Fact Sheet for IPDES Permit No. ID0030015

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

The Edge Resort
851 Banks Lowman Road
Garden Valley, ID 83622

Public Comment Start Date:	11/24/2021
Public Comment Expiration Date:	12/27/2021
Technical Contact:	Rakael Pope 208.373.0502 rakael.pope@deq.idaho.gov

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 The Edge Resort.

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
7Q10	7-day, 10 year low 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
E. coli	Escherichia coliform bacterium
ELG	Effluent limit guidelines
EDMS	Electronic Data Management System
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
lb/day	Pounds per day
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
PrOTW	Privately Owned Treatment Works

QAPP	Quality Assurance Project Plan
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
TSD	Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001)
TSS	Total suspended solids
USGS	United States Geological Survey
WLA	Wasteload allocation
WQBEL	Water quality-based effluent limit
WQC	Water Quality Criteria
WQS	Water Quality Standards
WWTP	Wastewater treatment plant

1 Introduction

This fact sheet provides information used in the Idaho Department of Environmental Quality (DEQ) Idaho Pollutant Discharge Elimination System (IPDES) permit for The Edge Resort. 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 issue an IPDES permit for The Edge Resort. 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 with which the facility must comply;
- 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 (IDAPA 58.01.25.109.01.c). 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 December 8, 2021. 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 "*https://www2.deq.idaho.gov/admin/LEIA/api/document/download/4814*". 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 draft permit in response to the public comments (IDAPA 58.01.25.109.03). DEQ will include the summary and responses to comments in Appendix D of the final fact sheet. DEQ may request more information from the applicant in order to respond to public comments (IDAPA 58.01.25.109.02.h.). After the public comment period and prior to issuing the final permit decision, DEQ will also provide the applicant an opportunity to submit additional information to address proposed changes and support the response to public comments. 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 in accordance with 40 CFR 121, 122, 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 period(s) 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. All comments received will be addressed in Appendix D of the final fact sheet and any resulting changes to the permit or fact sheet documented. 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 permit holder or applicant and any person or entity who filed comments or who participated in a public meeting on the draft permit may file a petition for review of a permit decision as outlined in Appendix C. The petition for review must be filed with DEQ's hearing coordinator within 28 days after DEQ serves notice of the final permit decision. Any party that participated in the petition for review that is still aggrieved by the final IPDES action or determination has a right to file a petition for judicial review (IDAPA 58.01.25.204.26).

Documents are Available for Review

The 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 permit and fact sheet can also be found by visiting the DEQ website at *https://www.deq.idaho.gov/public-information/public-comment-opportunities/*.

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

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

Boise Regional Office
1445 N. Orchard St.
Boise, ID 83706

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	Go Left, LLC The Edge Resort
Facility Physical Address	851 Banks Lowman Road Garden Valley, ID 83622
Facility Mailing Address	849 Banks Lowman Road Garden Valley, ID 83622
Facility Contact	Richard Fritzley 208-863-4618 *rdfritzley@gmail.com*
Responsible Official	Timothy Fritzley
Facility Location	Latitude: 44.1092 Longitude: -115.9854
Receiving Water Name	Lower Middle Fork Payette River, Big Bulldog Creek to mouth Assessment unit: ID17050121SW001_04
Outfall 001 Location	Latitude: 44.1092° Longitude: -115.9854°
Permit Status	
Application Submittal Date	October 5, 2018 (received by EPA)
Date Application Deemed Complete	December 5, 2019

The Edge Resort owns and operates a privately owned wastewater treatment works (PrOTW) located at 851 Banks Lowman Road within Section 16 of Township 9 North, Range 4 East, near Crouch, Boise County, Idaho. This PrOTW will discharge year-round to the Middle Fork of the Payette River (MFPR). The collection system has no combined sewers. The facility will serve a resident population of a maximum resident population of 573 people, including up to two staff members (see section 2.1.3 for details). The permittee anticipates up to 1,100 visitors each year (includes an event center). There are no industrial or outside commercial facilities discharging to the facility.

The maximum resident occupancy is based on the following assumptions:

- The RV sites are 100% occupied with an average of three (3) people per site.
- Condominiums/Townhouses are 100% occupied with two (2) people per bedroom.
- RV Population = 59 sites * 3 people/site = 177 people
- Condominium/Townhouse Population = 198 bedrooms * 2 people/bedroom = 396 people
- Total maximum resident population = 177 + 396 = 573 people

2.1.1 Facility Information

The proposed PrOTW to be installed at The Edge Resort will be operated to treat domestic wastewater for this multifunctional resort. The resort will consist of cabin units, an event center, a lodge/restaurant/pub, a convenience store, and full-service RV hookups located in Garden Valley, Idaho. The facility will be operated by either the permittee or a subcontractor. All waste will be domestic with no additional users connected to the treatment system. The permittee will not install an RV dump station at this facility. Details about the wastewater treatment process are provided in 2.1.2, and a map showing the location of the treatment facility and discharge is located in Appendix A.

The facility submitted a preliminary engineering report of the PrOTW (EDMS 2019AGD1328) to DEQ. A process flow diagram, treatment facility map, and discharge locations are included in Appendix A. Because the maximum design capacity of the facility is < 0.1 million gallons per day (mgd) and the PrOTW is only permitted to process domestic waste, this privately owned facility is equivalent to a Publicly Owned Treatment Works (POTW). Under the POTW classification, a facility processing less than 0.1 mgd is considered a minor facility.

2.1.2 Treatment Process

The Edge Resort wastewater treatment process will include two primary treatment tanks in series, two sequencing batch reactors (SBR) tanks in parallel, and a third SBR tank available as an online spare. It is planned to plumb and wire the third SBR tank so that it is ready to operate, then drop in the pumps, transducer, and dissolved oxygen (DO) probe when flows indicate a third SBR is needed to serve as a spare.

The SBR is a fill-and-draw system. In this system, wastewater is added to the reactor, treated to remove undesirable components, and then discharged. For larger flows, two or more SBR tanks can be used in an alternating sequence. SBR systems consist of several treatment phases that make up a complete treatment cycle. Most systems operate between three and six cycles per day. Earthtek Sabre package SBR plants are typically provided in buried fiberglass tanks designed to be out of sight and out of mind. Minimal odors or noise are expected to be practically unnoticeable compared to a treatment plant.

The treatment process for this plant includes a manhole that will collect the influent wastewater from a lift station serving the development, the backwash flow from the BioDISC Cloth Media Filters, and the waste activated sludge from the SBR's. The collection manhole is designed to dampen the velocity of the influent flows and allow the energy to dissipate prior to flowing through a section of 8" gravity sewer into primary treatment tank #1.

The primary tank allows influent solids to settle to the bottom of the tank, and fat, oil and grease (FOG) to float to the surface of the tank. Clarified effluent passes through an effluent screen and into primary tank #2. Duplex submersible pumps on guide rails (on set of two pumps for each SBR) transport the clarified effluent to each SBR during its fill phase.

The SBR tanks provide secondary, extended aeration activated sludge treatment of the primary effluent and reduce BOD, TSS, ammonia, phosphorus (with chemical feed) and total nitrogen (if required). The SBR's operate in cycles and decant the treated effluent to BioDISC Cloth Media

filters for effluent polishing. Waste activated sludge (WAS) is sent back to the primary tanks for anaerobic digestion and filter backwash is also returned to the primary tank.

Disinfection of the filtered effluent is provided by duplex UV disinfection units in parallel. Treated and disinfected effluent is then discharged.

2.1.3 Construction Schedule

The facility is planning construction in phases over a three-to-four-year period. The years were estimated based on original construction schedules and may shift because of delays (see Figure 1. Construction schedule.):

Description	Units	GPD/Units	Year		
			2021	2022	2023
Phase I					
RV Pads (Spaces)	60	125	7,375	7,375	7,375
RV Laundry Facility (Washers)	4	50	200	200	200
Beach Shack (Customers)	200	0.5	100	100	100
Resort Pavillion Center					
Pool & Splash Park	25,000	0%	-	-	-
Hot Tubs	20	0	-	-	-
Gas Station / Convenience Store (Cars)	400	10	4,000	4,000	4,000
Phase Total			11,675	11,675	11,675
Phase II					
1 Bedroom Condominium	20	150		3,000	3,000
2 Bedroom Condominium	20	200		4,000	4,000
3 Bedroom Condominium	20	250		5,000	5,000
Restaurant (Meals)	300	13		3,900	3,900
Pub (Customers)	250	2		500	500
Wedding/Event Center (Guests)	250	7		1,750	1,750
Phase Total			-	18,150	18,150
Phase III					
3 Bedroom Townhomes	16	250			4,000
	30	150			4,500
Phase Total			-	-	8,500
Project Total					
Cumulative Total			11,675	29,825	38,325
Note: This table is a modified version of Table 4.1 in the approved Facility Plan.					

Though RV Pads are part of the construction schedule, RV dumping will not be available.

Figure 1. Construction schedule.

2.1.4 Permit History

This is the first IPDES permit for this facility; thus, there is no permitting history associated with ID0030015.

2.1.5 Compliance History

This is the first IPDES permit for this facility: thus, there is no compliance history associated with ID0030015.

2.1.6 Sludge/Biosolids

Prior to sludge removal and disposal, the permittee must submit a TWTDS application through the IPDES E-Permitting system. Permits for sludge management are independent of IPDES individual industrial or POTW discharge permits. In addition, DEQ approval of a Sludge Disposal Plan (Biosolids Management Plan) is required prior to sludge removal in accordance with IDAPA 58.01.16.650 and IDAPA 58.01.25.380.

Sludge produced in the PrOTW SBR system will be pumped by a third-party sludge disposal contractor as needed when the sludge depth approaches four feet above the tank bottom. Based on the average design flow, the facility anticipates needing to pump Primary Tank #1 every seven months. Primary Tank #2 will also be pumped by a third-party sludge disposal contractor when the effluent filters on the pump discharges require cleaning beyond routine maintenance. The facility is required to develop a sludge management plan and track sludge levels. This sludge level information must be reported through the IPDES E-Permitting System as required in section 2.1.3 of the permit.

