Water Quality Division
Montana Pollutant Discharge Elimination System (MPDES) ▪ Fact Sheet
January 2025

Permittee: CH SP Acquisition LLC, d/b/a Spanish Peaks Mountain Club ("Spanish Peaks")

Permit No.: MT0032174

Receiving Waters: Unnamed Tributaries to Middle Fork West Fork Gallatin River

Facility Information

Name: Spanish Peaks Mountain Club Reclaimed Water Snowmaking
Contact: Rich Chandler, VP Environmental Operations

County: Madison and Gallatin

Fee Information

Major/Minor: Minor
Type: Private Minor
Number of Outfalls: 2 (for fee determination only)
001 – Domestic wastewater land application/runoff to north tributary
002 - Domestic wastewater land application/runoff to south tributary

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1 BACKGROUND

This fact sheet identifies the principal facts, and significant factual, legal, methodological, and policy issues considered in preparing a draft permit as required by the Administrative Rules of Montana

CH SP Acquisition, LLC, d/b/a/ Spanish Peaks Mountain Club ("Spanish Peaks") (Permittee) is the owner and operator of the proposed Spanish Peaks Mountain Club Snowmaking (Facility), which is a reclaimed domestic wastewater reuse project.

1.1 Permit and Application Information

The application is for a new Montana Pollutant Discharge Elimination System (MPDES) and is assigned permit number MT0032174. The application is for a proposed discharge from a new source, as described below. DEQ received the initial application on February 13, 2023, and issued a Notice of Deficiency on March 8, 2023. Spanish Peaks submitted additional information and the DEQ determined the application was complete on April 27, 2023.

1.2 Description of Facility and Discharges

A facility, activity, or outfall is any point source, including land or appurtenances thereto, that are subject to regulation under the MPDES program. The discharge of pollutants to state waters is limited to outfalls authorized in the Facility's discharge permit. Spanish Peaks owns the Spanish Peaks Mountain Club and plans to use treated and disinfected reclaimed wastewater to make a basal snowpack on ski runs. The activity of making snow with reclaimed wastewater onto ski slopes does not require a MPDES permit but an MPDES permit is needed if snowmelt carries pollutants introduced into the artificial snow from the reclaimed wastewater into adjacent surface waterbodies.

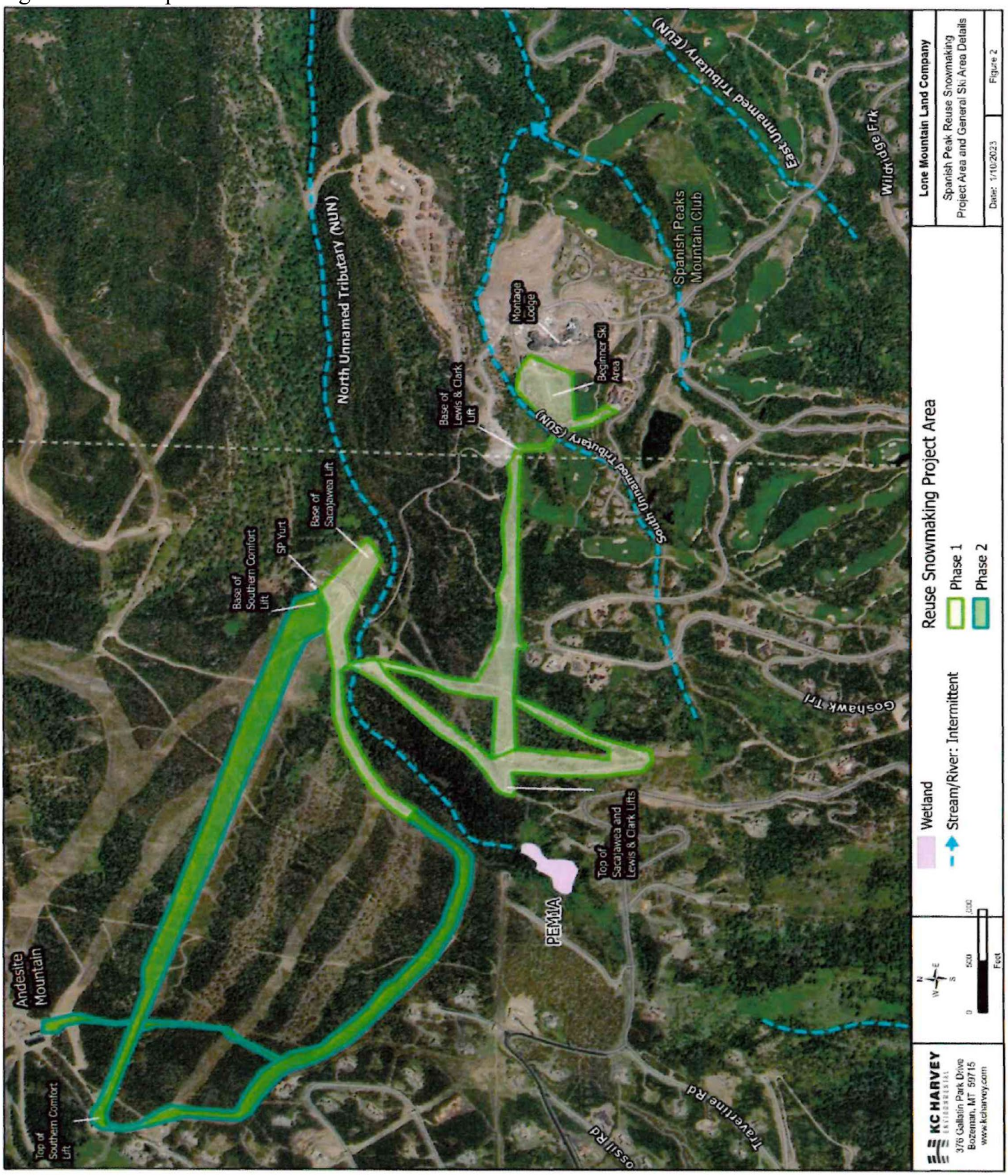
1.2.1 Description and Location of Facility

The Facility is not yet fully developed and constructed. All references to the Facility operations and location in this fact sheet are to the proposed Facility and location as described in the MPDES permit application.

