.

Task Number	*Time* From Effective Date	Date Due	Task Activity
7	4 years 6 months	1/1/2025	**Complete Required Sampling and Analytical Work or Studies:** DEQ review of data: • DEQ will review the copper BLM data supplied by permittee. • DEQ will submit comments on the data to the permittee Deliverable: Permittee must notify DEQ through the IPDES E-Permitting system that the data comments have been received.
8	5 years	7/1/2025	**Complete Required Sampling and Analytical Work or Studies:** The permittee must review DEQ's comments on the data and submit a final copper BLM report that describes the facilities proposed plan to comply with the final copper limits in the permit. Deliverable: The permittee must provide the DEQ with the Final Copper BLM report through the IPDES E-Permitting system.
9	5 years 3 months	10/1/2025	**Complete Required Sampling and Analytical Work or Studies:** DEQ review of report: • DEQ will review the copper BLM report supplied by permittee. • DEQ will submit comments on the report to the permittee • The permittee will discuss with DEQ the chosen course of action required to meet permit limits. Deliverable: Permittee must notify DEQ through the IPDES E-Permitting system through the IPDES E-Permitting system that the data comments have been received and that a course of action has been decided upon.
10	5 years 6 months	1/1/2026	**Other: Permit Limit Evaluation:** If data show the Permittee can meet limits set forth in Table 8, this compliance schedule will close, final limits will become active, and remaining compliance items will be removed. If data show the Permittee cannot meet limits set forth in Table 8, the Permittee must begin the process of facility planning, securing funding, and contracting engineer work, if applicable. Deliverable: The permittee must notify DEQ through the IPDES E-Permitting system with notification that 1) the final copper effluent limits are achieved, or 2) if upgrades are necessary to achieve copper effluent limits and the subsequent tasks in this compliance schedule are required.
11	6 years 6 months	1/1/2027	**Preliminary Engineering Report:** Preparation and Submittal of a Preliminary Engineering Report (PER) • Provide an analysis required work • Finalize design criteria • Determine site locations and equipment sizing for improvements Deliverable: Permittee must submit a preliminary engineering report to DEQ Pocatello regional office for approval.

Task Number	*Time* From Effective Date	Date Due	Task Activity
12	6 years 6 months +42 days	2/12/2027	**Preliminary Engineering Report:** DEQ review of PER: • DEQ will review the PER • DEQ will submit any comments to Engineer and Soda Springs Deliverable: Engineer and Soda Springs will incorporate comments, and the PER will be resubmitted back to DEQ for approval.
13	7 years +42 days	8/12/2027	**Engineering Plan:** Preparation and Submittal of a Plans and Specifications Deliverable: Permittee must submit a plans and specifications to DEQ Pocatello regional office for approval.
14	7 years +84 days	9/23/2027	**Engineering Plan:** DEQ review of plans and specifications: • DEQ will review the plans and specifications • DEQ will submit any comment to Engineer and Soda Springs Deliverable: Engineer and Soda Springs will incorporate comments, and the plans and specifications will be resubmitted back to DEQ Pocatello regional office for approval.
15	8 years +84 days	9/25/2028	**Complete Required Work or On-Site Construction** • Complete installation of necessary upgrades Deliverable: Permittee must provide DEQ through the IPDES E-Permitting system with written notice that construction is complete.
16	8 years +84 days + 3 months	12/25/2028	**Comply With Permit Limits** Begin complying with final copper limit in permit Deliverable: Permittee must provide DEQ through the IPDES E-Permitting system with written notice that the facility has achieved compliance with the final effluent limits.

5.2 Whole Effluent Toxicity Conditions

Whole effluent toxicity (WET) tests are laboratory tests that measure the total toxic effect of an effluent on living organisms. WET tests use small vertebrate and invertebrate species and/or plants to measure the aggregate toxicity of an effluent. There are two different types of toxicity test: acute and chronic. An acute toxicity test is a test to determine the concentration of effluent or ambient waters that cause an adverse effect (usually death) on a group of test organisms during a short-term exposure (e.g., 24, 48, or 96 hours). A chronic toxicity test is a short-term test, usually 96 hours or longer in duration, in which sub-lethal effects (e.g., significantly reduced growth or reproduction) are usually measured in addition to lethality. Both acute and chronic toxicity are measured using statistical procedures such as hypothesis testing (i.e., no observable effect concentration, NOEC and lowest observable effect concentration, LOEC) or

point estimate techniques (i.e., lethal concentration to 50 percent of organisms, $LC_{50;}$ and inhibition concentration in a biological measurement to 25 percent of organisms, IC_{25}). See EPA WET guidance manuals for detailed information.

- EPA.2002. *Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms. Fifth edition.* EPA/821/R-02/012.
- EPA. 2002. *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms*. Fourth edition. EPA-821-R-02-013

IDAPA 58.01.25.302.06.a.v require that IPDES permits contain limits on whole effluent toxicity when a discharge causes, has the reasonable potential to cause, or contributes to an excursion above a State's numeric or narrative water quality criteria for toxicity. The existing permit required quarterly sampling for chronic toxicity during 2005.

The instream waste concentration (IWC) is the concentration of point source effluent in receiving water. The EPA recommends applying chronic WET methods when the IWC is greater than 1.0% and Acute WET methods when the IWC is less than 0.1%. When the IWC is between 0.1% and 1.0% acute and chronic methods may be necessary to properly access the toxicity response. The critical flow IWC for Soda Springs is 4.4% and average IWC due to Soda Springs' discharge is 0.38%. Past permits have required chronic WET tests and this permit retains the requirement.

(See calculations below).

IWC = A / [A + B]

Critical Low Flow IWC:
A= POTW design flow = [**1.7 mgd**]
B= Receiving Water Low Flow (e.g. 1Q10, 7Q10, etc.) [7Q10 = 56.6cfs = **36.6** mgd]

IWC = 1.7 / [1.7 +36.6] = 0.044 x 100% **= 4.4%**

Average Flows IWC:
A= POTW average flow = [**1.1 mgd**] (2002 – 2018 DMR data)
B= Receiving Water Average Flow = [**290** mgd] (2007 - 2011 USGS data)

IWC = 1.1 / [1.1 +290] x 100% **= 0.38%**

Table 25. *Ceriodaphnia dubia* chronic WET results.

Test date (beginning)	Survival NOEC	reproduction NOEC	Duration
3/15/2005	100%	100%	6 days
6/14/2005	100%	100%	6 days
8/16/2005	100%	50%	6 days

10/25/2005	100%	100%	6 days

Table 26. *Pimephales promelas* chronic WET results.

Test date (beginning)	Survival NOEC	growth NOEC	Duration
3/15/2005	100%	50%	7 days
6/14/2005	100%	100%	7 days
8/16/2005	100%	100%	7 days
10/25/2005	100%	100%	7 days

Idaho WQS limit have narrative limits (IDAPA 58.01.02.200) that control toxics in toxic amounts. The IWC for this system is 6% under critical flow conditions and the data shows NOEC values are significantly greater than 6%. Based on the available data the effluent has no reasonable potential for chronic toxicity, therefore a WET limit is not required in this permit. A Chronic trigger value of 6.3 TUc is included in this permit (Appendix B). Any WET test that exceeds this value requires accelerated testing as prescribed in the permit.

The permit includes WET monitoring once a year during alternating quarters.

The WET testing schedule is as follows:

- 2020: 3rd Quarter (July 1—September 30)
- 2021: 4th Quarter (October 1—December 31);
- 2022: 1st Quarter (January 1—March 31);
- 2023: 2nd Quarter (April 1—June 30);

Fifth calendar year and thereafter: repeat rotating quarterly schedule, starting with the 3rd quarter.

Based on the IWC calculations above and the previous WET testing data the dilution series in the permit will be altered to better suit this system. The dilution series will be skewed towards the higher concentration end of the scale to more accurately determine NOEC which is most likely on this end of the scale based on the past data. The proposed dilution series is 100%, 75%, 50%, 6%, and 3%.

5.3 Nondomestic Waste Management

The permittee has nonsignificant, nondomestic (industrial/commercial) users, which are neither subject to the pretreatment standards in 40 CFR 405 through 471, nor meet any of the criteria of a significant industrial user (SIU) as specified in 40 CFR 403.3(v), and therefore, DEQ does not require an authorized pretreatment program. The permittee must ensure that pollutants from nondomestic wastes discharged to their system do not negatively impact system operation or pass through the wastewater treatment facility. The permittee must not authorize indirect

discharges of pollutants that would inhibit, interfere with, or otherwise be incompatible with operation of the wastewater treatment works, including interference with the use or disposal of municipal sludge.

5.4 Spill Control Plan

The permittee shall update and implement a plan for possible spills of all stored chemicals.

5.5 Mixing Zone Data Report

The permittee is required to submit a Mixing Zone Data Needs Form found in Appendix B of the DEQ's Idaho Mixing Zone Implementation Guidance (DEQ 2017c).