2.1.7 Outfall Description

Outfall 001, an exposed pipe, will be located at the north end of a constructed pond. Effluent monitoring will be completed with end-of-pipe limits at a monitoring port at this location.

The constructed pond flows approximately 780 feet south and discharges to the MFPR. Intermittent discharge from the pond may occur year-round but has been observed by the permittee to occur primarily during spring runoff and storm events. The permittee may collect flow and temperature monitoring data to assess the impact of the pond's thermal load on the MFPR for consideration during the next permit cycle.

2.1.8 Wastewater Effluent Characterization

The Edge Resort wastewater treatment system is currently under construction and meets the criteria for new source determination in IDAPA 58.01.25.120. Therefore, effluent discharge data are not available. However, the applicant did submit estimates of expected effluent characterization, in accordance with IDAPA 58.01.25.105.16. The future sources of waste the facility will treat include a restaurant, a pub, condominiums & townhouses, RV pads, and an event/wedding center. Effluent estimates are listed in Table 2.

Table 2. Estimated wastewater effluent characterization (from the permittee's 2018 application forms)

Parameter	Units	Average Daily Values	Maximum Daily Values	Data Source[a,]
BOD_5	mg/L	30	45	Application (Code 1,2,3)
TSS	mg/L	30	45	Application (Code 1,2,3)
Flow	mgd	0.025	0.076	Updated PER Design Flow Received 10/11/21 (DEQ EDMS 2021FAZ51)
Ammonia, Total as N	mg/L	2	8	Application (Code 1,2,3)
Nitrate-Nitrite (as N)	mg/L	5	20	Application (Code 1,2,3)
Oil & Grease	mg/L	–	10	Application (Code 1,2,3)
Phosphorus, Total as P	mg/L	2	8	Application (Code 1,2,3)
Parameter	**Units**	**Average Geometric Mean**	**Maximum Geometric Mean**	**Data Source**
E. coli	#/100mL	–	126	Application (Code 1,2,3)
Parameter	**Units**	**Minimum Value**	**Maximum Value**	**Data Source**
pH	standard units	6.5	9	Application (Code 1,2,3)
Temperature (September 1 – July 15)	°C	–	10	Application (Code 1,2,3)
Temperature (July 15 – August 31)	°C	–	20	Application (Code 1,2,3)

a. The permittee's application was submitted to EPA using EPA NPDES application forms which use Codes 1, 2, and 3. Where:
Code 1 = Engineering Study or Actual data from pilot plants
Code 2 = Estimates from other engineering studies
Code 3 = Data from other similar plants

2.2 Description of Receiving Water

The constructed pond on the north central section of The Edge Resort property discharges to the MFPR, a Strahler fourth order stream in the Payette River Basin identified as assessment unit (AU) ID17050121SW001_04 and Water Body Unit 1. This AU, Lower MF Payette River – 4th order, represents the MFPR from Big Bulldog Creek to the mouth. The permittee's discharge is approximately 0.37 miles downstream from Davey's Bridge on the Banks Lowman Road (State Highway 17) southwest of Crouch, Idaho, in Boise County. For more information on the outfall, see section 2.1.7, Outfall Description.

At the point of discharge, the MFPR is protected for the following designated uses (IDAPA 58.01.02.052.05.a):

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

The cold-water aquatic life and salmonid spawning beneficial uses are not supported in this reach; the remaining uses are fully supported. The causes of impairments for which TMDLs were developed by DEQ and approved by EPA include sedimentation/siltation and temperature.[1]Appendix A of the Sub-basin Assessment and Total Maximum Daily Load for the Middle Fork Payette River (DEQ, 1998[2]) also indicates the MFPR is essential for bull trout migration to the rest of the Payette bull trout populations. Section 2.2.1 of this fact sheet further describes any receiving waterbody impairments.

For waters designated for cold water with salmonid spawning aquatic life beneficial use, the Idaho Water Quality Standards specify criteria for temperature, which are more stringent than the criteria for the cold water aquatic life use. The Idaho Department of Fish and Game's (IDFG's) 2019-2024 Fisheries Management Plan[3] states that redband trout, cutthroat trout, mountain whitefish, brook trout, and bull trout are present in the MFPR (IDFG, 2019). Brook trout are non-native in this drainage. Table 8 of DEQ's *Water Body Assessment Guidance*, 3rd Edition, indicates spawning and incubation occur from March 15 through July 15 for redband and rainbow trout; from April 1 through July 1 for cutthroat trout; from October 15 through March 15 for mountain whitefish; and from September 1 to April 1 for bull trout[4] (DEQ, 2016). However, the MFPR Subbasin Assessment and Total Maximum Daily Load Temperature Addendum (DEQ, 2007[5]) indicates bull trout criteria apply in the MFPR only at elevations above 1400 m (4,950 ft) or upstream of the mouth of Fool Creek (refer to 40 CFR 131.33(a)(2)(xvii)). Therefore, cold water salmonid spawning criteria are applicable at the permittee's outfall location most of the year except from July 16 through October 1 when only cold water aquatic life temperature criteria apply (IDAPA 58.01.02.250.02).

The primary contact recreation and domestic water supply beneficial uses in this AU were assessed was found to be fully supporting of these uses. According to EPA's Safe Drinking Water Information System (EPA SIDWIS[6]), the Rivers Point Property Owners Association, a nearby drinking water intake located approximately 0.5 miles downstream, serves approximately 140 people and the Horseshoe Bend community water system, located approximately 25 miles downstream serves 750 people. According to DEQ's 2018/20 Integrated Report, an E. Coli sample was collected on 9/07/2016 and had a concentration of 13.4 cfu/100 ml, which is less than the 406 cfu/100 ml concentration required to trigger additional sampling, and indicates full support of the primary contact recreation use (DEQ, 2020)[7].

[1] DEQ 2000, 2007. Payette River (Middle Fork) Subbasin. *https://www.deq.idaho.gov/water-quality/surface-water/total-maximum-daily-loads/payette-river-middle-fork-subbasin/*
[2] DEQ, 2000. Sub-basin Assessment and Total Maximum Daily Load for the Middle Fork Payette River. July 2000. *https://www2.deq.idaho.gov/admin/LEIA/api/document/download/11960*
[3] Idaho Fish and Game. Idaho Fish and Game. 2019. Fisheries Management Plan, 2019-2024. Idaho Department of Fish and Game Commission. June 2019. *https://idfg.idaho.gov/sites/default/files/2019-2024-idaho-fisheries-management-plan-original.pdf*
[4] DEQ. 2016. Water Body Assessment Guidance, 3rd Edition. DEQ Boise, Idaho. 2016, Boise, Idaho.
[5] DEQ, 2007. MFPR Subbasin Assessment and Total Maximum Daily Load Temperature Addendum . DEQ, Boise, Idaho. *https://www2.deq.idaho.gov/admin/LEIA/api/document/download/11962*
[6] Environmental Protection Agency (EPA). Safe Drinking Water Information System. (EPA SDWIS). *https://www.epa.gov/ground-water-and-drinking-water/safe-drinking-water-information-system-sdwis-federal-reporting*
[7] DEQ, 2020. Idaho 2018/2020 Integrated Report Final. (October, 2020). Boise, Idaho. *https://www2.deq.idaho.gov/admin/LEIA/api/document/download/14888*

The ambient background data used for this permit includes flow measurement data from USGS stream gauge 13237920, but no temperature data is collected by USGS at this location in the MFPR. Therefore, the permittee will collect ambient background data of the receiving water near the stream gauge for data analysis in the next permitting cycle as described in section 4.3.

There are no nearby point sources. Nearby non-point sources of pollutants include reduced vegetation and destabilized hillslopes from fire events, forest management activities, small-scale agriculture, grazing, urban-related or road construction runoff, land development activities, and recreation.

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 (IDAPA 58.01.02.055.02). 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 (IDAPA 58.01.25.302.06.vii(2)).

DEQ's 2018/2020 Integrated Report lists the MFPR, AU ID17050121SW001_04, as impaired for water temperature and sedimentation/siltation, which was established in *Middle Fork of the Payette River Subbasin Assessment and Total Maximum Daily Load* (DEQ, 2000), *Middle Fork of the Payette River Subbasin TMDL Five Year Review* (DEQ, 2009)[8] and *The Middle Fork Payette River Subbasin Assessment and Total Maximum Daily Load Temperature Addendum* (DEQ, 2007), which DEQ developed, and EPA approved. There is no point source WLA for this facility.

The MFPR also flows to the Payette River, which eventually discharges into the Snake River near Payette, Idaho. A TMDL for the Snake River – Hells Canyon (SR-HC) watershed, completed by Idaho DEQ and Oregon DEQ in July 2003 and approved by EPA in 2004 (SR-HC-TMDL, IDEQ and ODEQ 2004),[9] was developed for this reach of the Snake River. This SR-HC TMDL identifies phosphorus as an impairment to beneficial uses and calls for a reduction in phosphorus loading from sources, including the Payette River. The TMDL requires the Payette River to achieve a phosphorus load allocation of less than or equal to 70 µg/L during the critical season (May 1-September 30).

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 that WQBELs be based on low flow design conditions (See IDAPA 58.01.02.210.03) as defined in Table 3. The

[8] DEQ, 2009. *Middle Fork of the Payette River Sub basin TMDL Five Year Review*. February, 2009. Boise, Idaho. *https://www2.deq.idaho.gov/admin/LEIA/api/document/download/11963*

[9] SR-HC-TMDL, IDEQ and ODEQ, 2004. Snake River – Hells Canyon Total Maximum Daily Load. June, 2004. Idaho Department of Environmental Quality and Oregon Department of Environmental Quality. Boise, Idaho and Pendleton, Oregon. *https://www2.deq.idaho.gov/admin/LEIA/api/document/download/12095*

30Q5 represents the lowest average 30 consecutive day flow with a recurrence frequency of once in 5 years. For this permit, the low flow of the MFPR was used in Total Ammonia limit calculations see section 3.3.3.1.

Sources for data that DEQ examines are the United States Geological Survey (USGS), Idaho Department of Water Resources (IDWR) and other available data for the receiving water. For this permit, DEQ determined critical low flows upstream of the discharge from the USGS stream gauge 13237920. The estimated low flow for 30Q5 is presented in Table 3.