Spanish Peaks Mountain Club (SPMC) is a 3,500-acre private residential, ski, and golf community in Big Sky, Montana. All facilities and residences in SPMC are connected to and serviced by the Big Sky County Water and Sewer District No. 363 (BSCWSD); therefore, the SPMC does not require a wastewater treatment facility for its domestic sewage. SPMC manages the reuse of a portion of the reclaimed (treated and disinfected) domestic wastewater generated by the Big Sky community, which is treated by the BSCWSD and conveyed to SPMC for beneficial reuse. To expand its capacity for reclaimed water reuse, the SPMC proposes to construct and operate a reclaimed water snowmaking campaign to add a basal snowpack for alpine skiing on Spirit Mountain, Andesite Mountain, and the Spanish Peaks Base Area. The proposed project will use existing infrastructure and add new pumping, piping, and snowmaking equipment for the winter discharge, where necessary, to make snow. The project will be initiated in phases, with Phase 1 using some existing snowmaking equipment (that used groundwater as the source), and Phase II occurring at higher elevation ski runs where snowmaking has not previously occurred.

The Facility location is in Section 32 in Township 6S, Range 3E and Sections 4 and 5 of Township 7S, Range 3E, near Big Sky, Montana, in Madison and Gallatin Counties. Snowmaking will occur on approximately 44.5 acres of groomed runs on Spirit Mountain and the Spanish Creek Base Area and approximately 40.7 acres in the Southern Comfort Ski Area. Spirit and Southern Comfort ski areas are on the east side of Andesite Mountain, which is mainly within the Big Sky Resort ski terrain (Figure 1). Spirit Mountain is part of the SPMC ski area, operated by the Big Sky Resort. All the land for the proposed project is owned by SPMC. The lower portion of the Southern Comfort ski area allows SPMC members to return to the SPMC from skiing the more expansive Big Sky Resort ski terrain. Elevation ranges from 7,300 to 8,800 feet above sea level. The slopes where snowmaking will occur are generally east facing, with one main run north facing. A site map is shown in Figure 1 below.

Figure 1. Site Map



Wastewater Sources, Treatment and Controls

Wastewater is initially treated at the BSCWSD. The BSCWSD recently upgraded their wastewater treatment to a Membrane Bioreactor (MBR) with ultraviolet light disinfection that will meet the DEQ-2 Design Standards for Public Sewerage Systems Class A-1 water. The upgrades were completed in the fourth quarter of 2024.

BSCWSD pumps water from their reclaimed water holding ponds to the SPMC South reclaimed water holding pond (a/k/a the South Pond or Spanish Peaks Pond). Once BSCWSD reclaimed water has been transferred to SPMC, it is the responsibility of SPMC to manage this reclaimed water. Reclaimed water is pumped from the SPMC South Storage Pond to the Hole 10 Irrigation Pond (Hole 10 Pond) via pump station SP-PS-1, located adjacent to the South Storage Pond. The Hole 10 Pond currently supplies DEQ-approved summertime irrigation of the golf courses, ski area, and nearby forested areas, and will also be used to store reclaimed water for snowmaking. Reclaimed water held in the Hole 10 Pond will be blended with fresh groundwater, if necessary, to meet DEQ-2 Class A-1 standards. SPMC also has the ability to inject chlorine into the water to regulate bacteria concentrations as it is pumped from the South Pond to the Hole 10 Pond. From the Hole 10 Pond water is pumped through a pipeline towards midway Lewis and Clark lift where it is dispersed to additional pipelines to the proposed ski runs where snowmaking guns are established. The snowmaking guns are mainly tower guns with some mobile snowmaking machines. The main snowmaking gun models are HKD Snowmakers Impulse RS Tower Guns or similar model.

At the snowmaking gun, water is pressurized to 200+ pounds per square inch and filtered through a stainless steel 74-micron filter. Flow rates of the tower guns range from 14 to 80 gallons per minute (gpm) depending on weather conditions at the time of snowmaking. SPMC anticipates making 18 to 24 inches of snow with 23 million gallons per year (MGY) during Phase 1 and an additional 21 MGY during Phase 2, for a total of 44 MGY after final snowmaking infrastructure buildout. At full buildout the snowmaking operation has the capacity to use approximately 2.2 million gallons of reclaimed water per day (2.2 MGD) over a maximum of 76 days (November 1 to January 15). Generally snowmaking will occur only part of this time, likely from mid-November to mid-December, and is highly weather dependent so will not occur every day, making the total days of snowmaking less than 76. The maximum volume of reclaimed water used for the entire snowmaking effort will be approximately 44 million gallons per ski season.

1.2.2 Discharge Points

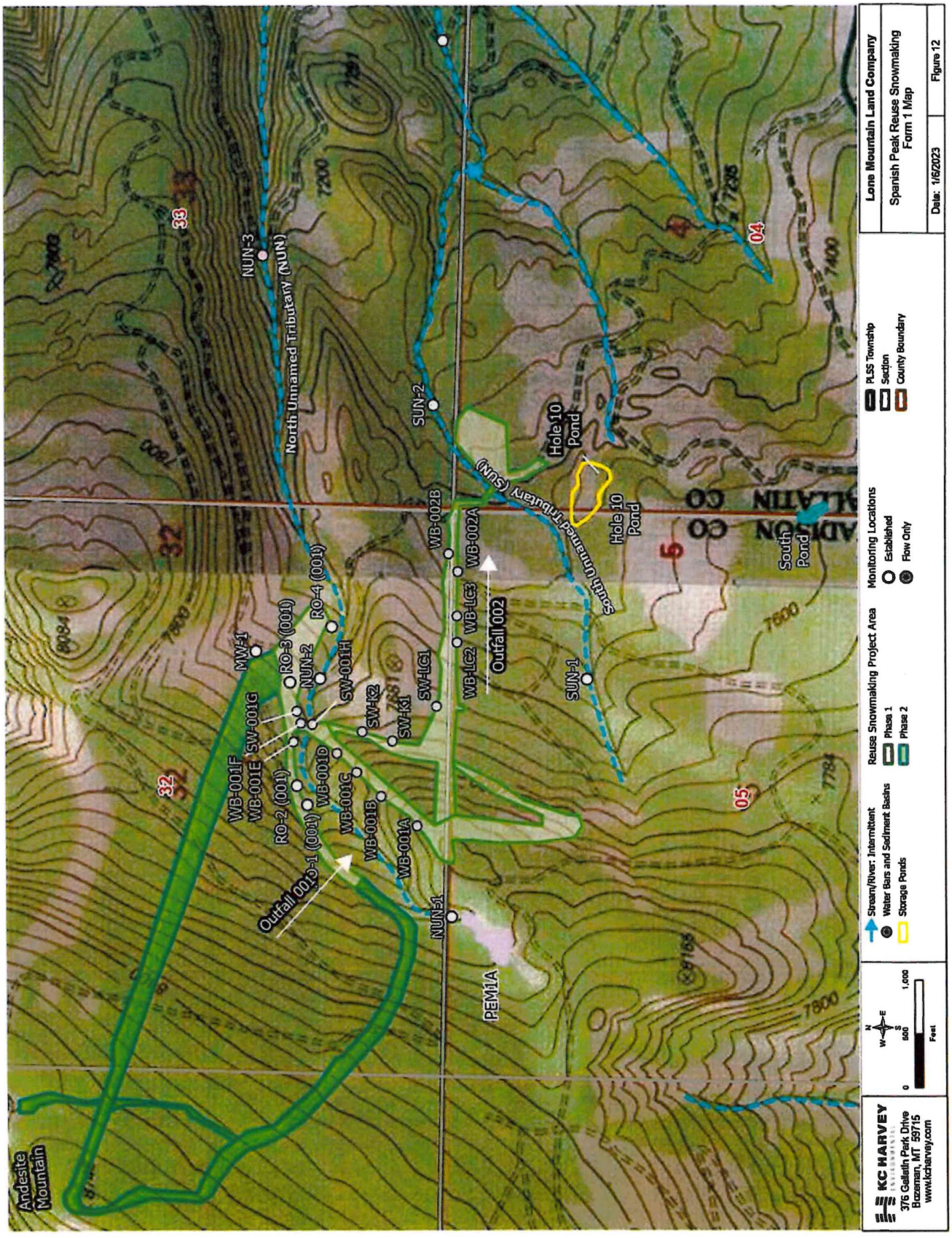
While the initial discharge of wastewater to the environment will occur via the snowmaking guns, discharge to state waters will occur during snowmelt runoff each spring. Runoff will be diffuse and occur over a large area. The permit application identifies two outfalls. Outfall 001 is for runoff from snowmaking to the north unnamed tributary to the Middle Fork West Fork Gallatin River (NUN). Outfall 002 is for runoff that will drain to the south unnamed tributary to the Middle Fork West Fork Gallatin River (SUN). The outfall locations listed in the table below show the approximate upstream and downstream points on each receiving water that could receive runoff from Outfall 001 and Outfall 002, designated SUN1, SUN2, NUN1, and NUN3 on Figure 2, below.