6 Standard Conditions

Section 4 of the permit contains standard regulatory language that must be included in all IPDES permits. DEQ bases the Standard Conditions on state and federal law and regulations. The standard regulatory language covers requirements such as monitoring, recording, and reporting requirements, compliance responsibilities, and other general requirements.

6.1 Quality Assurance Project Plan

In accordance with IDAPA 58.01.25.300.05, permittees are required to develop procedures to ensure that the monitoring data submitted is accurate and explain data anomalies if they occur. The permittee is required to develop, maintain, and implement a plan for facility data gathering. The quality assurance project plan (QAPP) shall consist of standard operating procedures for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting. The plan shall be retained on site and made available to DEQ upon request.

6.2 Operation and Maintenance Manual

The permit requires the City to properly operate and maintain all facilities and systems of conveyance, 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 maintain and implement an operation and maintenance plan for their facility by 11/30/2020. The plan must be retained on site and made available to DEQ upon request.

6.3 Emergency Response Plan

The permittee must maintain and implement an emergency response plan that identifies measures to protect public health and the environment. At a minimum, the plan must include mechanisms for the following:

1. Ensure that the permittee is aware (to the greatest extent possible) of all overflows from portions of the collection system over which the permittee has ownership or operational control as well as any unanticipated treatment unit bypass or upset that may exceed any effluent limit in the permit.
2. Ensure that reports of an overflow or of an unanticipated bypass or upset that may exceed any effluent limit in this permit are immediately dispatched to appropriate personnel for investigation and response as required in section 4.1.3 of the permit.
3. Ensure immediate notification to DEQ of any noncompliance that may endanger public health or the environment and identify the public health district and other officials who will receive immediate notification for items that require 24-hour reporting in section 2.2.7 of the draft permit.
4. Ensure that appropriate personnel understand, are appropriately trained on, and follow the Emergency Response Plan; and
5. Provide emergency facility operation.

7 Compliance with other DEQ Rules

7.1 Operator's License

The permittee must meet the requirements and operator license levels listed in the wastewater rules at IDAPA 58.01.16.203 for the type(s) of operations at the facility.

7.2 Sludge/Biosolids

DEQ separates wastewater and sludge permitting for the purposes of regulating biosolids. DEQ 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 503 and the requirements of Idaho's Wastewater Rules (IDAPA 58.01.16.480 and 650). The 503 regulations are self-implementing, and facilities must comply with them whether or not a permit has been issued. Idaho's Wastewater Rules require a POTW to have the capability to process sludge accumulated on site in preparation for final disposal or reuse (IDAPA 58.01.16.650). Operations of these sludge processing, storage, and disposal activities must comply with the facility's sludge management plan.

8 Permit Expiration

The permit expires five years from the effective date.

8.1 Permit Modifications

DEQ may modify a permit before its expiration date only for causes specified in IDAPA58.01.25.201. A modification other than a minor modification requires preparing a draft permit that incorporates the proposed changes, preparing a fact sheet, and conducting a public review period. Only the permit conditions subject to the modification will be reopened when a permit is modified. All other conditions of the existing permit remain in effect. Modifying a permit does not change the expiration date of the original permit.

8.2 Permit Termination

DEQ's decision to terminate a permit may be at the request of any interested person (including the permittee) or upon DEQ's own initiative, and must comply with IDAPA 58.01.25.203. All permit termination requests must be submitted to DEQ in writing and must clearly state the facts and rationale for the request. An existing permit may only be terminated for the following reasons:

- Permittee does not comply with all conditions of the permit.
- Permittee fails to fully disclose relevant information in the application or misrepresents the information.
- Discharge endangers human health or the environment and can only be controlled by permit termination.
- Change in facility or activity conditions requires either a temporary or permanent reduction or elimination of any discharge (e.g., project completion, plant closure, or termination of the surface water discharge).

9 References for Text and Appendices

DEQ (Idaho Department of Environmental Quality). 2006. *The Bear River/Malad Subbasin Assessment and Total Maximum Daily Load Plan.* Boise, ID: DEQ

DEQ (Idaho Department of Environmental Quality). 2013. *Addendum to the Bear River/Malad Subbasin Assessment and Total Maximum Daily Load* - Boise, ID: DEQ

DEQ (Idaho Department of Environmental Quality). 2016. *Idaho's 2016 Integrated Report*. Boise, ID: DEQ. *http://www.deq.idaho.gov/media/60182296/idaho-integrated-report-2016.pdf*

DEQ (Idaho Department of Environmental Quality). 2017a. *Effluent Limit Development Guidance*. Idaho Department of Environmental Quality. Boise, ID: DEQ

DEQ (Idaho Department of Environmental Quality). 2017b. *Guidance for the Idaho Copper Criteria for Aquatic Life Using the Biotic Ligand Model*. Boise, ID: DEQ

DEQ (Idaho Department of Environmental Quality). 2017c. *Idaho Mixing Zone Implementation Guidance*. Idaho Department of Environmental Quality. Boise, ID: DEQ

EPA (Environmental Protection Agency). 2002b. *Short-term methods for estimating the chronic toxicity of effluents and receiving waters to marine and estuarine organisms*. Fourth edition. Environmental Monitoring and Support Laboratory, Washington, DC. U.S. Environmental Protection Agency, 45268. EPA-821-R-02-013.

EPA (Environmental Protection Agency). 2007. *Aquatic Life Ambient Freshwater Quality Criteria – Copper*. Office of Water, Washington, DC. U.S. Environmental Protection Agency, 45268. EPA- 822-R-07-001.