Table 3. Low flow design conditions for MFPR.

Flows	Annual Flow (cfs)
30Q5	82.2
Source: USGS 13237920 at Davies Bridge at Crouch, ID which is upstream of Outfall 001	

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
- Are present in the effluent monitoring data reported in the application, discharge monitoring reports (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

To determine POCs for further analysis, DEQ evaluated all pertinent and available information, such as the permit application, estimated discharge data provided by the facility, and TMDLs (if applicable). The wastewater treatment process for this facility includes both primary and secondary treatment in an SBR, with tertiary cloth filtration and UV disinfection before discharge to the constructed pond which eventually flows to the MFPR. In addition, a permanent generator will be installed to handle all emergency electrical needs for the facility. All process tanks and process piping will be buried to below frost depth and the tertiary treatment building will be heated to prevent freezing. Pollutants expected in the discharge from a facility with this type of treatment, include but are not limited to:

- TSS
- BOD_5
- *E. coli* bacteria
- pH
- Oil and grease
- Total Phosphorus
- Temperature
- Total Ammonia

3 Effluent Limits and Monitoring

Table 4 presents the effluent limits and monitoring requirements in the 2021 Permit.

Table 4. 2021 Permit - Effluent limits and monitoring requirements for Outfall 001

Parameter	Discharge Period	Units	Effluent Limits							Monitoring Requirements		Reporting Period (DMR Months)
			Monthly Average	Weekly Average	Monthly Geometric Mean	Instantaneous Minimum	Instantaneous Maximum	Daily Maximum	Maximum Daily Average	Sample Type	Sample Frequency	
Flow	01/01 to 12/31	mgd	0.076	—	—	—	—	Report	—	Grab[a] or Continuous[b]	Daily or Recorded	Monthly[c] (All Months)
BOD_5	01/01 to 12/31	mg/L	30	45	—	—	—	—	—	8-Hour Composite[d]	1/month	Monthly[c] (All Months)
		lb/day	19.0	28.5	—	—	—	—		Calculation[e]		
BOD_5 Percent Removal	01/01 to 12/31	%	85 (minimum)	—	—	—	—	—	—	Calculation[f]	1/month	Monthly[c] (All Months)
Total Suspended Solids (TSS)	01/01 to 12/31	mg/L	30	45	—	—	—	—	—	8-Hour Composite[d]	1/month	Monthly[c] (All Months)
		lb/day	19.0	28.5	—	—	—	—	—	Calculation[e]		
TSS Percent Removal	01/01 to 12/31	%	85 (minimum)	—	—	—	—	—	—	Calculation[f]	1/month	Monthly[c] (All Months)
E. coli bacteria	01/01 to 12/31	#/100mL	—	—	126[g]	—	Report[h,i]	—	—	Grab[a]	5/month	Monthly[c] (All Months)
pH[i]	01/01 to 12/31	s.u.	—	—	—	6.5	9.0	—	—	Grab[a] or Continuous[b]	Daily or Recording	Monthly[c] (All Months)
Ammonia, Total as N	01/01 to 12/31	mg/L	2.5	—	—	—	—	6.5	—	Grab[a]	2/month	Monthly[c] (All Months)
		lb/day	1.66	—	—	—	—	4.34	—	Calculation[d]		
Oil & Grease	01/01 to 12/31	mg/L	10	—	—	—	—	—	—	Grab[a]	2/month	Monthly[c] (All Months)
		lb/day	6.34	—	—	—	—	—	—	Calculation[d]		
Phosphorus, Total as P	01/01 to 12/31	mg/L	Report	—	—	—	—	Report	—	Grab[a]	1/month	Monthly[c] (May, June, July, August, September)
		lb/day	0.094	—	—	—	—	Report	—	Calculation[d]		
Temperature	07/16 to 9/30	°C	—	—	—	—	—	22	19	Grab[j] or Continuous[b,k,l]	5/week or Recorded	Season[c] (July, August, September)

Parameter	Discharge Period	Units	Effluent Limits							Monitoring Requirements		Reporting Period (DMR Months)
			Monthly Average	Weekly Average	Monthly Geometric Mean	Instantaneous Minimum	Instantaneous Maximum	Daily Maximum	Maximum Daily Average	Sample Type	Sample Frequency	
Temperature	10/1 to 07/15	°C	—	—	—	—	—	13	9	Grab[j] or Continuous[b,k,l]	5/week or Recorded	Season [c] (October, November, December, January, February, March, April, May, June, July)

a. A grab sample is an individual sample collected over a 15-minute period or less
b. Continuous means uninterrupted measurement during discharge except for brief lengths of time for calibration, power failure, or unanticipated equipment repair or maintenance. The time interval for the associated data logger must be capable of providing adequate data
c. When the facility does not discharge during a month, it may report the appropriate No Data Indicator (NODI) code "C" on the monthly DMR.
d. All 8-hour composite sampling must be flow –paced and must include at least 3 samples for each discharge cycle. The composite sample must include, at a minimum, samples collected at the start, in the middle, and at the end of each decant event for the 8-hour sampling period.
e. Calculation - Calculated means figured concurrently with the respective sample, using the following formula: Concentration (in mg/L) X Flow (in mgd) X Conversion Factor (8.34) = lb/day
f. Percent removal is calculated: % Removal = ([Influent](mg/L)-[Effluent](mg/L))/([Influent](mg/L))×100%
g. The average monthly E. coli bacteria counts must not exceed a geometric mean of 126 #/100 ml based on a minimum of five samples taken every 3 – 7 days within a calendar month.
h. Idaho's water quality standards for primary contact recreation include a single sample value of 406 #/100 ml. Exceedance of this value indicates likely exceedance of the 126 #/100 ml average monthly effluent limit. 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.
i. Exceedance of a maximum daily limit, instantaneous maximum limit, or instantaneous minimum limit 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#/100 mL. Please see 2.2.7 of the permit for additional 24-hour reporting requirements.
j. Grab samples collected five times per week are acceptable for temperature monitoring until continuous monitoring is required.
k. Continuous temperature monitoring at Outfall 001 must begin within eight months of the effective date of this permit. Until that time, five grab samples per week are acceptable.
l. DEQ acknowledges that uninterrupted data collection is not guaranteed due to vandalism, theft, damage, disturbance, power interruption, etc. In the event of equipment failure or loss, the permittee must notify DEQ and deploy new equipment to minimize interruption of data collection. If new equipment cannot be immediately deployed, the permittee must monitor grab measurements daily between 8 a.m. and 5 p.m. or describe frequency when continuous monitoring is not possible until continuous monitoring equipment is redeployed.

3.1 Basis for Effluent Limits or Monitoring

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

TBELs are set according to the level of treatment that is achievable using available technology. TBELs are based upon the treatment processes used to reduce specific pollutants. TBELs are set by the EPA and published as a regulation. 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).

WQBELs are calculated so the effluent will comply with the Surface Water Quality Standards (IDAPA 58.01.02) or the National Toxics Rule (40 CFR 131.36) applicable to the receiving water.

DEQ must apply the most stringent of the TBEL and WQBEL limits to each POC (IDAPA 58.01.25.302.06). 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 5.

TBELs may be established through application of EPA-promulgated (Effluent Limit Guidelines (ELGs) or on a case-by-case basis under Section 401(a)(1) of the CWA (referred to as best professional judgment (BPJ) effluent limitations), or through a combination of these methods (through 40 CFR 125.3(c) and incorporated by reference at IDAPA 58.01.25.003.02(n)). Though this facility is a privately owned treatment works (PrOTW) that will only process domestic wastewater, EPA has not promulgated ELGs for the resort industry that would directly apply. Therefore, DEQ must establish effluent limits using BPJ and must, at a minimum, use publicly owned treatment works (POTW) TBELs for secondary treatment. The following section explains secondary treatment effluent limits for 5-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), and pH. These effluent limits, found in 40 CFR 133, are outlined in Table 5.

Table 5. Secondary Treatment Standards Effluent Limits (40 CFR 133.102).

Parameter	30-day average	7-day average
BOD_5	30 mg/L	45 mg/L
TSS	30 mg/L	45 mg/L
Removal for BOD_5 and TSS (concentration)	85% (minimum)	—
pH	6.0 – 9.0 s.u.	

For conventional pollutants, the CWA requires effluent limits based on the best conventional pollutant control technology (BCT), and, for toxic and non-conventional pollutants, effluent

limits based on the best available technology economically achievable (BAT) (CWA Section 301(b) and 40 CFR 125.3(a)(2)).

For new dischargers other than publicly owned treatment works (POTWs), the CWA requires effluent limits based on the best practicable control technology currently available (BPT), as is referenced in section 2 of the *IPDES Effluent Limit Development Guidance* (DEQ, 2017). [10]

DEQ evaluated EPA's fact sheet *Wastewater Technology Fact Sheet: Sequencing Batch Reactors*, (EPA 1999)[11], where SBR treatment systems were explained to be capable of an effluent containing less than: 10mg/L for BOD_5, 10 mg/L for TSS, 5-8 mg/L for total nitrogen (TN), and 1-2 mg/L for total phosphorus (TP). (Refer to sections 3.3.3.1and 3.3.3.4 for additional discussion of TN and TP.)

Table 6. EPA fact sheet estimates of SBR performance.

Parameter	30-day average
BOD_5	10 mg/L
TSS	10 mg/L
Removal for BOD_5 and TSS (concentration)	85% (minimum)
pH	6.0-9.0 s.u.

The data EPA evaluated for the fact sheet (influent data for parameters such as BOD_5 and TSS) to develop these performance estimates were not available for consideration. However, the removal efficiency for BOD_5 and TSS were listed at 85%, which is the same as secondary treatment standards (40 CFR 133.102). Therefore, the secondary treatment standards for BOD_5 and TSS will be applied. (Refer to section 3.2.1 for details on mass-based limits and to section 3.3.3.3 for additional pH discussion.)