Table 1 - Discharge Locations				
Outfall	**Latitude**	**Longitude**	**Receiving Water**	**Receiving Water Classification**
001 (Upstream, NUN1)	45.260885° N	111.388495° W	North Unnamed Tributary	B-1
001 (Downstream, NUN3)	45.265937° N	111.364440° W		
002 (Upstream, SUN1)	45.256478° N	111.381912° W	South Unnamed Tributary	B-1
002 (Downstream, SUN2)	45.261874° N	111.368835° W		

The permit application identifies locations where runoff discharge from the ski runs may occur during spring snowmelt. These locations are identified as 001A – 001I and RO-1 – RO-4 on the NUN and 002A – 002C on the SUN. While the discharge from melting snow will be diffuse and not funnel along discrete flow paths, the applicant identified these as potential discharge monitoring locations. These points represent locations where representative samples could be collected during the April – June runoff period. Approximate locations are shown in Figure 2 below. Latitude and longitude coordinates are listed in Table 2.

Table 2 – Discharge Monitoring Locations			
Outfall	**Latitude**	**Longitude**	**Receiving Water**
001-A	45.261428° N	111.385053° W	North Unnamed Tributary
001-B	45.261764° N	111.384508° W	
001-C	45.263122° N	111.382933° W	
001-D	45.263572° N	111.3822° W	
001-E	45.264917° N	111.381403° W	
001-F	45.264817° N	111.381125° W	
001-G	45.264944° N	111.380678° W	
001-H	45.264333° N	111.381142° W	
001-I	45.261731° N	111.384581° W	
RO-1	45.264486° N	111.385039° W	
RO-2	45.265044° N	111.383392° W	
RO-3	45.265197° N	111.379861° W	
RO-4	45.264022° N	111.377425° W	
002-A	45.260606° N	111.37385° W	South Unnamed Tributary
002-B	45.2611° N	111.373697° W	
002-C	45.260103° N	111.372536° W	

Figure 2. Outfall 001 and Outfall 002



1.2.3 Effluent Characteristics

Effluent used for snowmaking will be treated wastewater from the BSCWSD treatment facility. The BSCWSD facility completed upgrades in late 2024 and will produce DEQ-2 Class A-1 quality effluent. Prior to the completion of the upgrade, BSCWSD effluent transferred to SPMC will be of lesser quality, reflected in the samples collected from the Hole 10 Pond, shown in Table 3. SPMC has the ability mix the treated effluent with groundwater to achieve DEQ-2 Class A-1 effluent standards until the BSCWSD upgrade is completed.

Effluent characteristics for wastewater from the Hole 10 Pond, collected during the 2022 reuse irrigation campaign (summer land application approved by the DEQ Engineering Bureau) are shown in Table 3 below. Sample results from snowmelt collected during a 2011 pilot study are used as estimates of actual effluent quality (snowmelt) from Outfalls 001 and 002. The DEQ-2 Class A-1 standards are shown for comparison.

Table 3 - Hole 10 Pond/Snowmelt Conventional and Non-Conventional Pollutants Outfalls 001 and 002

Parameter	Units	Permit Application		No. Samples	Analytical Method	ML or MDL
		Maximum Daily	Average Daily			
Biochemical Oxygen Demand	mg/L	4	2.7	6	A5210B	2
Biochemical Oxygen Demand [3]		--	10	--	--	--
Total Suspended Solids [3]	mg/L	--	10	--	--	--
E. coli [1]	MPN	< 1	< 1	9	A9223B	1
E. coli [2]	MPN	77	12	14	A9223B	1
E. coli [3]	MPN	23	2.2			
Ammonia as N [1]	mg/L	0.15	0.11	9	E350.1	0.05
Ammonia as N [2]	mg/L	8.3	6.3	6	E350.1	0.05
Total Kjeldahl Nitrogen [1]	mg/L	1.2	0.86	9	E351.2	0.5
Total Kjeldahl Nitrogen [2]	mg/L	10.5	7.8	6	E351.2	0.5
Nitrate+ Nitrite [1]	mg/L	0.17	0.08	9	E353.2	0.01
Nitrate + Nitrite [2]	mg/L	0.74	0.47	6	E353.2	0.01
Total Nitrogen [1]	mg/L	1.37	0.94	9	Calc	--
Total Nitrogen [2]	mg/L	10.8	8.3	6	Calc	
Total Nitrogen [3]	mg/L	5	--	--	--	--
Total Phosphorus [1]	mg/L	4.9	2.3	9	E365.1	0.005
Total Phosphorus [2]	mg/L	3.5	2.6	6	E365.1	0.005

Footnotes:
1. Snowmelt results from 2011 snowmaking pilot study
2. Hole 10 Pond
3. DEQ-2 Class A-1 design treatment standard for reuse

2 EFFLUENT LIMITATIONS

The control of pollutants discharged is established through effluent limitations and other requirements. There are two principal bases for effluent limitations: technology-based effluent limitations (TBELs), which represent the minimum treatment requirements implemented in MPDES permits, and water quality-based effluent limitations (WQBELs) that attain and maintain applicable numeric and narrative water quality standards.