Appendix A. Facility Maps/Process Schematics

Figure 2 Process Flow Diagram

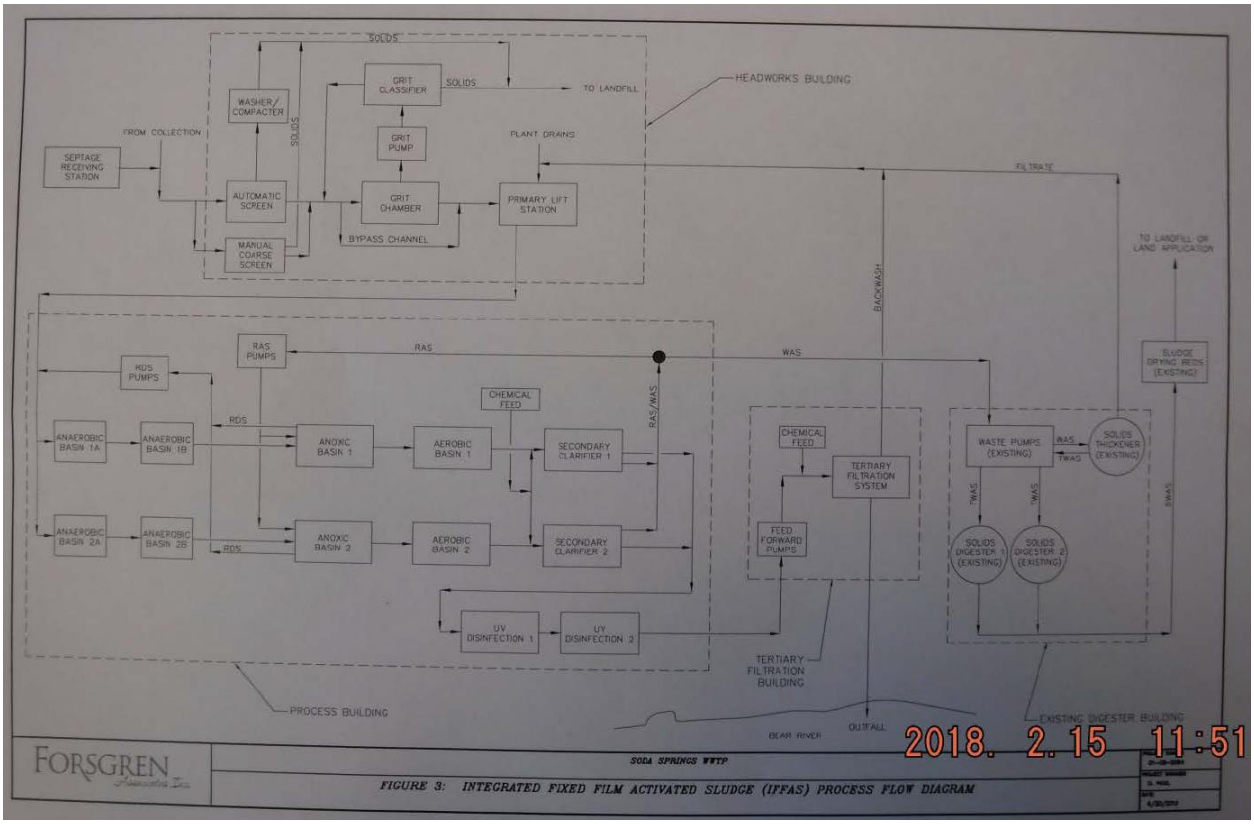

Figure 3 Regional Map

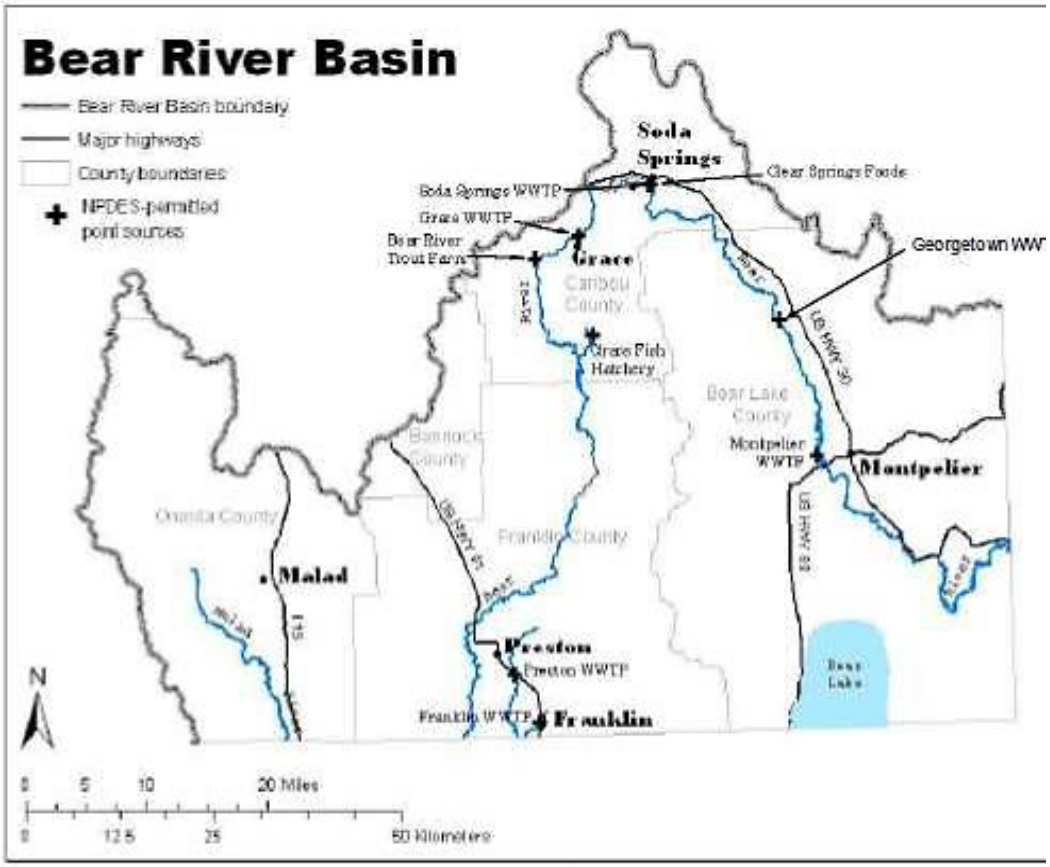

Figure 4. Photo of discharge location

Appendix B. Technical Calculations

The results of the technical calculations are discussed above in sections 3.2 and 3.3 of the fact sheet.

A. Technology-Based 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 all POTWs were required to meet by July 1, 1977. The EPA has developed and promulgated secondary treatment effluent limits, which are found in 40 CFR 133. These TBELs apply to all municipal wastewater treatment facilities and identify the minimum level of effluent quality attainable by application of secondary treatment in terms of BOD_5, TSS, and pH.

The concentration and removal rate limits for BOD_5 and TSS are the technology-based effluent limits of 40 CFR 133.102. As explained below, DEQ has determined that more stringent WQBELs are necessary for pH, as well as E. coli, in order to ensure compliance with WQS.

B. Reasonable Potential and Water Quality-Based Effluent Limit Calculations

DEQ uses the process in the Effluent Limit Development Guidance (DEQ 2017a) 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, DEQ compares the critical receiving water concentration to the water quality criteria for that pollutant. If the projected receiving water concentration exceeds the criteria, there is reasonable potential. Either a water quality-based effluent limit must be included in the permit that will limit the discharge of the POC to a level that will ensure protection of the receiving water, or DEQ may choose to provide a mixing zone if it is determined that the interaction between the discharge and receiving water flow provides necessary mixing capabilities. In some cases a mixing zone may be allocated that is not adequate to alleviate the need of an effluent limit in which case both a mixing zone and effluent limit are utilized. This following section discusses how the maximum projected receiving water concentration is determined

Mass-Balance

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

$$C_d = \frac{(C_e Q_e) + \lfloor C_u (Q_u \times \%MZ) \rfloor}{Q_e + (Q_u \times \%MZ)}$$

Equation 1. Simple mass-balance equation.

Where:

C_d = downstream receiving water concentration	Calculated value
Q_e = critical effluent flow	From discharge flow data (design flow for POTW)

Q_u = critical upstream flow (1Q10 acute criterion, 7Q10 chronic, or harmonic mean)	From water quality standards
%MZ = percent of critical low flow provided by mixing zone	From mixing zone analysis
C_u = critical upstream pollutant concentration (90th to 95th percentile)	From receiving water data
C_e = critical effluent pollutant concentration	Calculated value using

A dilution factor (D) can be introduced to describe the allowable mixing. A dilution factor represents the ratio of the receiving water body low flow percentage (i.e., the low-flow design discharge conditions) to the effluent discharge volume and is expressed as:

$$Dilution\ Factor = D_f = \frac{(Q_S \times P + Q_e)}{Q_e} = \frac{(Q_s \times P)}{Q_e} + 1$$

Equation 2. Dilution factor calculation.

Where: D_f = Dilution factor

Qs = Receiving water low-flow condition (cfs)

P = Mixing zone percentage

Qe = Effluent discharge flow (cfs)

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

Critical Effluent Pollutant Concentration

When determining the projected receiving water concentration downstream of the effluent discharge, DEQ's *Effluent Limit Development Guidance* (DEQ 2017a) recommends using the critical effluent pollutant concentration (C_e) in the mass balance calculation (see Equation 1). To determine the C_e DEQ has adopted EPA's statistical approach that accounts for day-to-day variability in effluent quality by identifying the number of samples, calculating the coefficient of variation (CV) (Equation 7, below), and selecting a reasonable potential multiplying factor (RPMF) from the tables in the *Effluent Limit Development Guidance* (DEQ 2017a).

$$CV = \frac{Standard\ Deviation}{Mean}$$

Equation 3. CV calculation.

$$C_e = MOEC\ x\ RPMF$$

Equation 4. C_e calculation.

If the C_e exceeds water quality criteria then a reasonable potential analysis is conducted.

Reasonable Potential Analysis

The discharge has reasonable potential to cause or contribute to an exceedance of WQC, referred to as a reasonable potential to exceed (RPTE), if the critical concentration of the pollutant at the end of pipe exceeds the most stringent WQC for that pollutant. This RPTE may result in end-of-

pipe limits or may be accommodated if the receiving water has sufficient low flows to provide a mixing zone and the POC does not have acute toxicity attributes. Other conditions may also be applicable that may restrict the use of a mixing zone for the POC.

Table 27. RPA spreadsheet results

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

Facility Name	Soda Springs with Big Spring Creek Flow
Facility Flow (mgd)	1.7000
Facility Flow (cfs)	2.62990

Critical River Flows	(IDAPA 58.01.02 03. b)	Annual Crit. Flows	Units
Aquatic Life - Acute Criteria - Criterion Max. Concentration (CMC)	1Q10	54.60000	cfs
Aquatic Life - Chronic Criteria - Criterion Continuous Concentration (CCC)	7Q10 or 4B3	56.60000	cfs
Ammonia	30B3 (seasonal)	100.00000	cfs
Human Health - Non-Carcinogen	30Q5	83.30000	cfs
Human Health - carcinogen	Harmonic Mean Flow	282.40000	cfs

List any criteria for which you edited the criteria tab to incorporat

Receiving Water Data		Notes:	Annual
Hardness, as mg/L $CaCO_3$	Hardness, as mg/L $CaCO_3$	5th prctile at critical flow	219
Temperature, °C	Temperature, °C	90th - 95th percentile	16.9
pH, S.U.	pH, S.U.	90th - 95th percentile	8.6

min. hardness 25 mg/L except for Cadmium. Cd min. hardness is 10 mg/L. Maximum hardness f