Effluent limits for dischargers other than POTWs shall, unless impracticable, be stated as maximum daily and average monthly discharge limits. Though this facility is a PrOTW, it will only process domestic wastewater, which is similar to a POTW where secondary treatment standards are applicable and use average monthly and average weekly limits (IDAPA 58.01.25.303.04). Therefore, average monthly and maximum daily limits for BOD_5 and TSS will be expressed as an average monthly limit and average weekly limit.

3.2.1 Mass-Based Limits

IDAPA 58.01.25.303.06 requires that effluent limits be expressed in terms of mass, except under certain conditions. IDAPA 58.01.25.303.02 requires that effluent limits for POTWs (or PrOTW's) 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:

$$\textit{Mass based limit (lb/day)} = \textit{concentration limit (mg/L)} \times \textit{design flow (mgd)} \times 8.34^{12}$$

[10] DEQ, 2017. IPDES Effluent Limit Development Guidance. December, 2017. Boise, Idaho. *https://www2.deq.idaho.gov/admin/LEIA/api/document/download/4819*
[11] EPA, 1999. EPA 932-F-99-073: Wastewater Technology Fact Sheet: Sequencing Batch Reactors. September 1999. Office of Water, Washington D. C. *https://www3.epa.gov/npdes/pubs/sbr_new.pdf*
[12] 8.34 is a conversion factor with units (lb ×L)/(mg × gallon×10^6)

Since the design flow for this facility is 0.076 mgd, the technology-based mass limits for:

BOD_5

Average Monthly Limit = 30 mg/L × 0.076 mgd × 8.34 = 19.0 lb/day

Average Weekly Limit = 45 mg/L × 0.076 mgd × 8.34 = 28.5 lb/day

TSS

Average Monthly Limit = 30 mg/L × 0.076 mgd × 8.34 = 19.0 lb/day

Average Weekly Limit = 45 mg/L × 0.076 mgd × 8.34 = 28.5 lb/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 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).

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 (IDAPA 58.01.25.302.06.a.ii). The limits must be stringent enough to ensure that WQS are met and must be consistent with any available TMDL WLA for the discharge (IDAPA 58.01.25.302.06.a.vii). 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 Reasonable Potential Analysis (RPA) and Need for Water Quality-Based Effluent Limits

DEQ uses the process described in the *Effluent Limit Development Guidance* (DEQ 2017) to determine whether there is reasonable potential for the discharge to cause or contribute to an exceedance of water quality criteria (WQC). To determine if there is reasonable potential 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 will not be impaired, all designated uses are maintained, and acutely toxic conditions are prevented.

Based on the receiving water use as domestic water supply, proximity of the discharge to the Rivers Point Property Owners Association drinking water intake, and no operating data available during this permitting process, no mixing zones were requested, proposed, or provided.

3.3.3 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.

3.3.3.1 Ammonia, Total as N

Ammonia criteria are based on a formula 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 USGS stream gauge (13237920) located near Davey's Bridge on Banks Lowman Road (State Highway 17) southwest of Crouch, Idaho, monitors flow but not temperature. Therefore, only limited temperature data for MFPR were available from DEQ Beneficial Use Reconnaissance Program (BURP) collected between 1994 and 2016 (n=12), the National Rivers and Streams Assessment in 2014 (NRSA) (n=1), and the permittee at USGS station 13237920 in 2021 (n=26).

The WQS criteria are dependent on pH and temperature; this is because the fraction of ammonia present as the toxic, unionized form increases with increasing pH and temperature. Therefore, the criteria become more stringent as pH and temperature increase.

An annual estimate was calculated for receiving water temperature and pH at the 90th percentile based on the above sources. This annual estimate was then used to calculate an acute (criterion maximum concentration [CMC]) and chronic (criterion continuous concentration [CCC]) criterion of 7.41 mg/L and 2.68 mg/L, respectively. Refer to Table 7 for cold water with early stages present equations used to determine WQC for ammonia.

Table 7. Ammonia Criteria.

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

INPUT	
1. Receiving Water Temperature (deg C):	16.2
2. Receiving Water pH:	7.85
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)	**7.41**
Chronic Criterion (CCC)	**2.68**

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

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

There is no data available to conduct a reasonable potential analysis because this is a new facility. Therefore, DEQ calculated water quality-based effluent limits for ammonia which are applied as end-of-pipe limits.

Refer to Appendix B for equations used for WQBEL aquatic life criteria calculations and Table 15 for effluent limit calculations for ammonia.

3.3.3.2 E. coli

The Idaho WQS states that waters of the State of Idaho that are designated for recreation (primary or secondary) are not to contain *E. coli* bacteria in concentrations exceeding a geometric mean of 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 the effluent five times per month ensures 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 58.01.25.010.06 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.

3.3.3.3 pH

The Idaho WQS at IDAPA 58.01.02.250.01.a, require 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. Therefore, pH limits of 6.5 to 9.0 will be applied instead of secondary standards of 6.0 to 9.0.

3.3.3.4 Phosphorus, Total as P

Total phosphorus has no numeric criteria; however, dischargers are required to meet narrative criteria in IDAPA 58.01.02.200.

The EPA-approved Middle Fork of the Payette River Subbasin Assessment and Total Maximum Daily Load (DEQ 2000) establishes no WLAs for this facility. However, the MFPR is a tributary to the Payette River. The SR-HC TMDL (IDEQ and ODEQ, 2004) establishes a load allocation of 0.070 mg/L for the Payette River at its mouth for the season of May – September (see Table 4.0.9 on Page 447, SR-HC TMDL). There is no assimilative capacity in the Payette River because phosphorus concentrations are above the 0.070 mg/L target. Therefore, the discharge of phosphorus has the reasonable potential to cause or contribute to excursions above water quality standards, and the permit establishes an effluent limit of 0.070 mg/L during the months of May through September.

$$TP\ Daily\ Load = \frac{0.070\ mg}{L} \times \frac{0.076\ million\ gal}{day} \times \frac{8.34\ lbs}{gallon} = 0.044\ lb/day$$

A maximum daily limit was not included as it is not appropriate for nutrients with far field effects (see DEQ 2017, IPDES Effluent Limit Development Guidance (ELDG), section 3.7.1.3). Using an assumed coefficient of variation (CV) of 0.6 for TP loads and the proposed sampling schedule of once per month, an average monthly limit (AML) load based on this WLA was calculated (Appendix B, Table 15). The AML for TP is 0.094 lb/day.

3.3.3.5 Temperature

The water quality criteria for temperature in MFPR are as follows:

- July 16 – September 30 (cold water aquatic life): 22 °C or less with a maximum daily average of no greater than 19 °C.
- October 1 – July 15 (cold water and salmonid spawning): 13 °C or less with a maximum daily average of no greater than 9 °C.

From July 16 – September 30, when cold water aquatic life criteria apply, and from October 15 – July 15, when the cold water salmonid spawning criteria apply, it is unknown if the receiving water has assimilative capacity to dilute a heat discharge, so no mixing zone has been authorized. As a result, the cold water aquatic and salmonid spawning temperature criteria are applied as end-of-pipe limits at Outfall 001for the daily average and maximum daily average limits.

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.

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 contains a narrative limitation prohibiting the discharge of such materials or any violation of narrative WQC.

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 CWA, 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.

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.

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 *Middle Fork of the Payette River Subbasin Assessment and Total Maximum Daily Load* (July, 2000) establishes no WLAs for this facility. However the SR-HC TMDL does establish a WLA of 0.07 mg/L TP WLA (May to September) for the Payette River, for which the MFPR is a tributary. The effluent limits and associated requirements contained in the 2021 permit are set at levels that ensure compliance with the narrative and numeric criteria in the WQS. Therefore, DEQ has determined the permit will protect and maintain existing and designated beneficial uses in the MFPR in compliance with the Tier I provisions of Idaho's WQS (IDAPA 58.01.02.051.01 and 58.01.02.052.07).

According to DEQ's 2018/2020 Integrated Report this AU has been assessed for and found to be not fully supporting of cold water aquatic life because of both temperature and sedimentation/siltation. Therefore, the aquatic life beneficial use shall receive Tier I protection.

3.5.2 High-Quality Waters (Tier II Protection)

The MFPR is considered high quality for primary contact recreation and therefore receives Tier II protection for this beneficial use. As such, the water quality relevant to primary contact recreation of the MFPR must be maintained and protected, unless degradation to 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 that is relevant to primary contact recreation uses of the MFPR (IDAPA 58.01.02.052.06); this includes *E. coli* and ammonia**.** Effluent limits are set in the 2021 permit for these pollutants. Nutrients, which could indirectly affect primary contact recreation, were also reviewed.

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

3.5.3 Pollutants impacting beneficial use

To determine whether degradation may occur due to the permit's effluent limits, DEQ must evaluate how the discharge could affect water quality for pollutants relevant to antidegradation of the primary contact recreation use. Typically, primary recreation beneficial use evaluation includes review of toxics and/or bacteria (DEQ WBAG, 2016). This permittee has no industrial users and will accept only domestic waste into its treatment facility; therefore, toxics are not suspected pollutants of concern at this time. However, nutrients can promote algal blooms, which indirectly impacts the primary contact beneficial use. Therefore, both bacteria and nutrients have been evaluated in accordance with IDAPA 58.01.01.52.08.a.i, to review whether the decrease in assimilative capacity is equal to or less than ten percent (10%), whereby the degradation is deemed insignificant. A summary of these pollutants' impacts on assimilative capacity is found in Table 8 (refer to sections 3.5.3.1 and 3.5.3.2 for additional information and details).

Table 8. Table of pollutant impact on degradation.

Use	Pollutant	Change in Receiving Water Assimilative Capacity	<10%
Primary Contact Recreation	*E. Coli*	0.1%	Yes
	Nutrients (TP and Others)	0.1%	Yes
	Ammonia (total as N)	0.1%	Yes

Based on this data, impact on the MFPR's assimilative capacity from the permittee's discharge is expected to be insignificant for the MFPR primary contact beneficial use. As such, the proposed permit should maintain the existing high water quality in the MFPR and DEQ concludes that this permit complies with the Tier II provisions of Idaho's WQS (IDAPA 58.01.02.051.02 and IDAPA 58.01.02.052.06).