2.1 Technology-based Effluent Limitations

Section 402(a)(1) of the federal Clean Water Act (CWA), the federal regulations at 40 CFR 125.3(a), and Montana regulations at ARM 17.30.1207 require that permits contain TBELs that implement the technology-based treatment requirements specified in the CWA. These technology-based requirements may be national technology standards for existing sources or new sources established by EPA, or, in some cases, standards established by the permit writer on a case-by-case basis using best professional judgement (BPJ). ARM 17.30.1203.

2.1.1 Scope and Authority

The SPMC snowmaking project is a privately owned facility that will discharge wastewater (as manmade snow) after treatment from the publicly owned Big Sky County Water and Sewer District. EPA has not promulgated Effluent Limitations Guidelines (ELGs) or TBELs for private domestic wastewater treatment facilities. When EPA has not promulgated ELGs and TBELs for a discharger, DEQ must develop TBELs based on best professional judgment (BPJ).

The Montana Board of Environmental Review has adopted by reference 40 Code of Federal Regulations (CFR) 133, which defines minimum treatment requirements for secondary treatment for POTWs, known as National Secondary Treatment Standards (NSS). NSS are defined in terms of effluent quality as measured by 5-day Biochemical Oxygen Demand (BOD_5), Total Suspended Solids (TSS), percent removal of BOD_5 and TSS, and pH.

Because the Facility proposes to discharge domestic wastewater transferred from a public wastewater treatment works, DEQ will implement BPJ TBELs based on NSS.

2.1.2 Proposed Technology-based Effluent Limitations

To ensure the source water is of acceptable quality, the BSCWSD will be required to meet DEQ-2 treatment requirements for reuse of wastewater. While the BSCWSD is completing its upgrade to achieve the applicable DEQ-2 standards, SPMC is proposing to add groundwater to the wastewater stored in the Hole 10 Pond so that the snowmaking source water will achieve DEQ-2 Class A-1 effluent quality.

The source water for the snowmaking project is fully treated prior to introduction into the SPMC south pond and Hole 10 Pond and will therefore not be required to meet the NSS requirements for percent removal of BOD_5 and TSS. Percent removal is a comparison of influent to effluent to ensure adequate treatment efficiency in POTWs with MPDES permits. The influent in this case is already treated and would lead to misleading percent removal calculations. Similarly, because there is not a direct

discharge to the receiving waters, load limits in lbs/day that are normally applied to POTW discharges, will not be required.

Because TBEL limitations cannot be achieved with dilution from clean water sources, compliance with the following TBELs shall be monitored at a sampling location between the South Pond and the Hole 10 Pond. The exact location of the sampling location will be determined during DEQ-2 design review. Monitoring results shall be reported on Discharge Monitoring Report (DMR) SUM-A.

Table 4 - Technology-Based Effluent Limits for Outfall 001 and Outfall 002 (SUM-A)

Parameter	Units	Average Monthly Limit	Average Weekly Limit
Biochemical Oxygen Demand (BOD_5)	mg/L	30	45
Total Suspended Solids (TSS)	mg/L	30	45
pH	s.u.	Within the range of 6.0 and 9.0	

2.2 Water Quality-based Effluent Limitations

Permits must include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

2.2.1 Scope and Authority

The Montana Water Quality Act at 75-5-401(2), MCA states that a permit may only be issued if DEQ finds that the issuance or continuance of the permit will not result in pollution of any state waters. Montana water quality standards require that no wastes may be discharged such that the waste either alone or in combination with other wastes will violate or can reasonably be expected to violate any standard.

2.2.2 Applicable Water Quality Standards

Outfall 001 will discharge as snowmelt to the north unnamed tributary. Outfall 002 will discharge as snowmelt to the south unnamed tributary. The distance to the receiving streams from the discharge monitoring locations shown in Table 2 ranges from approximately 40 feet to 450 feet for Outfall 001 (north unnamed tributary) and 30 feet to 1,200 feet for Outfall 002 (south unnamed tributary). The receiving waters are in the Missouri Headwaters watershed, USGS Hydrological Unit Code (HUC) 10020008. The north and south unnamed tributaries merge a mile to a mile and half downstream of the proposed snowmaking area and flow into the Middle Fork West Fork Gallatin River (MFWFGR). The MFWFGR is identified as Montana Assessment Unit ID MT41H005_050. The designated water-use classification for the three receiving waters is B-1.

Table 5 - Water Use Classification and Beneficial Uses— North and South Unnamed Tributaries to Middle Fork West Fork Gallatin River	
Classification	**Beneficial Uses**
Surface Waters B-1	Drinking, culinary and food processing purposes after conventional treatment; bathing, swimming, and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl, and furbearers; and agricultural and industrial water supply

The water quality standards for B-1 waters include both numeric and narrative standards that protect the beneficial uses set forth in the water use classifications. The specific standards for B-1 waters are given in ARM 17.30.623 and incorporate by reference Circular DEQ-7 which contains numeric water quality standards for protection of aquatic life and human health.

All state waters must be free from substances which will: (a) settle to form objectionable sludge deposits or emulsions beneath the surface of the water or upon adjoining shorelines; (b) create floating debris, scum, a visible oil film (or be present in concentrations at or in excess of 10 milligrams per liter) or globules of grease or other floating materials; (c) produce odors, colors or other conditions as to which create a nuisance or render undesirable tastes to fish flesh or make fish inedible; (d) create concentrations or combinations of materials which are toxic or harmful to human, animal, plant or aquatic life; and (e) create conditions which produce undesirable aquatic life. ARM 17.30.637(1).

For new sources, effluent limitations for numeric and narrative standards are modified by the criteria in ARM 17.30.715, which are based on the protection of existing water quality.

2.2.3 Impaired Waters

The Montana Water Quality Act requires DEQ to monitor state waters and to identify surface water bodies or segments of water bodies whose designated uses are threatened or impaired. DEQ must complete a TMDL for those water bodies that are identified as threatened or impaired.

Upon approval of the TMDL, the wasteload allocation (WLA) developed for a point source must be incorporated into the Facility's discharge permit. A WLA is defined as the portion of the receiving water's loading capacity that is allocated to one of its existing or future point sources.