Pollutants of Concern			AMMONIA, default: cold water, fish early life stages	ZINC	CADMIUM	ARSENIC (dissolved) - SEE Toxic BiOp	COPPER - USE COPPER BLM	LEAD	NICKEL	NITRATE/NITRITE (N)
Effluent Data	Number of Samples in Data Set (n)		332	11	9	10	9	9	11	22
	Coefficient of Variation (CV) = Std. Dev./Mean (default CV = 0.6)		0.4	0.6	0.6	0.6	0.6	0.6	0.8	0.37
	Effluent Concentration, µg/L (Max. or 95th Percentile) - (C_e)		550	1315	0.8	4	17	2.6	6	4756
	Calculated 50th prctile Effluent Conc. (when n>10), Human Health Only			15.9	0.53	2.5	2.9	0.65	1.9	2735
Receiving Water Statistics	90th Percentile Conc., µg/L - (C_u)		200	0	0	0	0	0	0	0
	Geometric Mean, µg/L, Human Health Criteria Only									
Applicable Water Quality Criteria	Aquatic Life Criteria, µg/L	Acute	1,770.834	227.674	2.354	340.	5.3	149.886	908.825	--
	Aquatic Life Criteria, µg/L	Chronic	788.895	229.536	.896	150.	3.3	5.841	100.942	--
	Human Health Water and Organism, µg/L		--	870.	Narrative	10.	COPPER BLM	Narrative	58.	10,000.
	Human Health, Organism Only, µg/L		--	1,500.	Narrative	10.	COPPER BLM	Narrative	100.	--
	Metals Criteria Translator, decimal (or default use Conversion Factor)	Acute		.978	.911	--	.96	.677	.998	--
		Chronic		.986	.876	--	.96	.677	.997	--
	Carcinogen (Y/N), Human Health Criteria Only		--	N	N	Y	N	N	N	N
Assign Percent Mixing	Use this row to set the mixing zone size instead of letting it auto-calculate									0.00%
Percent River Flow	Aquatic Life - Acute	1Q10	0.00%	25.00%	0.00%	0.00%	25.00%	0.00%	0.00%	0.00%
	Aquatic Life - Chronic	7Q10 or 4B3		25.00%	6.83%	0.00%	25.00%	0.00%	0.00%	0.00%
		30B3 or 30Q10		8.73%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Human Health - Non-Carcinogen and Chronic Ammonia	Harmonic Mean	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Human Health - Carcinogen	Harmonic Mean		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Calculated Dilution Factors (DF) (or enter Modeled DFs)	Aquatic Life - Acute	1Q10	1.00	6.19	1.00	1.00	6.19	1.00	1.00	1.00
	Aquatic Life - Chronic	7Q10 or 4B3		6.38	2.47	1.00	6.38	1.00	1.00	1.00
		30B3 or 30Q10		4.32	1.00	1.00	1.00	1.00	1.00	1.00
	Human Health - Non-Carcinogen and Chronic Ammonia	Harmonic Mean	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Human Health - Carcinogen	Harmonic Mean		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Aquatic Life Reasonable Potential Analysis										
σ	$\sigma^2=\ln(CV^2+1)$		0.385	0.555	0.555	0.555	0.555	0.555	0.703	0.358
P_n	$=(1-\text{confidence level})^{1/n}$, where confidence level =	99%	0.986	0.658	0.599	0.631	0.599	0.599	0.658	0.811
Multiplier (TSD p. 57)	$=\exp(z\sigma-0.5\sigma^2)/\exp[\text{normsinv}(P_n)\sigma-0.5\sigma^2]$, where	99%	1.0	2.9	3.2	3.0	3.2	3.2	3.9	1.7
Statistically projected critical discharge concentration (C_e)			577	3812.31	2.53	12.07	53.70	8.21	23.15	7978.44
Predicted max. conc.(ug/L) at Edge-of-Mixing Zone		Acute	577	602.30	2.30	12.07	8.33	5.56	23.10	7978.44
(note: for metals, concentration as dissolved using conversion factor as translator)		Chronic	577	589.13	0.90	12.07	8.08	5.56	23.08	7978.44
Reasonable Potential to exceed Aquatic Life Criteria			No	Yes	No	No	Yes	No	No	n/a

Aquatic Life Effluent Limit Calculations

Number of Compliance Samples Expected per month (n)			30	2			2			
n used to calculate AML (if chronic is limiting then use min=4 or for ammonia min=30)			30	2	--	--	2	--	--	--
LTA Coeff. Var. (CV), decimal	(Use CV of data set or default = 0.6)		0.400	0.600	0.600	0.600	0.600	0.600	0.800	0.370
Permit Limit Coeff. Var. (CV), decimal	(Use CV from data set or default = 0.6)		0.400	0.600	0.600	0.600	0.600	0.600	0.800	0.370
Acute WLA, ug/L	C_d = (Acute Criteria x MZ_a) - C_u x (MZ_a-1)	Acute	1,771	1,409.4	--	--	32.8	--	--	--
Chronic WLA, ug/L	C_d = (Chronic Criteria x MZ_c) - C_u x (MZ_c-1)	Chronic	789	1,464.5	--	--	21.1	--	--	--
Long Term Ave (LTA), ug/L	WLAc x exp(0.5σ^2-zσ), Acute	99%	778	452.4	--	--	10.5	--	--	--
(99th % occurrence prob.)	WLAa x exp(0.5σ^2-zσ); ammonia n=30, Chronic	99%	668	772.4	--	--	11.1	--	--	--
Limiting LTA, ug/L	used as basis for limits calculation		668	452.4	--	--	10.5	--	--	--
Applicable Metals Criteria Translator (metals limits as total recoverable)				0.98	0.91	--	0.96	0.68	1.00	--
Average Monthly Limit (AML), ug/L , where % occurrence prob =		95%	751	832	--	--	20	--	--	--
Maximum Daily Limit (MDL), ug/L , where % occurrence prob =		99%	1,519	1441	--	--	34	--	--	--
Average Monthly Limit (AML), mg/L			0.8	0.832	--	--	0.020	--	--	--
Maximum Daily Limit (MDL), mg/L			1.5	1.441	--	--	0.034	--	--	--
Average Monthly Limit (AML), lb/day			10.643	11.790	--	--	0.280	--	--	--
Maximum Daily Limit (MDL), lb/day			21.533	20.432	--	--	0.485	--	--	--

Human Health Reasonable Potential Analysis

σ	σ^2=ln(CV^2+1)			0.555	0.555	0.555	0.555	0.555	0.703	0.358
P_n	=(1-confidence level)$^{1/n}$ where confidence level =	95%		0.762	0.717	0.741	0.717	0.717	0.762	0.873
Multiplier	=exp(2.326σ-0.5σ^2)/exp[invnorm(P_N)σ-0.5σ^2],	50%		0.674	0.728	0.699	0.728	0.728	0.606	0.665
Dilution Factor (for Human Health Criteria)				1.0	1.0	1.0	1.0	1.0	1.0	1.0
Max Conc. at edge of Chronic Zone, ug/L (C_d)				15.900	0.530	2.500	2.900	0.650	1.900	2,735.000
Reasonable Potential to exceed HH Water & Organism				NO	NO	NO	NO	NO	NO	NO
Reasonable Potential to exceed HH Organism Only				NO	NO	NO	NO	NO	NO	NO

C. WQBEL Calculations

The following discussion presents the general equations used to calculate the WQBELs.

Calculate the Wasteload Allocations (WLAs)

WLAs are calculated using the same mass-balance equations used to calculate the concentration of the pollutant at the mixing zone boundary in the RPA. WLAs must be calculated for both acute and chronic criteria. To calculate the WLAs, C_d is set equal to the appropriate criterion and the equation is solved for C_e. The calculated C_e is the WLA. Equation 9 is rearranged to solve for the WLA:

$$C_e = WLA_{(a\ or\ c)} = \frac{WQC_{(a\ or\ c)}[Q_e + (Q_u \times \%MZ)] - [C_u \times (Q_u \times \%MZ)]}{Q_e}$$

Equation 5. Simple mass-balance equation for calculating WLA for flowing water.

Where:

$WQC_{(a\ or\ c)}$ = Pollutant water quality criterion (acute or chronic)	Calculated value
Q_e = Critical effluent flow	From discharge flow data (design flow for POTW)
Q_u = Critical upstream flow (1Q10 acute criterion or 7Q10 chronic)	From water quality standards
%MZ = Percent of critical low flow provided by mixing zone	From mixing zone analysis
C_u = Critical upstream pollutant concentration (90th to 95th percentile)	From receiving water data
C_e = $WLA_{(a\ or\ c)}$ = wasteload allocation (acute or chronic)	Calculated from Equation 4

Idaho's WQC for some metals are expressed as the dissolved fraction, but the rules regulating the IPDES program (IDAPA 58.01.25.303.03) and federal regulations (40 CFR 122.45(c)) require that effluent limits be expressed as total recoverable metal unless standards have been

promulgated allowing limits specified in dissolved, valent, or total forms, a case-by-case basis has been established for limits specified in dissolved, valent, or total form, or all approved analytical methods for the metal inherently measure only its dissolved form. Therefore, the permit writer should calculate a WLA in total recoverable metal that will be protective of the dissolved criterion. This is accomplished by dividing the WLA expressed as dissolved by the criteria translator. As discussed in *Guidance Document on Dynamic Modeling and Translators* (EPA 1993), the criteria translator (CT) is equal to the conversion factor when site-specific translators are not available. Conversion factors for metals criteria are listed in DEQ's Water Quality Standards (WQS) at IDAPA 58.01.02.210.02. The WQS also lists several guidance documents at IDAPA 58.01.02.210.04 that are recommended for the development of site specific translators.