3.5.3.1 E. Coli

The Idaho WQS states that waters of the State of Idaho that are designated for recreation (primary or secondary) are not to contain *E. coli* bacteria in concentrations exceeding a geometric mean of 126 organisms per 100 mL based on a minimum of five samples taken every three to seven days over a 30-day period. There are no TBELs for fecal coliform or *E. coli*, therefore, the permit contains a monthly geometric mean WQBEL for *E. coli* of 126 organisms per 100 mL (IDAPA 58.01.02.251.01.a.). Monitoring the effluent five times per month ensures compliance with the criterion can be assessed.

Permit limits were evaluated against background MFPR data to determine impact on assimilative capacity. Because the loss of assimilative capacity for *E. coli* was calculated to be 0.1%, the impact is considered insignificant for the primary contact beneficial use in accordance with 58.01.02.052.08.a.i (see Figure 2). Therefore, DEQ has determined that additional Tier II antidegradation analyses are not required for *E. coli*.

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
	↓	↓			70	7
Upstream #1 Condition	87.947	0	70			
Discharge #1 Conditions						
Permitted now	0	0				
Permit proposed	0.118	70				
Downstream #1		Mixed WQ	Change in WQ	% loss of RAC		
Potential Now	87.947	0.0				
Potential Future	88.065	0.1	0.1	0.1%		

MGD to cfs converter tool		
MGD		*cfs*
	→	0.000
0.00	←	

Cumulative change in potential downstream WQ with both proposed discharges

			0.1	0.1%

Figure 2. *E. coli* loss of assimilative capacity.

3.5.3.2 Nutrients (phosphorus and nitrogen)

Non-toxic nutrients such as phosphorus and nitrogen do not have numeric WQC in Idaho's WQS. Though, phosphorus does have a load allocation in the Payette River for the months of May through September (see section 3.3.3.4 for additional discussion), these pollutants are regulated by narrative criteria in Idaho's WQS at IDAPA 58.01.02.200.06. Without a numeric WQC to use in a loss of assimilative capacity calculation, DEQ used BPJ to estimate impacts for phosphorus and nitrogen. For phosphorus, the SR-HC TMDL TP limits for May through September were evaluated to estimate significance of phosphorus on potential degradation. For nitrogen, ammonia limits were evaluated to estimate impacts on potential degradation. Significant reduction of assimilative capacity was evaluated as described at IDAPA 58.01.02.052.08.a.i.

Reduction of assimilative capacity for TP estimates are shown in Figure 3. The loss of assimilative capacity for TP is 0.1%, which was less than 10% maximum reduction in assimilative capacity requirement in IDAPA 58.01.02.052.08.a.i. Therefore, the loss of assimilative capacity is insignificant and additional Tier II antidegradation analyses are not necessary.

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
	↓	↓			70	7
Upstream #1 Condition	87.947	0	70			
Discharge #1 Conditions						
Permitted now	0	0				
Permit proposed	0.118	70				
Downstream #1		Mixed WQ	Change in WQ	% loss of RAC		
Potential Now	87.947	0.0				
Potential Future	88.065	0.1	0.1	0.1%		

MGD to cfs converter tool		
MGD		*cfs*
	→	0.000
0.00	←	

Cumulative change in potential downstream WQ with both proposed discharge

0.1	0.1%

Figure 3. Phosphorus (Total as P) loss of assimilative capacity

Similarly, the loss of assimilative capacity for nitrogen-based nutrients was calculated for ammonia (see Figure 4). The reduction of assimilative capacity for ammonia is 0.1%, also less than 10%. Therefore, the loss of assimilative capacity is insignificant and additional Tier II antidegradation analyses are not necessary.

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] 6516	10% RAC 651.6
	↓	↓				
Upstream #1 Condition	87.947	0	6516			
Discharge #1 Conditions						
Permitted now	0	0				
Permit proposed	0.117	6516				
Downstream #1		Mixed WQ	Change in WQ	% loss of RAC		
Potential Now	0	0.0				
Potential Future	0.12	8.7	8.7	0.1%		
Cumulative change in potential downstream WQ with both proposed discharge:			8.7	0.1%		

MGD to cfs converter tool		
MGD		cfs
	→	0.000
0.00	←	

Figure 4. Ammonia (Total as N) as estimate of loss of assimilative capacity

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_5 monitoring requirements are listed below in Table 9. 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 9. Influent monitoring requirements

Parameter	Monitoring Period	Units	Sample Frequency	Sample Type	Report	Reporting Period (DMR Months)
BOD_5	01/01 to 12/31	mg/L	2/month	Grab[a]	Monthly Average	Monthly[b] (All months)
TSS	01/01 to 12/31	mg/L	2/month	Grab[a]	Average Monthly	Monthly[b] (All months)

a. A grab sample is an individual sample collected over a 15-minute period or less.
b. When the facility does not discharge during a month, it may report the appropriate NO Data Indicator (NODI) code "7: No Influent" on the monthly DMR.

4.2 Additional 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.

Pollutants that must be monitored but do not have effluent limits are presented in Table 10. 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 using the appropriate No Data Indicator (NODI) code "C".

Table 10. Additional effluent monitoring for Outfall 001

Parameter	Monitoring Period	Units	Sample Frequency	Sample Type	Report	Reporting Period (DMR Months)
Dissolved Oxygen	01/01-12/31	mg/L	Quarterly[a]	Grab[b]	Quarterly Maximum	Quarterly (March, June, September, December)[c]
Nitrate-Nitrite, Total as TN	01/01-12/31	mg/L	Quarterly[a]	Grab[b]	Quarterly Maximum	Quarterly (March, June, September, December)[c]

a. 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. Monitoring results for pollutants with a sample frequency of quarterly must be reported on the March, June, September, and December DMRs.
b. A grab sample is an individual sample collected over a 15-minute period or less.
c. When the facility does not discharge during a quarter, it must report the appropriate No Data Indicator (NODI) code "C: No Discharge" on the monthly or quarterly DMR.

4.3 Receiving Water Monitoring

Receiving water monitoring must be done to assess the assimilative capacity of the receiving water for pollutants. The MFPR is impaired for temperature, and a continuous temperature monitor must be established in the receiving water beginning six months after the effective date of this permit.

Table 11 presents the receiving water monitoring requirements for the permit. The permittee must establish receiving water monitoring at locations required by the permit. Receiving water monitoring results must be submitted with the DMR.

Table 11. Receiving water monitoring requirements for the upstream MFPR monitoring site REC1.

Parameter	Monitoring Period	Units	Frequency	Sample Type	Report	Reporting Period (DMR Months)
Temperature [a]	01/01 to 12/31	°C	1/month Grab[a,b] or Continuous[c]	Grab or Recorded	Monthly Average, Daily Maximum	Monthly (All months)
pH [a]	01/01 to 12/31	Standard Units	1/month Grab[a,b] or Continuous[c]	Grab or Recorded	Instantaneous Minimum and Maximum	Monthly (All months)

a. Though continuous monitors are preferred, grab samples are acceptable for monitoring receiving water temperature and pH at REC1.
b. A grab sample is an individual sample collected over a 15-minute period or less. Grab samples must be collected during the warmest part of the day (between 2 and 4 pm). Temperature and pH must be analyzed within 15 minutes of grab sample collection.
c. Continuous means uninterrupted except for brief lengths of time for calibration, power failure, or unanticipated equipment repair or maintenance. The time interval for the associated data logger must be no greater than 60 minutes.

4.4 Permit Renewal Monitoring

The permit renewal monitoring requires data collected to characterize the effect of the effluent on the MFPR. At a minimum, three samples of the final wastewater effluent for the parameters listed in Table 12 are required so that DEQ can assess the surface water impacts.

Table 12. 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[a] (May – October)	°C	Grab or Continuous	
Temperature[a] (November – April)			
BOD5	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	

a. The permittee must collect during the warmest month if monitoring is scheduled May-October or the coldest month if scheduled November-April.

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

- 2022: Fourth quarter (October – December)
- 2024: First quarter (January – March)
- 2025: Second quarter (April – June)
- 2026: Third quarter (July – September)

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

5 Special Conditions

5.1 Compliance Schedule

DEQ has determined discharge from The Edge Resort meets the criteria for new source determination in accordance with IDAPA 58.01.25.120, therefore, a compliance schedule is not applicable.

5.2 Plans

5.2.1 Spill Control Plan

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

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.

6.1.1 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 effluent and receiving water monitor sampling. 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.

6.1.2 Operation and Maintenance Manual

The permit requires the permittee 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 develop, implement, and maintain an operation and maintenance plan for its facility. The plan must be retained onsite and made available to DEQ upon request.

6.1.3 Emergency Response Plan

The permittee must develop 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.
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.
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 standards for the use or disposal of sewage sludge 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 58.01.16.480 and 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 or Modification

The permit will expire five years after the effective date.

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.

9 References for Text and Appendices

DEQ. 2000. *Lower Payette River Subbasin Assessment and Total maximum Daily Load*. Idaho Department of Environmental Quality. State Office. July 2000. *https://www2.deq.idaho.gov/admin/LEIA/api/document/download/11983*

DEQ. 2007. *Middle Fork Payette River Temperature Total Maximum Daily Loads: Addendum to the Middle Fork Payette River Subbasin Assessment and TMDL*. Idaho Department of Environmental Quality. State Office. December 2007. *https://www2.deq.idaho.gov/admin/LEIA/api/document/download/11962*

DEQ. 2014. *Geography and Timing of Salmonid Spawning in Idaho*. Idaho Department of Environmental Quality. State Office. December 2014.