2020 303(d) List

Neither of the initial receiving waters for the snowmaking project are listed as impaired on the 303(d) list. Protecting existing water quality in the unnamed tributaries will protect downstream waters and will not cause or contribute to any violation of downstream water quality standards. The MFWFGR is listed as impaired on the 2020 303(d) list as not fully supporting aquatic life or primary contact recreation uses for the following causes and sources:

- Alteration in stream-side vegetative covers (aquatic life)
- Nitrate plus nitrite (aquatic life)
- Total phosphorus (aquatic life)
- Physical substrate habitat alterations (aquatic life)
    - Probable sources for all above are forest roads, site clearance (land development redevelopment), and silviculture activities.
- *E.coli* (primary contact recreation)

- Fecal coliform (primary contact recreation)
    - Probable sources of *E. coli* are waste from pets, waterfowl, and unspecified urban stormwater. Probable sources for fecal coliform are onsite treatment systems (septic systems) and animal feeding operations.

Approved TMDL

The West Fork Gallatin River TMDLs and Water Quality Improvement Plan was approved by EPA in 2010. This TMDL addressed the pollutants above in the MFWFGR and did not include a wasteload allocation for the proposed snowmaking project. Nitrate plus nitrite and phosphorus are potential pollutants in the proposed discharge. The permit will ensure that existing water quality in the primary receiving waters and the MFWFGR is protected.

2.2.4 Pollutants of Concern

WQBELs are assessed for pollutants of concern (POC) based on effluent characteristics and the water quality objectives for the affected receiving water(s). DEQ has identified the POCs listed below for purposes of assessing WQBELs. Included in this list is any pollutant that has an assigned wasteload allocation as part of a TMDL, exceeds a water quality standard or nondegradation criterion in the effluent, or is subject to a federal ELG.

Table 6 - Pollutants of Concern for WQBELs

Parameter	Basis for Identifying as a Pollutant of Concern for WQBELs
Outfall 001 and 002	
BOD TSS pH	Applicable ELGs/TBELs
Total Nitrogen Total Phosphorus Nitrate + Nitrite Ammonia Total Residual Chlorine Turbidity *E. coli*	Permit Application Review

2.2.5 Nondegradation Determination

The MWQA includes a nondegradation policy that applies to any new or increased activity which results in a change in existing water quality. The level of protection provided to the receiving water(s) conforms to three "tiers" of the federal antidegradation policy. These three levels of protection are as follows:

*Protection of Existing Uses (Tier 1)***:** Existing and anticipated (designated) uses of state waters and the level of water quality necessary to protect those uses must be maintained and protected. Tier I protection applies to all state waters including waters not designated as high quality. The effluent limitations applied to outfalls subject to this level of protection are derived from and comply with the

state's numeric and narrative water quality standards and, therefore, ensure the level of water quality necessary to attain and maintain existing and anticipated uses are fully protected.

Protection of High Quality Waters (Tier 2): Unless authorized by DEQ (authorization to degrade) or exempted from review, the quality of high-quality waters must be maintained. This rule applies to any activity that may cause degradation of high-quality waters, for any parameter, unless the changes in existing water quality are determined to be nonsignificant. High quality waters include all state surface waters except those not capable of supporting any one of the designated uses for their classification or that have zero flow or surface expression for more than 270 days during most years. Any water body for which the receiving water pollutant concentration is less than the applicable water quality standard is considered high quality. This determination is made on a parameter-by-parameter basis and may include waters listed on the state's 303(d) list.

Protection of Outstanding Resource Waters (Tier 3): For outstanding resource waters, no degradation is allowed and no permanent change in the quality of outstanding resources waters resulting from a new or increased point source discharge is allowed.

A discharge that meets the nondegradation criteria is in compliance with Montana's nondegradation policy.

DETERMINATION – NEW OR INCREASED SOURCES

The Facility is a new source subject to review under the non-degradation rules. DEQ has made the following determinations with respect to the pollutants of concern in the proposed discharges:

Table 7 - New or Increased Source Determination

Outfall(s)	Receiving Water	Source Determination	Nondegradation - Level of Protection Required
001 and 002	North and South Unnamed Tributaries	New	Tier 2

For the parameters of concern, the discharges to the receiving streams must not cause changes in water quality that exceed the nonsignificance criteria of ARM 17.30.715. See Part 7 of this fact sheet.

2.2.6 Mixing Zones

The Permittee did not request a mixing zone. DEQ finds allowing dilution or granting a mixing zone is not appropriate. The discharges from Outfalls 001 and 002 are from snowmelt runoff over an extended area. Mixed vegetation (grasses, shrubs, trees) is present between the ski runs where snowmaking will occur and the two receiving streams. Distances from the ski runs to the receiving streams range from approximately 30 to 1,700 feet. Except for the lowest elevation base areas, runoff from the subject ski slopes will pass through forested areas. Where roads exist in the potential runoff field, BMPs to divert runoff will be in place. Discharges from the ski runs will be diffuse and diluted before potentially reaching the receiving waters.

The permit will require monitoring in both receiving streams. Water quality at monitoring locations upstream and downstream of the snowmaking runoff areas will be compared to assess whether changes are occurring due to the discharges. Permit required monitoring data will also be compared to existing water quality as measured during field sampling by the permittee's consultants in 2021 and 2022. Ambient monitoring was conducted in the North and South Unnamed tributaries (NUN and SUN) upstream and downstream of the proposed snowmaking project area. Data were also collected downstream of where the NUN and SUN join to form a combined unnamed tributary (UN), near the confluence with MFWFGR. Since snowmaking has not yet occurred, background snowmelt water quality data were also collected during the 2021 and 2022 field seasons. Representative data were collected at runoff monitoring locations RO-2, RO-3 and RO-4 (Locations shown in Figure 2). These data will be compared to snowmelt data after snowmaking occurs. The 2021/2022 ambient receiving and snowmelt background water quality data are summarized in the tables below.