The next step is to compute the acute and chronic long-term average ($LTA_{(a\ or\ c)}$) concentrations, which will be derived from the acute and chronic WLAs. This is done using the following equations from the *Effluent Limit Development Guidance* (DEQ 2017a):

$$LTA_a = WLA_a \times e^{(0.5\sigma^2 - z_{99}\sigma)}$$

Equation 6. Acute LTA for toxics.

Where:

LTA_a = Acute long-term average	Calculated value
WLA_a = Acute wasteload allocation	Calculated value. See Equation 5.
e = Base of natural log	Approximately 2.718
σ = Square root of σ^2	
$\sigma^2 = Ln(CV^2+1)$	Ln is the natural log
CV = Coefficient of variation	Calculated using field data. If 10 or less samples available, use default value of 0.6. See Equation 3
Z_{99} = z score of the 99th percentile of the normal distribution	2.326

$$LTA_c = WLA_c \times e^{(0.5\sigma_n^2 - z_{99}\sigma_n)}$$

Equation 7. Chronic LTA average for toxics.

Where:

LTA_c = Chronic long-term average	Calculated value
WLA_c = Chronic wasteload allocation	Calculated value. See Equation 5.
e = Base of natural log	Approximately 2.718
σ_n = Square root of σ_n^2	
$\sigma_n^2 = Ln[(CV^2)/n + 1)]$	Ln is the natural log
CV = Coefficient of variation	Calculated using field data. If 10 or less, samples available use default value of 0.6. See Equation 3.
Z_{99} = z score of the 99th percentile of the normal distribution	2.326
n = Averaging period for the chronic water quality criterion (typically 4 days)	Varies

The acute and chronic LTAs are compared, and the more stringent of the two is used to calculate the maximum daily and average monthly limits.

Derive the Maximum Daily and Average Monthly Effluent Limits

Using the *Effluent Limit Development Guidance* (DEQ 2017a) equations, the maximum daily limit (MDL) and average monthly limit (AML) are calculated as follows:

$$Maximum\ Daily\ Limit = LTA_m \times e^{(z_{99}\sigma - 0.5\sigma^2)}$$

Equation 8. Maximum daily limit for toxics.

Where:

LTA_m = Minimum long-term average value	Lesser value calculated from Equation 6 and Equation 7
e = Base of natural log	Approximately 2.718
σ = Square root of σ^2	
$\sigma^2 = Ln(CV^2+1)$	Ln is the natural log of base e
Z_{99} = z score of the 99th percentile of the normal distribution	2.326
CV = Coefficient of variation	See Equation 3.

$$AML = LTA_m \times e^{(z_{95}\sigma_n - 0.5\sigma_n^2)}$$

Equation 9. Average monthly limit for toxics.

Where:

LTA_m = Minimum long-term average	Lesser value calculated from Equation 6 and Equation 7
AML = Average monthly limit	Calculated value
e = Base of natural log	Approximately 2.718
σ_n = Square root of σ_n^2	
$\sigma_n^2 = Ln[(CV^2)/n + 1]$	Ln is the natural log of base e
Z_{95} = z score of the 95th percentile of the normal distribution	1.645
n = Number of sample specified in the permit to be analyzed each month	Typically n = 1, 2, 4, 10, or 30.
CV = Coefficient of variation	See Equation 3

Table 28. TSS TMDL WLA Calculations

Annual/Seasonal Limit Calculations where the TMDL WLA is Assumed the LTA

ENTER TMDL WLA:	194	lb/day
Design Flow:	2.6299	cfs

Multiplier to Calculate Permit Limits from LTA — Reference: TSD Page 103

Number of Samples per Month (n)				8
Number of Samples per Week Set (n/4)				2
(i.e. 4 if sampling weekly for a month)				
Coefficient of Variation (CV) = Std. Dev./Mean				0.24
weekly σ	σ = std deviation			0.169
	$\sigma^2=\ln(CV^2(n/4)+1)$			0.007
monthly σ	σ n= std deviation			0.085
	$\sigma n^2=\ln(CV^2/n+1)$			0.007
Average Monthly Limit (AML),	$\exp(z\sigma_n-0.5z\sigma_n^2)$; where % probability basis =	95%	Z= 1.64	1.15
Maximum Daily Limit (MDL),	$\exp(z\sigma-0.5z\sigma^2)$; where % probability basis=	99%	Z= 2.33	1.69
Average Weekly Limit (AWL),	$\exp(z\sigma_{n/4}-0.5z\sigma_{n/4}^2)$; where % probability basis =	99%	Z= 2.33	1.46
Ratio AWL/AML				1.27

Calculation:	LTA, Limiting	x	Multiplier	=	Limit	
AML = LTA, limiting x Multiplier	194	x	1.15	=	222.2	lb/day
MDL = LTA, limiting x Multiplier	194	x	1.69	=	327.1	lb/day
AWL = AML x Multiplier	222.2	x	1.27	=	283.1	lb/day
AAL/AAS=					194	lb/day

Table 29. Phosphorus TMDL WLA Calculations

Annual/Seasonal Limit Calculations where the TMDL WLA is Assumed the LTA

ENTER TMDL WLA:	5.82	lb/day
Facility Flow:	1.7	mgd
Design Flow:	2.6299	cfs

Multiplier to Calculate Permit Limits from LTA — Reference: TSD Page 103

Number of Samples per Month (n)				4
Number of Samples per Week Set (n/4)				1
(i.e. 4 if sampling weekly for a month)				
Coefficient of Variation (CV) = Std. Dev./Mean				1.3
weekly σ	σ = std deviation			0.995
	$\sigma^2=\ln(CV^2/(n/4)+1)$			0.352
monthly σ	σ n= std deviation			0.594
	$\sigma n^2=\ln(CV^2/n+1)$			0.352
Average Monthly Limit (AML),	$\exp(z\sigma_n-0.5z\sigma_n^2)$; where % probability basis =	95%	Z= 1.64	2.23
Maximum Daily Limit (MDL),	$\exp(z\sigma-0.5z\sigma^2)$; where % probability basis=	99%	Z= 2.33	6.17
Average Weekly Limit (AWL),	$\exp(z\sigma_{n/4}-0.5z\sigma_{n/4}^2)$; where % probability basis =	99%	Z= 2.33	6.17
Ratio AWL/AML				2.77

Calculation:	**LTA, Limiting**	**x**	**Multiplier**		**= Limit**	
AML = LTA, limiting x Multiplier	5.82	x	2.23	=	12.95593	lb/day
MDL = LTA, limiting x Multiplier	5.82	x	6.17	=	35.89795	lb/day
AWL = AML x Multiplier	12.95593	x	2.77	=	35.89795	lb/day
AAL/AAS=					5.82	lb/day

D. Reservoir Retention Time Calculations

To calculate the reservoir retention time in this draft permit the storage volume for Alexander Reservoir is used and minimum flow out of reservoir is used. The normal operating pool is described as 5,719.00 acre-feet in the Bear River Settlement Agreement. [BR\MG\07.19.02\FINAL-09.25.02] *https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/hydro/bear-river/Bear_River_Settlement_Agreement_Explanatory_Statement.pdf*

The harmonic mean of flow from USGS gage #10075000 (BEAR RIVER AT SODA SPRINGS, ID) from 1996 – 2006 was used as a conservative assumption for the annual average flow the flow. More recent flow data is available from the Bear River Commission website (*http://bearriverbasin.org/rivers/rivers/*). This data collected at Bear River at Alexander (below the dam) from 2015 -2019 reports an average flow of 732cfs.