IDEQ and ODEQ. 2004. *Snake River - Hells Canyon Total Maximum Daily Load (TMDL)*. Idaho Department of Environmental Quality and Oregon Department of Environmental Quality. Revised June 2004. *https://www2.deq.idaho.gov/admin/LEIA/api/document/download/12095*

DEQ. 2016. *Public Participation in the Permitting Process.* Boise, ID: DEQ, State Office. Online at: *https://www2.deq.idaho.gov/admin/LEIA/api/document/download/4814*

DEQ. 2017. *Effluent Limit Development Guidance*. Idaho Department of Environmental Quality. State Office. December 2017. Online at: *https://www2.deq.idaho.gov/admin/LEIA/api/document/download/4819*

DEQ. 2020. *Idaho's 2018 Integrated Report*. Boise, ID: DEQ, State Office. Online at: *https://mapcase.deq.idaho.gov/wq2020/default.html*

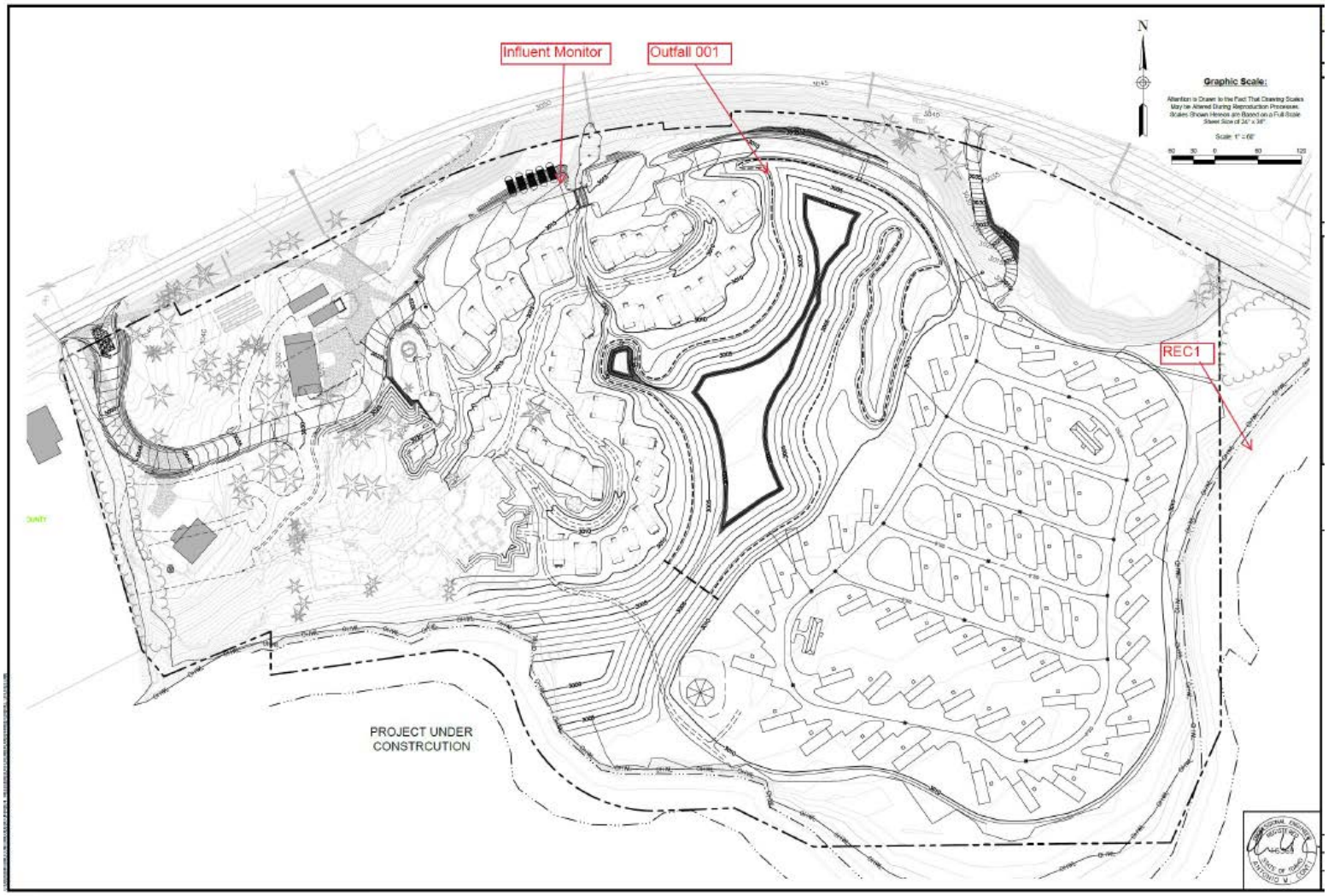
EPA (Environmental Protection Agency). 1999. Guidance Manual for the Control of Wastes Hauled to Publicly Owned Treatment Work. Office of Water, Washington, DC. U.S. Environmental Protection Agency, 20460. EPA-833-B-98-003. *https://www3.epa.gov/npdes/pubs/hwfinal.pdf*

EPA (Environmental Protection Agency). 1999. *Wastewater Technology Fact Sheet: Sequencing Batch Reactors*. Office of Wastewater Management, Washington, DC. U.S. September, 1999. EPA 932-F-99-073. *https://www3.epa.gov/npdes/pubs/sbr_new.pdf*

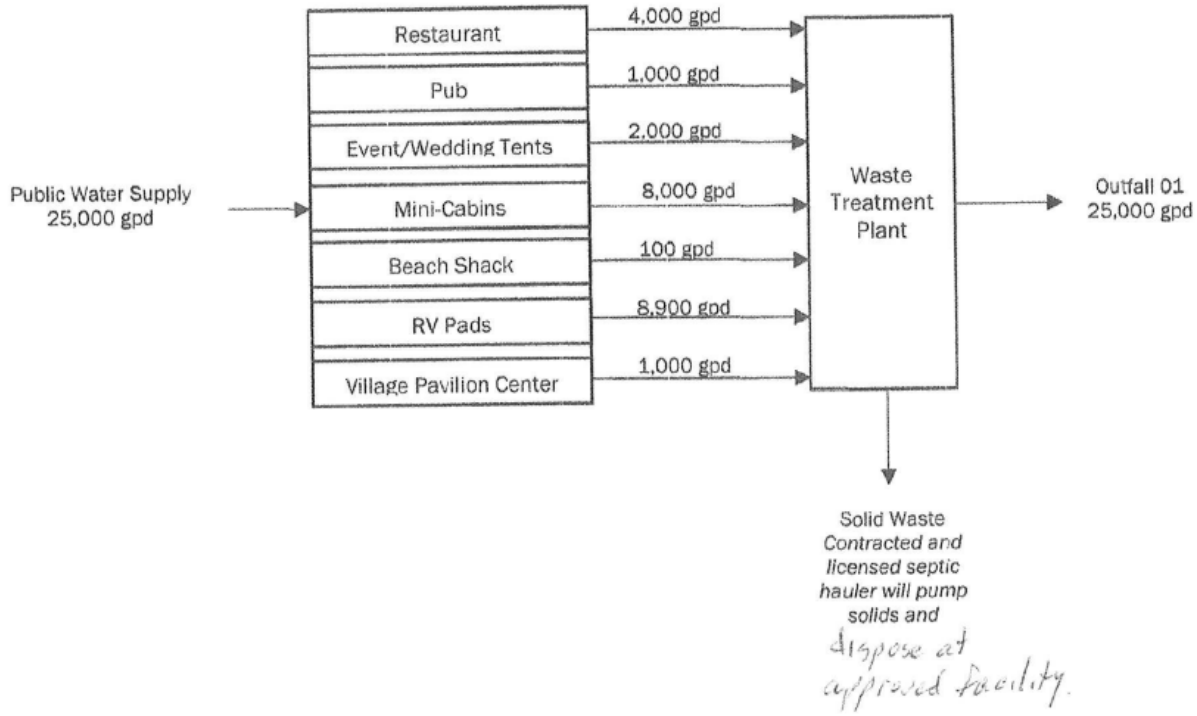
Idaho Department of Fish and Game. 2019. *Fisheries Management Plan, 2019-2024*. Idaho Department of Fish and Game Commission. June 2019.

Appendix A. Facility Maps/Process Schematics

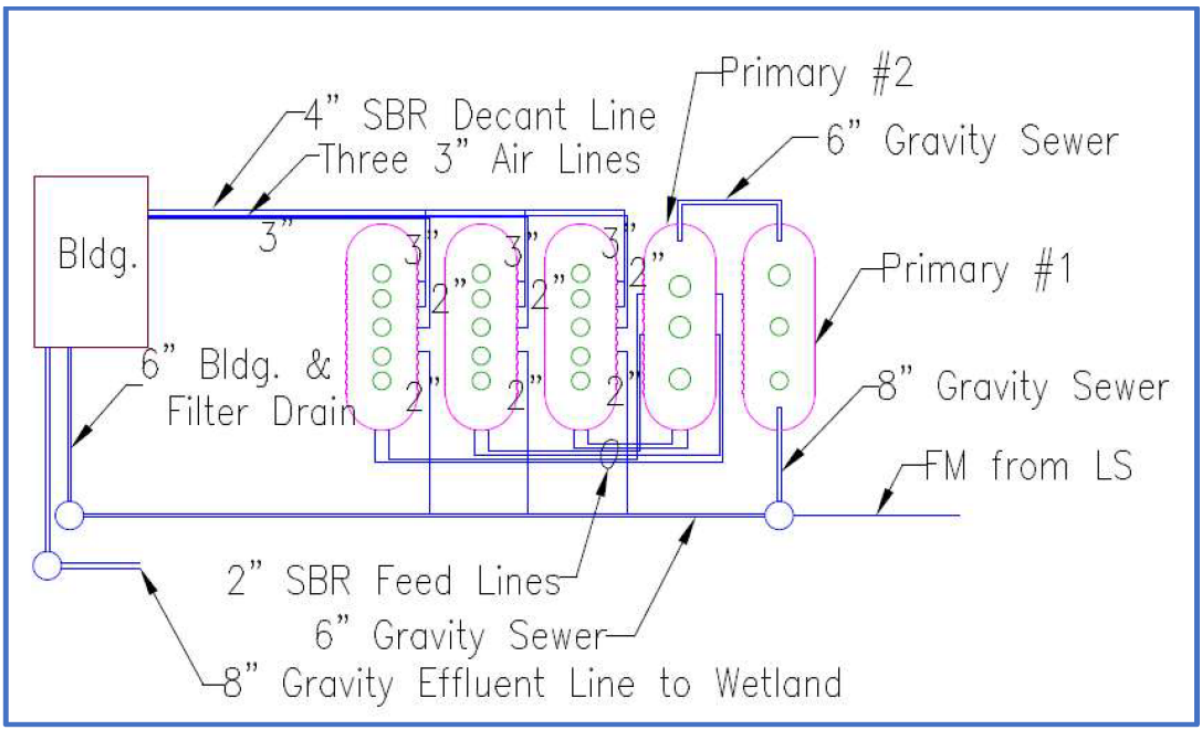
A. Map



B. Treatment Process Schematic



C. SBR Treatment



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 and TSS.