Table 8 - Receiving Water Characteristics – North Unnamed Tributary (NUN)

Parameter	Units	Required Reporting Value (RRV) / Detection Limit	25th Percentile	75th Percentile	Mean	Number of Samples
Biochemical Oxygen Demand	mg/L	--	2.0	1.0	1.6	33
Total Suspended Solids	mg/L	10	< 10	< 10	12.2 [1]	33
E. coli	cfu/100 ml	1	< 1	4	7 [1]	33
pH	SU	0.1	7.1	7.9	7.5	28
Total Nitrogen	mg/L	0.3 / 0.5	< 0.3	0.8	0.62	33
Total Phosphorus	mg/L	0.003 / 0.005	0.01	0.01	0.01	33
Nitrate+ Nitrite	mg/L	0.01	0.09	0.82	0.43	33
Nitrogen, Total Kjeldahl	mg/L	0.2 / 0.5	< 0.2	< 0.2	< 0.22 [1]	33
Ammonia	mg/L	0.05	< 0.05	< 0.05	< 0.05	33
Turbidity	NTU	0.2	1.0	5.8	4.2	33
Dissolved Oxygen	mg/L	--	10.8	14.1	13.2	28
Total Dissolved Solids	mg/L	--	83.6	128.2	44.8	23
Temperature	°C	--	4.9	6.9	6.0	28
Chlorophyll - α	mg/m^3	1	<1	< 1	< 1	3

Footnotes:
1. Most samples were below detection limits; 10 mg/L for TSS and 0.2 mg/L for Total Kjeldahl Nitrogen

Table 9 - Receiving Water Characteristics – South Unnamed Tributary (SUN)

Parameter	Units	Required Reporting Value (RRV) / Detection Limit	25th Percentile	75th Percentile	Mean	Number of Samples
Biochemical Oxygen Demand	mg/L	--	1.0	2.0	1.5	37
Total Suspended Solids	mg/L	10	< 10	< 10	12 [1]	37
E. coli	cfu/100 mL	1	< 1	4.0	9.0	37
pH	SU	0.1	7.6	8.2	7.8	35
Total Nitrogen	mg/L	0.3 / 0.5	< 0.3	0.7	0.54	36
Total Phosphorus	mg/L	0.003 / 0.005	0.02	0.05	0.03	37
Nitrate+ Nitrite	mg/L	0.01	< 0.01	0.36	0.19	37
Nitrogen, Total Kjeldahl	mg/L	0.3 / 0.5	0.3	0.4	0.34	37
Ammonia	mg/L	0.05	< 0.05	< 0.05	< 0.05	37
Turbidity	NTU	0.2	1.6	5.5	7.1	37
Dissolved Oxygen	mg/L	--	10.5	15.1	13.3	35
Total Dissolved Solids	mg/L	--	193.9	325.4	292.1	31
Temperature	°C	--	3.0	9.3	6.0	35
Chlorophyll - α	mg/m^3	1	< 1	1.3	0.8	4

Footnotes:
1. Most samples were below detection limit of 10 mg/L

Table 10 - Receiving Water Characteristics – Unnamed Tributary upstream of MFWFGR (UN)

Parameter	Units	Required Reporting Value (RRV) / Detection Limit	25th Percentile	75th Percentile	Mean	Number of Samples
Biochemical Oxygen Demand	mg/L	--	1.0	2.0	1.3	18
Total Suspended Solids	mg/L	10	< 10	< 10	12 [1]	18
E. coli	cfu/100 mL	1	< 1	9.0	5.0	18
pH	SU	0.1	7.7	8.3	8.1	14
Total Nitrogen	mg/L	0.3 / 0.5	< 0.3	0.4	0.38	18
Total Phosphorus	mg/L	0.003 / 0.005	0.03	0.04	0.04	18
Nitrate+ Nitrite	mg/L	0.01	0.09	0.19	0.16	18
Nitrogen, Total Kjeldahl	mg/L	0.3 / 0.5	0.2	0.3	0.26	18
Ammonia	mg/L	0.05	< 0.05	< 0.05	< 0.05	18
Turbidity	NTU	0.2	1.1	6.2	7.1	18
Dissolved Oxygen	mg/L	--	12.0	15.3	13.9	15
Total Dissolved Solids	mg/L	--	197	271	229	10
Temperature	°C	--	3.8	8.4	6.0	15
Chlorophyll - α	mg/m^3	1	< 1	< 1	< 1	3

Footnotes:
1. Most samples were below detection limit of 10 mg/L.

Table 11 – Background Snowmelt Runoff from RO-2, RO-3 and RO-4 (combined)

Parameter	Units	Required Reporting Value (RRV) / Detection Limit	25th Percentile	75th Percentile	Mean	Number of Samples
Biochemical Oxygen Demand	mg/L	--	<1	1.0	1.2 [1]	17
Total Suspended Solids	mg/L	10	10	63	48	17
E. coli	cfu/100 mL	1	1	3	7 [1]	17
pH	SU	0.1	7.0	8.2	7.6	16
Total Nitrogen	mg/L	0.3 / 0.5	0.4	0.6	0.51	17
Total Phosphorus	mg/L	0.003 / 0.005	0.02	0.06	0.06	17
Nitrate+ Nitrite	mg/L	0.01	0.01	0.05	0.05	17
Nitrogen, Total Kjeldahl	mg/L	0.3 / 0.5	0.3	0.6	0.45	17
Ammonia	mg/L	0.05	<0.05	<0.05	<0.05	17
Turbidity	NTU	0.2	9.2	51.2	64.8	17
Dissolved Oxygen	mg/L	--	9.5	19.7	13.5	16
Total Dissolved Solids	mg/L	--	58.9	390.4	275.3	12
Temperature	°C	--	2.9	8.9	6.4	16

Footnotes:
1. Most samples below detection limit of 1 mg/L

2.2.7 Reasonable Potential Analysis (RPA)

No wastes may be discharged, either alone or in combination with other wastes, or activities, that will violate or can reasonably be expected to violate any of the water quality standards. Limitations must be established in permits to control all pollutants or pollutant 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 water quality standard. A "reasonable potential analysis" (RPA) is used to determine whether a discharge, alone or in combination with other sources of pollutants already present in the water body could lead to an excursion above a numeric or narrative water quality standard.

When determining the need for WQBELs for individual pollutants regulated by standards expressed in terms of concentration, DEQ primarily uses a mass-balance equation. The mass-balance equation is a steady state equation used to determine the concentration of a pollutant after accounting for other sources of pollution in the receiving water and any dilution provided by a mixing zone. The mass balance equation is an effective and simple model for estimating impacts from discharges that are directly into state waters from a traditional discharge pipe. The mass balance approach is not appropriate for this permit because the discharge to state waters occurs as snowmelt several months after the artificial snow is applied to the ski slopes and after natural snowfall has accumulated on the artificial snowpack. DEQ is therefore taking a qualitative approach to determining reasonable potential as discussed further below.

RPA DISCUSSION

In the absence of a mixing zone, reasonable potential is assessed based on achieving the nonsignificance criteria at the point of discharge to the receiving water (snowmelt runoff).

ARM 17.30.715 describes the criteria for determining nonsignificant changes in water quality. The nonsignificance criteria for each POC is discussed in the following sections.

BOD, TSS, and pH

BOD and TSS lack numeric water quality criteria and the pH water quality standard is expressed as a range that must be maintained based on existing water quality. All three are regulated in the discharge permit by TBELs applied prior to discharge via the snowmaking guns. The TBELs are protective of existing water quality and beneficial uses of the receiving water bodies.