Storage volume = 5,719 acre/ft

Minimum flow = 252 cfs = 499.8 acre foot / day

Detention Time = Storage Volume ÷ Flow = 5,719(acre/ft) ÷ 499.8 (acre-foot/day) = 11.4 days

E. WET Trigger Calculation

Table 30. WET trigger equation

Chronic Trigger Value 7Q10 ELDG			
Trigger (Ce)=	Cd x(Qe+(Qu x %MZ)) - (Cu x (Qu x %MZ)) / Qe		
Qe	design flow	1.7	MGD
Qu	7Q10	36.5	MGD
Cu	Upstream WET conc	0	TUc
Cd	Chronic WET conc	1	TUc
%MZ	mizing zone allowed	0.25	
Ce=	6.367647059	TUc	

F. Loss of assimilative capacity analysis for ammonia

Table 31. Ammonia acute criteria / max daily limit

Calculating loss of assimilative capacity in Tier 2 (high-quality) waters in Idaho

enter your data in the blue cells	Critical[a] or design flow (cfs)	Water Quality (µg/L)	WQ Criterion (µg/L)		Remaining Assim Cap[c]	10% RAC
					1541	154.1
Upstream #1 Condition	2	230	1771			
Discharge #1 Conditions						
Permitted now	2.6	2800				
Permit proposed	2.6	2160				
Downstream #1		Mixed WQ	Change in WQ	% loss of RAC		
Potential Now	4.6	1682.6				
Potential Future	4.6	1320.9	-361.7	-23.5%		
Upstream Condition[d]	4.6	1320.9			450.1	45.01
Discharge #2 Conditions						
Permitted now	0	0				
Permit proposed	0	0				
Downstream #2 WQ		Mixed WQ	Change in WQ	% loss RAC		
Potential Now	4.6	1320.9				
Potential Future	4.6	1320.9	0.0	0.0%	450.1	45.01

MGD to cfs converter tool			
MGD		*cfs*	
1.70	→	2.63	Notes:
1.94	←	3.00	

SIGNIFICANT

Permit proposed limits are based on the last 5 years of raw effluent data.
For Max daily the 99th percentile was used = 2.16 mg/L
For average monthly data the 95th percentile was used = 0.51 mg/L

Table 32. Ammonia acute criteria / monthly average limit

Calculating loss of assimilative capacity in Tier 2 (high-quality) waters in Idaho

enter your data in the blue cells	Critical[a] or design flow (cfs)	Water Quality (µg/L)	WQ Criterion (µg/L)		Remaining Assim Cap[c]	10% RAC
					1541	154.1
Upstream #1 Condition	2	230	1771			
Discharge #1 Conditions						
Permitted now	2.6	2100				
Permit proposed	2.6	510				
Downstream #1		Mixed WQ	Change in WQ	% loss of RAC		
Potential Now	4.6	1287.0				
Potential Future	4.6	388.3	-898.7	-58.3%		
Upstream Condition[d]	4.6	388.3			1382.7	138.27
Discharge #2 Conditions						
Permitted now	0	0				
Permit proposed	0	0				
Downstream #2 WQ		Mixed WQ	Change in WQ	% loss RAC		
Potential Now	4.6	388.3				
Potential Future	4.6	388.3	0.0	0.0%	1382.7	138.27

MGD to cfs converter tool			
MGD		*cfs*	
1.70	→	2.63	Notes:
1.94	←	3.00	

SIGNIFICANT

Permit proposed limits are based on the last 5 years of effluent data.
For Max daily the Max recorded value was used = 2.25 mg/L
For average monthly data the 95th percentile was used = 0.51 mg/L

Table 33. Ammonia Chronic criteria / max daily limit

Calculating loss of assimilative capacity in Tier 2 (high-quality) waters in Idaho

enter your data in the blue cells	Critical[a] or design flow (cfs)	Water Quality (µg/L)	WQ Criterion (µg/L)		Remaining Assim Cap[c]	10% RAC
					1541	154.1
Upstream #1 Condition	2	230	1771			
Discharge #1 Conditions						
Permitted now	2.6	2800				
Permit proposed	2.6	2160				
Downstream #1		Mixed WQ	Change in WQ	% loss of RAC		
Potential Now	4.6	1682.6				
Potential Future	4.6	1320.9	-361.7	-23.5%		
Upstream Condition[d]	4.6	1320.9			450.1	45.01
Discharge #2 Conditions						
Permitted now	0	0				
Permit proposed	0	0				
Downstream #2 WQ		Mixed WQ	Change in WQ	% loss RAC		
Potential Now	4.6	1320.9				
Potential Future	4.6	1320.9	0.0	0.0%	450.1	45.01

MGD to cfs converter tool			
MGD		*cfs*	
1.70	→	2.63	Notes:
1.94	←	3.00	

SIGNIFICANT

Permit proposed limits are based on the last 5 years of raw effluent data.
For Max daily the 99th percentile was used = 2.16 mg/L
For average monthly data the 95th percentile was used = 0.51 mg/L

Table 34. Ammonia chronic criteria / average monthly limit

Calculating loss of assimilative capacity in Tier 2 (high-quality) waters in Idaho

enter your data in the blue cells	Critical[a] or design flow (cfs)	Water Quality (µg/L)	WQ Criterion (µg/L)		Remaining Assim Cap[c]	10% RAC
					559	55.9
Upstream #1 Condition	111.3	230	789			
Discharge #1 Conditions						
Permitted now	2.6	2100				
Permit proposed	2.6	510				
Downstream #1		Mixed WQ	Change in WQ	% loss of RAC		
Potential Now	113.9	272.7				
Potential Future	113.9	236.4	-36.3	-6.5%		
Upstream Condition[d]	113.9	236.4			552.6	55.26
Discharge #2 Conditions						
Permitted now	0	0				
Permit proposed	0	0				
Downstream #2 WQ		Mixed WQ	Change in WQ	% loss RAC		
Potential Now	113.9	236.4				
Potential Future	113.9	236.4	0.0	0.0%	552.6	55.26

MGD to cfs converter tool		
MGD		*cfs*
1.70	→	2.63
1.94	←	3.00

Notes:

SIGNIFICANT

Permit proposed limits are based on the last 5 years of effluent data.
For Max daily the Max recorded value was used = 2.25 mg/L
For average monthly data the 95th percentile was used = 0.51 mg/L

Appendix C. Your Right to Appeal

Persons aggrieved, as specified in IDAPA 58.01.25.204.01.a., have a right to appeal the final permit decision to the Board of Environmental Quality. A Petition for Review must be filed with the Department's Hearing Coordinator within twenty eight (28) days after the Department serves notice of the final permit decision under IDAPA 58.01.25.107 (Decision Process).

All documents concerning actions governed by these rules must be filed with the Hearing Coordinator at the following address: Hearing Coordinator, Department of Environmental Quality, 1410 N. Hilton, Boise, ID 83706-1255. Documents may also be filed by FAX at FAX No. (208) 373-0481 or may be filed electronically. The originating party is responsible for retaining proof of filing by FAX. The documents are deemed to be filed on the date received by the Hearing Coordinator. Upon receipt of the filed document, the Hearing Coordinator will provide a conformed copy to the originating party. Additional requirements for appeals of IPDES final permit decisions can be found in IDAPA 58.01.25.204.

Appendix D. Public Involvement and Public Comments

A. Public Involvement Information

DEQ proposes to reissue a permit to the City's POTW. The permit includes wastewater discharge limits and other conditions. This fact sheet describes the facility and DEQ's reasons for requiring permit conditions.

DEQ placed a Public Notice of Application on date and date in name of publication to inform the public about the submitted application and to invite comment on the reissuance of this permit.

DEQ will place/placed a Public Notice of Draft on date in name of publication to inform the public and to invite comment on the draft Idaho Pollutant Discharge Elimination System permit and fact sheet.

The notice:

- Tells where copies of the draft permit and fact sheet are available for public evaluation (a local public library, the closest regional or field office, posted on our website).
- Offers to provide the documents in an alternate format to accommodate special needs.
- Asks people to tell us how well the draft permit would protect the receiving water.
- Invites people to suggest fairer conditions, limits, and requirements for the permit.
- Invites comments on DEQ's determination of compliance with antidegradation rules.
- Urges people to submit their comments, in writing, before the end of the comment period.
- Tells how to request a public hearing about the draft IPDES permit.
- Explains the next step(s) in the permitting process.

PUBLIC NOTICE

First Time Published

DEQ SEEKS COMMENT ON DRAFT IDAHO POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FOR CITY OF SODA SPRINGS

PROPOSED ACTION: The City of Soda Springs applied to the Department of Environmental Quality (DEQ) for an Idaho Pollutant Discharge Elimination System (IPDES) wastewater discharge permit for its municipal wastewater treatment facility located 520 Big Spring Road, Soda Springs, Idaho. The DEQ is seeking public comment on the draft IPDES permit, associated fact sheet, and application for the City of Soda Springs wastewater treatment facility. This proposed permit authorizes the discharge of treated municipal wastewater year-around to the Bear River for five years. The permit identifies the pollutants of concern and specifies associated discharge limits. Additionally, the permit specifies monitoring and reporting requirements necessary to ensure compliance, protect human health, and assure the integrity of Idaho's environment.

PUBLIC COMMENT PERIOD: Notice is given that DEQ has scheduled a period to receive public comments. Written comments on the draft permit and fact sheet will be accepted through April 20th, 2020, at 5 p.m. MST. A public meeting may be held if requested in writing by April 2nd, 2020. The draft permit and fact sheet are available for public review at DEQ's state office (1410 N. Hilton St., Boise, ID), Pocatello Regional Office (444 Hospital Way #300, Pocatello, ID), and on DEQ's website.

http://www.deq.idaho.gov/news-public-comments-events/

SUBMISSION OF WRITTEN COMMENTS–ASSISTANCE ON TECHNICAL QUESTIONS: Anyone may submit written comments regarding the proposed permit. To be most effective, comments should address water quality considerations and include supporting materials where available. Comments, requests, and questions regarding the public comment process should be directed to Matt Stutzman at the address below, or to the DEQ Web site at https://www.deq.idaho.gov/news-public-comments-events/. Please reference the City of Soda Springs and permit number (ID0020818) when sending comments or questions. All information regarding this matter, including the issuance of the final permit, will be available on DEQ's Web site.