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 *E. coli* and phosphorus 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 2017) to determine reasonable potential. After characterizing the effluent and receiving water, DEQ compares the projected receiving water concentration after the effluent is discharged to the water quality criteria for the pollutant of concern. If the projected concentration exceeds the criterion, there is reasonable potential and an effluent limit is developed.

If DEQ chooses to authorize a mixing zone, the water quality criteria must still be met at the edge of the mixing zone. If after the analysis of the mixing zone, water quality critieria are not being met, the facility will receive an effluent limit that identifies both the size of the mixing zone and the final effluent limit.

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 2017) 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 2017).

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

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.

C. WQBEL Calculations

The following calculations demonstrate how the WQBELs in the permit were calculated. The permit includes WQBELs for ammonia. For this permit, since mixing zones are not authorized, the criterion for ammonia is used as a wasteload allocation. 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:

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

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

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 PrOTW)
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. The rules regulating the IPDES program (IDAPA 58.01.25.303.03) 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 2017):

$$LTA_a = WLA_a \times e^{(0.5\sigma^2 - z_{99}\sigma)}$$ **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 2017) 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 ~~samples~~samples 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 13. Receiving water temperature and pH

Data Source	Date	Water temp	pH
		°C	su
DEQ-BURP Sample ID-1994SBOIA044	7/20/1994	24	
DEQ-BURP Sample ID-1994SBOIA043	7/20/1994	18	
DEQ-BURP Sample ID-1994SBOIA042	7/20/1994	15	
DEQ-BURP Sample ID-1995SBOIC028	8/15/1995	8	
DEQ-BURP Sample ID-1996SBOIA078	8/7/1996	8	
DEQ-BURP Sample ID-1997SBOIA074	8/21/1997	17	
DEQ-BURP Sample ID-1997SBOIBO72	8/20/1997	15	
DEQ-BURP Sample ID-2007SBOIA081	8/1/2007	22.4	
DEQ-BURP Sample ID-2007SBOIA132	8/22/2007	13.2	
DEQ-BURP Sample ID-2010SDEQA1284	8/29/2010	7.87	
DEQ-BURP Sample ID-2016SBOIA033	8/9/2016	8.5	
DEQ-BURP Sample ID-2016SBOIA052	9/7/2016	12.5	
NRSA Field Form number IDLS-1082	8/27/2014	15	8.36
From permittee, measured at USGS 13237920	4/19/2021	5.9	7.55
From permittee, measured at USGS 13237920	4/20/2021	5.7	7.75
From permittee, measured at USGS 13237920	4/21/2021	8.0	7.86
From permittee, measured at USGS 13237920	4/22/2021	7.0	7.87
From permittee, measured at USGS 13237920	4/23/2021	6.4	7.79
From permittee, measured at USGS 13237920	4/24/2021	7.4	7.63
From permittee, measured at USGS 13237920	4/25/2021	6.2	7.71
From permittee, measured at USGS 13237920	4/26/2021	7.7	7.73
From permittee, measured at USGS 13237920	4/27/2021	8.8	7.78
From permittee, measured at USGS 13237920	4/28/2021	8.2	7.61
From permittee, measured at USGS 13237920	4/29/2021	11.4	7.71
From permittee, measured at USGS 13237920	4/30/2021	9.0	7.65
From permittee, measured at USGS 13237920	5/1/2021	9.4	7.62
From permittee, measured at USGS 13237920	5/2/2021	11.6	7.55
From permittee, measured at USGS 13237920	5/3/2021	6.9	7.6
From permittee, measured at USGS 13237920	5/4/2021	8.5	7.58
From permittee, measured at USGS 13237920	5/5/2021	10.2	7.65
From permittee, measured at USGS 13237920	5/6/2021	13.7	7.71
From permittee, measured at USGS 13237920	5/7/2021	9.6	7.74
From permittee, measured at USGS 13237920	5/8/2021	7.9	7.68
From permittee, measured at USGS 13237920	5/9/2021	6.9	7.81
From permittee, measured at USGS 13237920	5/10/2021	6.9	7.64

Table 14. The Edge Resort WQBEL Calculations

Water Quality Effluent Limit (WQBEL) Calculations

Facility Name	The Edge Resort
Facility Peak Daily Flow (mgd)	0.0799
Facility Flow (cfs)	0.12353

Critical River Flows	(IDAPA 58.01.02 03. b)	Annual Crit. Flows	Units
Aquatic Life - Acute Criteria - Criterion Max. Concentration (CMC)	1Q10	42.55400	cfs
Aquatic Life - Chronic Criteria - Criterion Continuous Concentration (CCC)	7Q10 or 4B3	67.91000	cfs
Ammonia	30B3/30Q10 (seasonal)	87.94700	cfs
Human Health - Non-Carcinogen	30Q5	82.18100	cfs
Human Health - carcinogen	Harmonic Mean Flow	172.63000	cfs

Receiving Water Data		Notes:	Annual
Hardness, as mg/L $CaCO_3$	Hardness, as mg/L $CaCO_3$	5th prctile at critical flow	35.4
Temperature, °C	Temperature, °C	90th - 95th percentile	16.2
pH, S.U.	pH, S.U.	90th - 95th percentile	7.85

Pollutants of Concern			AMMONIA, default: cold water, fish early life stages present
Applicable Water Quality Criteria	Aquatic Life Criteria, µg/L	Acute	7,412.086
	Aquatic Life Criteria, µg/L	Chronic	2,680.982
Calculated Dilution Factors (DF) (or enter Modeled DFs)	Aquatic Life - Acute	1Q10	1.00
	Aquatic Life - Chronic	7Q10 or 4B3	
		30B3 or 30Q10	
	Human Health - Non-Carcinogen and Chronic Ammonia	Harmonic Mean	1.00
	Human Health - Carcinogen	Harmonic Mean	

Aquatic Life Effluent Limit Calculations

Number of Compliance Samples Expected per month (n)			2
n used to calculate AML (if chronic is limiting then use min=4 or for ammonia min=30)			30
LTA Coeff. Var. (CV), decimal	(Use CV of data set or default = 0.6)		0.600
Permit Limit Coeff. Var. (CV), decimal	(Use CV from data set or default = 0.6)		0.600
Acute WLA, ug/L	C_d= (Acute Criteria x MZ_a) - C_ux (MZ_a-1)	Acute	7,412
Chronic WLA, ug/L	C_d= (Chronic Criteria x MZ_c) - C_{ux}(MZ_c-1)	Chronic	2,681
Long Term Ave (LTA), ug/L	WLAc x exp(0.5σ^2-zσ), Acute	99%	2,379
(99th % occurrence prob.)	WLAa x exp(0.5σ^2-zσ); ammonia n=30, Chronic	99%	2,092
Limiting LTA, ug/L	used as basis for limits calculation		2,092
Applicable Metals Criteria Translator (metals limits as total recoverable)			
Average Monthly Limit (AML), ug/L , where % occurrence prob =		95%	2,489
Maximum Daily Limit (MDL), ug/L , where % occurrence prob =		99%	6,516
Average Monthly Limit (AML), mg/L			2.5
Maximum Daily Limit (MDL), mg/L			6.5
Average Monthly Limit (AML), lb/day			1.657
Maximum Daily Limit (MDL), lb/day			4.340

Table 15. Total Phosphorus TMDL Derived Monthly Limit

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

Phosphorus

ENTER TMDL WLA:	0.044	lb/day
Facility Flow:	0.079853	mgd
Design Flow:	0.123532591	cfs

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

Number of Samples per Month (n)				1
Number of Samples per Week Set (n/4)				0.25
(i.e. 4 if sampling weekly for a month)				
Coefficient of Variation (CV) = Std. Dev./Mean				0.6
weekly σ	σ = std deviation			0.944
	σ^2=ln(CV^2/(n/4)+1)			0.892
monthly σ	σ n= std deviation			0.555
	σn^2=ln(CV^2/n+1)			0.307
Average Monthly Limit (AML),	exp(zσ_n-0.5zσ_n^2); where % probability basis =	95%	Z= 1.64	2.13
Maximum Daily Limit (MDL),	exp(zσ-0.5zσ^2); where % probability basis=	99%	Z= 2.33	3.12
Average Weekly Limit (AWL),	exp(z$\sigma_{n/4}$-0.5z$\sigma_{n/4}^2$); where % probability basis =	99%	Z= 2.33	5.76
Ratio AWL/AML				2.70

Calculation:	LTA, Limiting	x	Multiplier	=	Limit	
AML = LTA, limiting x Multiplier	0.044	x	2.13	=	0.094	lb/day
MDL = LTA, limiting x Multiplier	0.044	x	3.12	=	0.137	lb/day
AWL = AML x Multiplier	0.094	x	2.70	=	0.253	lb/day
AAL/AAS=					0.044	lb/day

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. 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 issue a permit to The Edge Resort. The permit includes wastewater discharge limits and other conditions. This fact sheet describes the facility and DEQ's reasons for requiring permit conditions.

DEQ will place 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:

- Indicates 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 DEQ 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
- Indicates how to request a public hearing about the draft IPDES permit
- Explains the next step(s) in the permitting process.

DEQ seeks comment on draft IPDES permit for The Edge Resort

Wednesday, November 24, 2021

The Edge Resort – The Idaho Department of Environmental Quality (DEQ) seeks comment on a draft Idaho Pollutant Discharge Elimination System (IPDES) permit for The Edge Resort.

The Edge Resort applied for a wastewater discharge permit for its wastewater treatment facility, located at 851 Banks Lowman Road, Garden Valley, Idaho.

The draft permit would authorize the discharge of treated domestic wastewater year-round to the Middle Fork Payette River for five years. The permit identifies the pollutants of concern and the required limits for each pollutant or parameter, and monitoring and reporting requirements necessary to ensure compliance with the permit and protect human health and the environment.