Total Residual Chlorine (TRC)

TRC standards are 0.011 mg/L and 0.019 mg/L for chronic and acute aquatic life respectively. Chlorine is a toxic parameter and the nonsignificance criteria requires that changes in existing water quality be no more than 15% of the lowest standard (0.002 mg/L). It is assumed the background concentration of chlorine in NUN and SUN is zero. The discharge concentration of TRC to each named receiving water must be less than 0.002 mg/L. This concentration of TRC is not measurable using approved methods and DEQ's policy for TRC monitoring allows any non-quantified TRC result of less than 0.1 mg/L to be considered in compliance with the standard. The water quality standards for TRC will be applied to samples of artificial snow collected and combined immediately after snowmaking has occurred. All TRC monitoring results must be less than the 0.1 mg/L detection limit.

E. coli

Water quality standards for *E. coli* are seasonal. During the snowmelt season (April through October) the standards require that the geometric mean number of *E. coli* may not exceed 126 colony forming units (cfu) per 100 milliliters and 10 percent of the total samples may not exceed 252 colony forming units per 100 milliliters during any 30-day period. The nonsignificance criteria for *E. coli* require that any change in existing water quality must be less than 10% of the standard, or 12.6 cfu. However, because of the potential for direct consumption of the artificial snow, the permit will require that *E. coli* concentrations meet limits based on the DEQ-2 Class A requirements for wastewater reuse combined with the nonsignificance criteria; 2.2 colony forming units (cfu) as a monthly geometric mean and 12.6 cfu as a daily maximum. Sample must be collected from a sample port between the Hole 10 Pond and the snowmaking guns.

Turbidity

The water quality standard for turbidity allows a five nephelometric turbidity unit (NTU) change in existing water quality. The discharge will occur as part of the normal spring runoff snowmelt cycle and DEQ finds that no significant change in turbidity will occur because of the artificial snowmelt runoff.

Total Nitrogen

The discharge of snowmelt from the artificial snow will occur during the spring snowmelt/runoff period. The permit application states that snowmelt generally begins about mid-April and all snow is historically melted by July 1st each year. DEQ Circular 12A includes numeric nutrient criteria for both Total Nitrogen and Total Phosphorus. These numeric water quality standards are applicable July 1st through September 30th annually. SPMC plans to make and apply snow during the winter months with all snow expected to be melted and have run off by July 1st each year. DEQ finds the snowmelt will not discharge during the months that the numeric nutrient criteria apply and therefore the snowmelt does not have reasonable potential to cause or contribute to an exceedance of either the TN or TP numeric water quality standard.

The nonsignificance criteria for nutrients outside the July to September growing season requires that discharges may not cause a change in existing water quality that will have a measurable effect on existing or anticipated beneficial uses or cause a measurable change in aquatic life or ecological integrity. DEQ finds that the snowmelt run off will not cause a significant change in existing water quality, as discussed below.

The concentration of total nitrogen in the snowmaking source water (Hole 10 Pond) reported in the permit application is approximately 8.3 mg/L on average (Table 3). As the BSCWSD facility continues to upgrade and improve treatment, these concentrations are expected to improve. Further, SPMC can add uncontaminated ground water to the Hole 10 pond so that the concentration will be at the DEQ-2 Class A-1 concentration for reuse (5.0 mg/L).

As described in the permit application, after snowmaking, total nitrogen concentrations in the artificial snow will be significantly reduced by dilution with natural snowpack and during snowpack storage and initial snowmelt. Further reduction will occur via a variety of natural processes, including the following:

- Plant and microbial nutrient uptake (assimilation)
- Soil infiltration
- Decomposition
- Nitrification/Denitrification
- Volatilization
- Wind distribution
- Additional dilution via snowmelt from accumulated snow between the ski slopes and the receiving waters and/or by rainfall

The applicant submitted a technical memorandum on March 1, 2021, to provide estimates of resulting nutrient concentrations in the snowmelt after the above processes have occurred. The memorandum used the higher 9.9 mg/L (rounded to 10 mg/L) average value shown above as the concentration of

source water for snowmaking. Estimated TN concentrations after the above dilution and natural processes, and before entering the receiving water, will range from 0.05 to 0.15 mg/L. These concentrations are well below the numeric water quality standard that applies from July to September. Any potential discharge that reaches state waters will occur during spring runoff (high water) and will be significantly diluted, further reducing instream concentration. The discharge will not cause an exceedance of the narrative nonsignificance criteria applicable during the March to June snowmelt period when any potential discharge will occur.

Based on the above, the discharge does not have reasonable potential to exceed the water quality standards or nonsignificance criteria during the time when discharge will occur. Nonetheless, the permit will require the permittee to develop a sampling plan to determine if TN concentrations increase in the receiving waters. The sampling plan must include monitoring TN in the Facility effluent prior to snowmaking discharge (Hole 10 Pond). The plan must also include at least one monitoring location, in both NUN and SUN, that is upstream of all potential snowmaking runoff, at least one monitoring location corresponding to the middle of each stream reach potentially affected by snowmaking runoff, as well as continued monitoring at the existing downstream locations submitted in the permit application. Effluent sampling must be conducted for TN monthly during snowmaking operations. Instream sampling must occur monthly at each location during the April to June runoff period and once in August during the period when numeric water quality standards and TMDL wasteload allocations for downstream waterbodies are in effect. Additionally, monitoring of chlorophyll-α must be conducted at each monitoring location once during the April – June period and once in August. Monitoring results will be used to determine upstream to downstream trends in TN concentration and for comparison to pre-snowmaking data submitted with the permit application. In addition to the instream monitoring above, the permittee must sample the snowmelt runoff at the locations RO-2, RO-3, and RO-4, which approximately correspond to Outfall locations 001-K, 001-L, and 001-M respectively, for comparison to the background data submitted with the permit application. Additionally, monitoring locations must be established to measure runoff quality for at least three locations corresponding to discharges from Outfall 002 to SUN.

Total Phosphorus

Total phosphorus (TP) is subject to the DEQ-12A and narrative water quality standards, nonsignificance criteria, and seasonal discharge, similar to those discussed above for TN.

The TP concentration in the snowmaking source water reported in the permit application is approximately 2.6 mg/L on average (Table 3). Unlike TN, however, the concentration of TP in the snowmelt/runoff water increased during the 2011 snowmaking pilot study. The study report speculated that the increase was due to mobilization of soils containing TP during runoff. The 2011 pilot study monitored the snowmelt water concentrations outside of the growing season when the TP standards apply, and before any additional uptake by plants or soil infiltration over the larger vegetated area. It is expected that given the vegetative buffer between the ski slopes and the receiving waters TP concentration will be reduced further before any discharge to the receiving waters might occur.