Submit requests for a public meeting on the draft permit and fact sheet electronically on DEQ's website, by mail, or email to Lori Flook.

Lori Flook
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Published March 19, 2020 in the Caribou County Sun.

Affidavit of Publication

County of Caribou
State of Idaho } ss.

MARK STEELE

being first duly sworn on his oath, states:

That he is PUBLISHER of the Caribou County Sun, a newspaper of general circulation in Caribou County, Idaho, published weekly at Soda Springs in said County that said newspaper has been published in said County uninterruptedly and continuously for over seventy-eight consecutive weeks, prior to the first publication of the annexed notice or advertisement.

That the annexed notice was published as per clipping attached in the regular and entire edition of said newspaper and not in any supplement thereof for ONE successive weekly issues thereof, the date of the first publication being the 19th day of March, 2020

The date of the last publication being the 19th day of March, 2020

On this 20th day of March in the year of 2020, before me, a Notary Public, personally appeared

known or identified to me to be the person whose name subscribed to the within instrument, and being by me first duly sworn, declared that the statements therein are true, and acknowledge to me that he executed the same.

WENDY N STEELE NOTARY PUBLIC MY COMMISSION EXPIRES 3-11-2024 STATE OF IDAHO COMMISSION NUMBER 41396

Notary Public for Idaho
Residing in Soda Springs, Idaho
My commission expires:
March 11, 2024

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DEQ extends comment period on proposed IPDES permit for the City of Soda Springs

Friday, April 17, 2020

BOISE - DEQ has extended the public comment period for the proposed Idaho Pollution Discharge Elimination System (IPDES) Permit (ID0020818) for the City of Soda Springs. Interested parties now have until April 24, 2020, at 5 p.m. MST to submit written comments.

The permit authorizes the discharge of treated municipal wastewater to the Bear River for five years. The permit identifies the pollutants of concern and specifies associated discharge limits. Additionally, the permit specifies monitoring and reporting requirements necessary to ensure compliance, protect human health, and assure the integrity of Idaho's environment.

The draft permit and fact sheet are available for public review at DEQ's Pocatello Regional Office, the DEQ State Office, and on DEQ's website (download at right).

Submit written comments on the draft permit and fact sheet electronically on DEQ's website or by mail or email to:

Matt Stutzman
Idaho Department of Environmental Quality
Water Quality Division
1410 N. Hilton
Boise, ID 83706
Email: matthew.stutzman@deq.idaho.gov

Media Contact

IPDES Permit Writer
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B. Public Comments and Response to Comments

Idaho Pollutant Discharge Elimination System Discharge Permit No. ID0020818

Response to Comments on Draft Soda Springs IPDES Permit

April 24, 2020 comment deadline

1. EPA comments (email 3/30/2020):

1. The second paragraph of Section 4.3 says "Error! Reference source not found." It looks like this is supposed to refer to Table 19. There are also several instances of "Error! Reference source not found" in Table 24, for the compliance schedule.

Response 1: Thank you.

Changes: Section 4.3 and Table 24 have been revised.

2. ICL comments (letter 4/16/2020):

[DEQ has divided the letter into distinct topics and separate comments]

2. Copper BLM monitoring: We have been tracking the implementation of the copper BLM criteria for IPDES permits since DEQ assumed primacy. There continue to be several key implementation issues that should be addressed in this and other IPDES permits that use (or will use) the copper BLM criteria. When we have made similar comments to DEQ on these issues (e.g. Shoshone IPDES permit), we have not gotten wholly satisfactory responses regarding why these implementation issues cannot be addressed. Accordingly, we are raising the following issues again in these comments.

    a) First, DEQ should consider requiring sampling for the relevant parameters upstream of the outfall in addition to the proposed downstream sampling. DEQ's copper criteria guidance states: "In some instances, it may be necessary or advisable to collect samples upstream of points of discharge to capture baseline conditions" (section 5.3.2, pg. 19). Since the goal of the copper BLM is to protect water quality based on the bioavailability of copper in specific receiving waters, it follows that upstream sampling could help set a baseline. The baseline conditions established by upstream sampling would allow DEQ to determine if/how the effluent affects the copper bioavailability, which is an important question to answer when developing copper criteria for this facility. This is relevant for this permit because the existing (but limited) data from this facility indicates that there are infrequent occurrences of copper spikes in the effluent. Additionally, the copper bioavailability of the effluent may vary on a different timeframe than that of the receiving water.

- *Response 2a: DEQ agrees that when potential exists for the effluent to exceed WQC monitoring pollutant concentrations in the ambient receiving water is also warranted.*

Dissolved copper monitoring will be included upstream. Upstream monitoring to determine baseline WQC may be appropriate when downstream monitoring is not feasible. As per section 5.3.2 of the Copper BLM guidance (DEQ 2017b) "Monitoring locations should represent the conditions for the receiving water as affected by the specific discharge being considered". DEQ has determined that downstream monitoring will adequately represent the receiving water as affected by the facility discharge to "ensure that monitoring results used to derive criteria for developing effluent limits are specific to waters affected by the effluent discharge" (DEQ 2017) .

- *Changes: Dissolved copper monitoring is required at the upstream monitoring point(s).*

b) Secondly, the permit (through the copper compliance schedule) should designate specific upstream and downstream monitoring locations for copper BLM inputs. It is important for the sampling to capture the conditions in the receiving waters where copper is the most bioavailable, both upstream and downstream of the outfall. At the downstream location, sampling should occur outside of the chronic mixing zone with conditions representative of complete mixing. Enough sampling locations should be used in order to adequately characterize the spatial variability of the BLM input parameters within the receiving waters. EPA guidance suggests that the "collection of data outside of the chronic mixing zone both upstream and outside of the influence of the effluent discharge, and downstream of the discharge would best characterize the spatial variability of the site." The more parameter data that can be collected, the more accurately the water chemistry of the site can be characterized, which will ultimately result in the development of more accurate criteria.

The decision of where the aforementioned monitoring sites should be located should be specified in the receiving water monitoring plan that the facility is requires to complete by June 2022. This plan, and the selection of monitoring locations within, should be subject to public review and comment.

- *Response 2b: As required in section 2.1.4 of the permit the downstream monitoring location must reside where the effluent and the Bear River are completely mixed. Additionally, in flowing waters, DEQ considers spatial representation is generally ensured by sampling well-mixed portions of the flow (i.e., sampling from the thalweg and avoiding confluences or other obvious lateral inputs). DEQ relies on the permittee's knowledge of the local area and specific hazards at these locations throughout the year to propose monitoring sites that provide for legal access and can be assessed safely and consistently. The DEQ regional office will determine if the site is appropriate to collect representative samples before approving. The permit in section 2.1.4 requires the permittee to collect copper BLM data using the frequency and methodology requirements indicated in Implementation Guidance for the Idaho Copper Criteria for Aquatic Life Using the Biotic Ligand Model. By doing so the permittee is required to assure all data collected are suitable to develop site specific criteria. Failing to do so would be a violation of the permit and may result in utilizing the conservative criteria estimates to assure protection of the receiving water.*
- *Changes: None.*

c) We also recommend that DEQ require continuous pH monitoring for all sampling locations rather than a 1/month grab sample (or at least, higher frequency measurements). As noted in section 5.4.1 of DEQ's implementation guidance and the references cited within, pH may have significant diurnal variability that affects metal concentrations. A 1/month grab sample is clearly insufficient to capture the effects of this short-term variance, and as the guidance notes, it is important to "properly capture the temporal variability of the physical and chemical parameters that are used as inputs for the BLM." Given the diurnal variability of pH, and that the BLM criteria are most sensitive to pH and DOC, continuous monitoring of pH would provide the best possible input parameters. This monitoring can be done relatively simply and cheaply by probe measurement.

In response to the same comment on the Shoshone IPDES permit, DEQ had the following response in the final Fact Sheet:

Response 39: DEQ acknowledges that pH is typically diurnal, with the lowest (most conservative) pH in the early morning. DEQ has modified the permit to include monthly pH monitoring at the downstream location to be collected between 5 AM and 8AM. The permittee may collect pH within this time frame with a data logger or a grab sample. If significant amounts of copper are present in the permittee's effluent, continuous pH monitoring will be required during the next permit cycle.

In the Shoshone permit, it was unclear if the facility had significant amounts of copper in its effluent. In this permit, we know that there occasionally are indeed notable concentrations of copper in the effluent. Thus, we believe that continuous pH monitoring should be required. At the very least, the same condition about early morning sampling that was included in the Shoshone permit should also be included here (though continuing monitoring would be preferable).