Written comments on the draft permit and fact sheet will be accepted through Monday, December 27, 2021, at 5 p.m. MST. The draft permit and fact sheet are available for public review at DEQ's state office (1410 N. Hilton St., Boise, ID), DEQ's Boise Regional Office (1445 N. Orchard, Boise, ID), and on DEQ's website. A public meeting may be held, if requested in writing, by Wednesday, December 8, 2021.

Comments and questions regarding this process should be directed to Rakael Pope, or at https://www.deq.idaho.gov/news-public-comments-events/. Comments should address water quality considerations and include supporting materials where available. Comments should also reference The Edge Resort and permit number ID0030015.

Rakael Pope, Idaho Department of Environmental Quality
Surface & Wastewater Division
1410 N. Hilton St.
Boise, ID 83706
Email: rakael.pope@deq.idaho.gov

Please submit requests for a public meeting electronically on DEQ's website, by mail, or email to Lori Flook.

Lori Flook
Idaho Department of Environmental Quality
Surface & Wastewater Division
1410 N. Hilton St.
Boise, ID 83706

Email: Lori.Flook@deq.idaho.gov

THE IDAHO WORLD

P.O. Box 220
Idaho City, ID 83631
(208) 202-9288

State of Idaho)
)
County of Ada)

Elise Capson, being duly sworn, deposes and says: that she is the Publisher of THE IDAHO WORLD, a weekly newspaper published at Idaho City, in the County of Boise and the State of Idaho; the said paper has been and is in general circulation in the county aforesaid, and in the vicinity of Idaho City; that the advertisement, a copy of which is hereto attached, was published in said newspaper once a week for One (1) consecutive weeks in the entire and regular issue of every number of said paper during the period and time of publication and was published in the newspaper and not a supplement; that said paper has been established and regularly and continuously published for more than seventy eight weeks past previous to the first publication of this notice. Such notice was published with the issue beginning with November 24, 2021 and ending with the issue of Naember 24, 2021.

Elise Capson

State of Idaho)
)
County of Ada)

On this 3rd day of December in the year 2021, before me, a notary public, personally appeared Elise Capson 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 acknowledged to me that she executed the same.

Notary Public for Idaho
Residing at Boise, Idaho
Commission Expires 4/21/27

MARK D SHIRROD
Notary Public
State of Idaho
Commission No. 20211846

DEQ SEEKS COMMENT ON DRAFT IDAHO POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FOR The Edge Resort

PROPOSED ACTION: The Edge Resort applied to the Department of Environmental Quality (DEQ) for an Idaho Pollutant Discharge Elimination System (IPDES) wastewater discharge permit for its domestic wastewater treatment facility located 851 Banks Lowman Road, Garden Valley, Idaho. The DEQ is seeking public comment on the draft IPDES permit, associated fact sheet, and application for The Edge Resort wastewater treatment facility. This draft permit authorizes the discharge of treated domestic wastewater year-round to the Middle Fork Payette 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 Monday, December 27, 2021, at 5 p.m. MST. A public meeting may be held if requested in writing by December 8, 2021. The draft permit and fact sheet are available for public review at DEQ's state office (1410 N. Hilton St., Boise, ID), Boise Regional Office (1445 N. Orchard, Boise, Idaho), and on DEQ's website. https://www.deq.idaho.gov/public-information/newsroom/

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 Rakael Pope at the address below, or to the DEQ Web site at https://www.deq.idaho.gov/public-information/newsroom/. Please reference The Edge Resort and permit number ID0030015 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
Idaho Department of Environmental Quality
Surface & Wastewater Division
1410 N. Hilton St.
Boise, ID 83706
Email: Lori.Flook@deq.idaho.gov

Rakael Pope
Idaho Department of Environmental Quality
Surface & Wastewater Division
1410 N. Hilton St.
Boise, ID 83706
Email: Rakael.Pope@deq.idaho.gov

Published in the Idaho World on November 24, 2021.

B. Public Comments and Response to Comments

Response to Comments on Draft The Edge Resort IPDES Permit

December 27, 2021, comment deadline

Comments in reference to Idaho DEQ application #ID0030031 Mason Creek Activated Wetlands Pilot
Anthony Rangus, 76 Blue Shadow Drive, Garden Valley, ID. Tony2laurel@aol.com
Received by DEQ December 12, 2021

Comment 1 and 2 (from Mr. Anthony Rangus):

> My name is Anthony Rangus and I live at 76 Blue Shadow Drive in Garden Valley. Specifically, my home is in the Mountain Shadows Development, directly across Banks Lowman Road from the proposed location of the Edge Resort.
>
> I have a concern about the SBR Reactor system for wastewater treatment. To alleviate any technical issues you may have with my background; I have a BA in Physics awarded in 1975 and a Masters Degree in Materials Science awarded in 1990. I worked for the Bechtel Group of companies, one of the world's largest private owned engineering and construction companies, for 32 1/2 years as a full time employee and seven years as a contract employee. I retired as Chief Engineer - Materials Engineering Technology Discipline, Mining and Metals Division. I have extensive experience in materials selection for very large process chemical plants, power plants, LNG plants and refineries, as well as experience in plant operations and maintenance requirements.
>
> I have gone through most of the publicly posted details on the DEQ website for the Edge resort. One thing that concerns me is supplemental electrical power for the facility. If there is a complete power failure, including a failure caused by the Edge Resort power supply mismanagement, can I expect the resort to have back-up power of sufficient size to at least power the wastewater treatment system, even under maximum instantaneous load (all pumps running, UV system running etc.) upon restart? If there is a loss of power, how many hours can the system receive maximum flow before the system fails to accomplish treatment or leaks to the environment?

Response 1 and 2:
Permit condition 4.1.2 requires the permittee to incorporate extended procedures to operate the treatment plant and its backup systems into Operation and Maintenance (O&M) manual in accordance with IDAPA 58.01.16.425. Permit condition 4.1.3 requires the permittee to develop and implement an emergency response plan to identify measures to protect public health and the environment.

Additionally, the permittee's Preliminary Engineering Report submitted to and approved by DEQ's engineering staff indicates the permittee has designed redundancy in mechanical systems and the permittee will initially utilize a portable generator for backup power to support the treatment system and lift station. The permittee will replace it with a permanent generator during later phases of construction.

Changes to the draft permit: None.

Comment 3 (from Mr. Anthony Rangus):

> Another concern is the quality of the water that enters the UV component of the treatment system. UV radiation disinfection can be compromised by particles, dissolved salts, and organic compounds in wastewater, which can absorb or reflect ultraviolet light. I understand that the manufacturer of whatever SBR system is installed, will guaranty a specific level of disinfection at maximum flow, but this is always predicated on the quality of the water entering the component as well as the operating efficiency of the upstream components. Is this controlled or monitored? In addition, if there is a power failure, what is done to insure upon restart, the UV lamps are not shielded by particles, oil or salts that have settled out?

Response 3: The permittee must properly operate and maintain the facility's equipment and demonstrate compliance with all Table 2 permit limits to ensure Idaho Water Quality Standards (IDAPA 58.01.02). E. Coli bacteria and Total Suspended Solids (TSS) must meet end of pipe limits because no mixing zones have been authorized. If the permittee wishes to introduce additional chemicals, an application for a permit modification must be submitted and DEQ must issue a modified permit prior to introduction of chemicals to the process (e.g., salt from a softener system, descaling agents, biofilm removal chemicals).

Changes to the draft permit: None.

Comment 4 (from Mr. Anthony Rangus):

> One more concern is the buried piping to be used. I would expect the material to be nonmetallic (PVC, CPVC etc.). These materials are easily damaged, as most are very brittle and can be easily damaged by unexpected loads, during installation as well as in service. I would hope the underground piping is leak checked prior to covering with soil. Also, it is not clear in the information I have, if there is any sort of leak detection on the buried piping. If the underground piping is metallic, how is external corrosion mitigated?

Response 4: Regulations for collection system materials and installation requirements are in the Idaho Wastewater Rules (IDAPA 58.01.16.430). Additionally, permit condition 4.2.5 requires the permittee to properly operate and maintain all facilities and systems of treatment and control to achieve compliance with the conditions of this permit. The O&M manual required by permit condition 4.1.2 will describe how the facility will ensure proper operation and maintenance.

Changes to the draft permit: None.

Comment 5 (from Mr. Anthony Rangus):

> I have seen that property flooded due to high Middle Fork of the Payette flows and I saw nothing about flood mitigation for the wastewater treatment system.

Response 5: The Preliminary Engineering Reports for the wastewater treatment facility and lift station indicate that the structures are outside of the 100-year floodplain according to the Federal Emergency Management Agency (FEMA) maps. Buoyance calculations and associated anti-flotation measures were provided for both the lift station and treatment facility tanks to account for high ground water. The Wastewater Rules, IDAPA 58.01.16.450, require that the treatment plant structures, electrical and mechanical equipment be protected from damage by a 100-year flood, and be designed to remain fully operational and accessibly during a 100-year flood. The Wastewater Rules, 58.01.16.441, require that wastewater pumping structures and electrical and mechanical equipment be protected from physical damage during a 100-year flood and remain fully operational and accessible during a 25-year flood.

Changes to the draft permit: None.

Comment 6 (from Mr. Anthony Rangus):

> I know the DEQ has no real control over the qualifications of whomever operates the wastewater system and the efficiency of maintenance of said system but it has been my experience that maintenance, unfortunately, takes second fiddle to profit. Granted, DEQ controls this somewhat by the effluent testing rules and limits but does DEQ perform checks on system operations on a routine basis?
>
> I hope you can respond to my concerns.
>
> Anthony Rangus
> (208)462-5218
> tony2laurel@aol.com

Response 6: DEQ's IPDES staff inspect permitted facilities to ensure the facility is operated and maintained. Idaho's Wastewater Rules (IDAPA 58.01.16.203) contains requirements for Wastewater Operator Licensure. The specific requirements to become licensed to operate a wastewater system can be found at the Idaho's Division of Occupational and Professional Licenses.

Changes to draft permit: None.