- *<u>Response 2c:</u> DEQ agrees that pH monitoring should be conducted between 5 AM and 8 AM if continuously recorded pH data is not available. A footnote explaining this was included in the fact sheet but was omitted in the permit.*
- *<u>Changes:</u> The permit has been revised to require pH monitoring downstream to occur between 5 AM and 8 AM unless continuously recorded pH monitoring is collected.*

d) <u>In summary, we believe that the following changes should be made for the copper BLM criteria to be successfully applied in this permit:</u>

- Add upstream monitoring in addition to the proposed downstream monitoring
- Specifically designate upstream and downstream monitoring locations and provide scientific justification for those decisions
- Demonstrate that the sampling is capturing the most copper bioavailable conditions in the water body by taking into account diurnal variability, mixing zones, and other relevant factors
- Increase monitoring frequency for pH due to its demonstrated diurnal variability and importance to copper bioavailability

- *<u>Response 2d</u>: DEQ appreciates that developing accurate site specific water quality criteria utilizing the Copper BLM will rely on appropriate data. The permit with associated changes included will accomplish this goal, while taking into consideration the limited resources of the permittee. The permit includes copper effluent limits and requires robust copper monitoring. DEQ has determined that copper limits required in this permit are protective and achievable, and that data collected during this permit cycle will allow for thorough data assessment in the future.*

3. Copper compliance schedule

We ask that DEQ explain and elaborate on the basis for the timelines within the copper compliance schedule.

- *<u>Response 3:</u> Compliance schedule timelines are designed to be feasible. In most cases timelines are based on previously implemented compliance schedules that have proven successful. DEQ has determined that providing two years to develop and implement the required monitoring is necessary to successfully accomplish the requirement and complete the monitoring in advance of the next permit cycle. This permit cycle will allow time to gather a robust effluent data set and also implement the Copper BLM to develop site specific WQC.*
- *<u>Changes:</u> None*

4. Upstream monitoring location

a) We question that the upstream location at the Baily Creek Bridge would be representative of the receiving waters at the point of discharge. That monitoring location is 2 miles above the discharge point, and crucially, is *above* the confluence of Big Spring creek and Little Spring creek with the Bear River (which is 450 feet upstream of the outflow). The issue is that an aquaculture facility discharges into Big Spring Creek, "contributing elevated loads of nutrients and sediments" (Fact Sheet, pg. 12) into the Bear River above the outfall but below the current upstream monitoring location. Little Spring Creek also contains storm water runoff from Soda Springs. Based on this information, we think that for an upstream monitoring location to be truly representative of the receiving water quality, it should be below that confluence.

- *Response 4: DEQ agrees that, in this case, upstream receiving water data should incorporate input from Big Spring Creek. The permittee will need to propose a monitoring location that accounts for Big Spring Creek's contribution. If this is infeasible the permit will require additional monitoring of pH, hardness, dissolved zinc & dissolved copper in Big Spring Creek. DEQ currently has access to flow data in Big Spring Creek and this data will not be required to be reported in this permit.*
- *Changes: The permit includes a requirement to monitor Big Spring Creek (as near to the mouth as feasible) for pH, hardness, dissolved zinc & dissolved copper concurrent with upstream monitoring in Table 7 of the permit. Results of this monitoring must be reported in the yearly receiving water monitoring report. This additional monitoring is only required if the upstream monitoring location is above the confluence of Big Spring Creek and the Bear River.*

b) Also, Page 12 of the Fact Sheet indicates that the Soda Spring POTW's upstream and downstream monitoring locations have not been documented as approved by the DEQ Pocatello Regional Office – why is that?

- *Response: Permittee is required to propose potential locations for approval as part of the permit. This was not a requirement of the previous permit. This permit will require that monitoring locations are submitted for approval to the DEQ Pocatello regional office.*
- *Changes: None.*

3. AIC Comments (letter 4/23/2020)

5. **General Comments**

AIC and the City of Soda Springs (City) appreciate the opportunity to comment on the proposed IPDES Permit (draft Permit) for the City of Soda Springs and look forward to working with our State of Idaho partners in the development of final Permit conditions and Fact Sheet that conform with state and federal regulations, protects water quality in Idaho, and achieves a cost-effective use of local funding and resources to treat and constructively manage municipal sewage.

The protection of public health and safety is an important responsibility of Idaho communities. These stakeholders consistently seek to ensure compliance and wish to preserve their ability to comply over the long term with Clean Water Act regulations. Both financial and technical resources are required by Idaho communities in order to ensure these investments are made in a manner that will ensure long-term compliance under the Clean Water Act. Idaho communities' investments must be informed through a well-supported IPDES permitting program that considers the need to sometimes apply integrative planning and management strategies over the long term.

6. **AIC and the City of Soda Springs Support Several Proposed Permit Requirements**

We support several proposed Permit requirements and wish to draw attention to a few in particular:

- Providing a table that lists important compliance deadlines in a clear, and easy to use format (See Submission Schedule, page 2).

- Addressing the City of Soda Springs's need to comply with IDAPA 58.01.02.200 through a streamlined approach for Narrative Limits monitoring and compliance (See Section 1.2.2).
- Ensuring that the Permit's water quality-based effluent limits (WQBELs) are informed by the 2013 Bear River Basin TMDL Addendum waste load allocations; including the total mass load for each applicable time period; including the annual mass limits for total suspended sediments (TSS) and total phosphorus (TP), see Section 1.2, Table 2.
- Providing a regulatory mixing zone as permitted under the Idaho and federal rules and regulations (See Section 1.3 and Table 3).
- Clarifying that the required monitoring must be completed using sufficiently sensitive methods and conducted according to test procedures approved under 40 CFR 136, but that the Permittee may request different MLs in writing, subject to DEQ approval (i.e., "If the permittee is unable to attain the required ML in its effluent due to matrix effects, the permittee must submit a matrix-specific detection limit and a ML to DEQ with appropriate laboratory documentation." See Section 2.1.6).

The City and AIC respectfully request a follow up meeting prior to the issuance of the final Permit if changes are made to any of these items.

7. **Requested Revisions for the Final Permit Requirements and Fact Sheet**
   a) **Issue #1**: Total Phosphorus Compliance Schedule

Request: The City requests a total phosphorus compliance schedule and interim limits, with the final WQBELs effective October 2021.
Explanation: The City has invested in facility upgrades in anticipation of the new total phosphorus WQBELs. However, the City wishes to point out that currently there are insufficient data and operational experience for achieving the new limits, especially during the spring period. The City seeks to ensure permit compliance throughout the term of the Permit and stresses the need to be given time to troubleshoot and confirm the treatment plant's operational capacities to achieve these new WQBELs.

- *Response 7a: The facility has collected 21 quarterly data points for effluent phosphorus since 2015 after the facility upgrades to treat for phosphorus. Those data points have a 95th percentile value of 11.5 lb/day. The monthly limit in the 2020 permit is 13.0 lb/day. DEQ has determined that 21 data points are sufficient to determine that the facility has the ability to comply with the new limit.*

  To illustrate this point, DEQ typically uses the 95th percentile value of available data to develop an appropriate performance based interim limit for pollutants with new limits in need of a compliance schedule. In this case, the performance based interim limit would be more stringent than the final limit in the permit. Furthermore, when the median data value of 4.6 lb/day is taken into consideration, increasing the required monitoring frequency from quarterly to weekly will provide a more robust data set that is reasonably believed to have a greater chance of meeting compliance. Additionally, the facility has already completed the facility upgrades designed to meet the requirements of the 2011 Bear River TMDL.
- *Changes: None.*

b) **Issue #2**: Continuous Receiving Water Body Flow Data

Request: The City requests the final Permit reflect the need for only one receiving water body continuous flow monitoring station.

Explanation: In the unlikely case where the two existing flow monitoring stations operated by PacifiCorp may be decommissioned, the City understands that only one flow monitoring station will be required to be permitted and installed in the receiving water body, not two (i.e., upstream and downstream). That is, flow extrapolation to estimate either upstream *or* downstream conditions at the treatment plant would allow the City to meet the receiving water body data requirements.

- *Response 7b: The permit currently requires flow monitoring data to be submitted monthly for upstream only. The requirement includes a footnote that explains:*

  > *"If the monitoring at this station is discontinued by other parties, the flow monitoring shall be conducted by the permittee. If the flow data generation becomes the responsibility of the permittee they must contact DEQ to receive approval of a monitoring plan."*

  The permit does not require or infer that two monitoring stations would need to be installed, only that the permittee must conduct the flow monitoring and that the monitoring plan is approved by DEQ.
- *Changes: None.*

c) **Issue #3**: Tier 1 Antidegradation Requirements

Request: To more closely reflect the exact IDAPA rule language and reduce confusion the City requests that the first two instances of the words "and designated" in the first paragraph of Fact Sheet 3.5.1 be removed.

Explanation: Please refer to the IDEQ Response to Comments in the final Fact Sheet for the City of Grangeville, pg. 59 of 75.1

- *Response 7c: DEQ agrees. To accurately reflect rule language this section will be revised.*
- *Changes: The first two instances of the words "and designated" in the first paragraph of Fact Sheet 3.5.1 have been removed.*