Further, any potential discharge will occur during the high stream flows of spring runoff. Typical RP analyses for MPDES permits use the low flow condition of the receiving stream to determine available dilution and mixing, or in the case of nutrients, the 14Q5 flow. These low flows are selected to be protective since most MPDES discharges are continuous and effects during low flow, or critical conditions, must be assessed to ensure that the discharge will not cause or contribute to an exceedance

of the water quality standards. In this case, the discharge is seasonal, of short duration, and will only occur during high flows, resulting in significant dilution of any phosphorus concentration remaining in the snowpack.

As with TN, there is not reasonable potential to exceed either the numeric water quality standard or the narrative standard that applies during the snowmelt season. The permit will require the addition of total phosphorus monitoring to the monitoring plan and schedule outlined in the total nitrogen discussion above.

Nitrate plus Nitrite

Nitrate plus nitrite is listed as a toxic parameter in Montana DEQ Circular-7. The nonsignificance criteria for toxics states that a change in existing water quality less than the trigger values in DEQ-7 or, if this change exceeds the trigger value, a change that is less than 15% of the lowest applicable standard is nonsignificant. Where a mixing zone is not applied the maximum allowable concentration (change) must be met at the point of discharge to the surface water. To assess incremental allowable changes in existing water quality DEQ uses the 25th percentile of the instream data as the existing water quality to be protected. The numeric water quality and nonsignificance criteria for nitrate plus nitrate are shown in the table below.

Table 12 Nitrate plus Nitrite Water Quality and Nonsignificance Criteria

Receiving Water	Units	Nitrate plus Nitrite Quality Standard	25th Percentile Ambient Concentration	Nondegradation Category	Nonsignificance Criterion [1]
North Unnamed Tributary (NUN)	mg/L	10	0.09	Toxic	1.59
South Unnamed Tributary (SUN)	mg/L	10	0.01	Toxic	1.51

1. 25th percentile background concentration plus 15% of the lowest applicable water quality standard.

The nitrate plus nitrite concentrations in the snowmaking source water reported in the permit application is approximately 0.47 mg/L on average and the concentration in snowmelt during the 2011 pilot study was 0.08 mg/L (Table 3). All concentrations are below the nonsignificance criteria. Concentrations are expected to be reduced further as the snowmelt moves across the vegetated area between the ski slopes and the receiving water and via dilution with natural snowpack. The discharge does not have reasonable potential to exceed any of the criteria and effluent limits are not necessary. The permit will require monthly monitoring for nitrate plus nitrite in the effluent from the storage pond prior to discharge from the snowmaking guns.

Total Ammonia

Ammonia is listed as a toxic parameter in Montana DEQ Circular-7. The nonsignificance criteria for toxics states that a change in existing water quality less than the trigger values in DEQ-7, or a change that is less than 15% of the lowest applicable standard is nonsignificant. Where a mixing zone is not applied the maximum allowable concentration (change) must be met at the point of discharge to the

surface water. To assess incremental allowable changes in existing water quality DEQ uses the 25th percentile of the instream data as the existing water quality to be protected.

Total ammonia water quality standards are calculated based on the pH and temperature of the receiving water. DEQ uses the 75th percentile of the ambient data for both pH and temperature to calculate ammonia criteria. The numeric water quality and nonsignificance criteria for nitrate plus nitrate are shown in the table below.

Table 13 - Ammonia Water Quality and Nonsignificance Criteria

Receiving Water	Units	Temp	pH	Ammonia Standard Acute/Chronic	25th Percentile Ambient Concentration	Category	Nonsignificance Criterion [1]
North Unnamed Tributary	mg/L	6.9 [(2)]	7.1	22 / 5.7	< 0.05	Toxic	0.91
South Unnamed Tributary	mg/L	9.3 [(2)]	7.6	11.4 / 4.0	< 0.05	Toxic	0.65

1. 25th percentile background concentration plus 15% of the lowest applicable water quality standard.
2. Degrees Celsius.

The total ammonia concentrations in the snowmaking source water reported in the permit application is 6.3 mg/L on average and the concentration in snowmelt during the 2011 pilot study was 0.11 mg/L (Table 3). The 2011 pilot study showed an 87% reduction in total ammonia concentrations as a result of snowmaking and aging in the snowpack over winter. It did not consider additional reductions that will occur as the snowmelt flows from the ski slopes to the receiving water. An 87% reduction of the 6.3 mg/L average concentration (Table 3) observed in 2021 and 2022 is 0.8 mg/L. An additional study cited in the permit application (White et. al. 1997) indicates that up to 97.8% of total ammonia may be removed after snowmaking and by volatilization, nitrification, and plant/microbe nutrient uptake as the snowmelt moves across the vegetated terrain prior to reaching the receiving waters. The resulting concentration is approximately 0.14 mg/L. The evidence indicates the discharge does not have reasonable potential to cause an exceedance of the water quality criteria. Nonetheless, total ammonia, pH, and temperature will be added to the monitoring plan described in the total nitrogen discussion.

Flow

The nonsignificance criteria require that a discharge may not cause a change in flow that would increase or decrease the mean monthly flow of a surface water by more than 15 percent or the seven-day ten-year low flow by more than 10 percent.

The discharge from artificial snowmelt will occur during the annual runoff and high flow period. Flows during this period are highly variable and depend on annual snowpack which is also highly variable. The additional snowmelt from the amount of artificial snow proposed by this project is not significant and would be difficult or impossible to measure because of the distance between the ski slopes and the receiving water and the vagaries of annual snowfall and weather. The discharge is unlikely to cause a significant change in streamflow of the receiving waters as defined by ARM 17.30.715.

Pharmaceuticals and Personal Care Products (PPCPs)

PPCPs include drugs of all kinds, hormones, soaps, cleaners, deodorants, perfumes, etc. They are frequently metabolized or otherwise disposed of, resulting in their presence in domestic wastewater. Removal of PPCPs in typical wastewater treatment plants ranges from approximately 50% to 80%. More advanced wastewater treatment plants, such as the MBR plant under development at BSCWSD, may see removal rates as high as 90% to more than 95% (Exponent, 2023).

While PPCPs are known to be present in domestic wastewater, they are categorized as emerging contaminants of concern. Few states have regulatory standards for PPCPs. Montana does not have water quality standards for any of the PPCPs. There are no federal regulatory standards for PPCPs in wastewater, biosolids, surface water and ground water, treated drinking water or bottled water (PennState Extension, 2024).

To date, DEQ has not conducted routine monitoring of state surface waters for the presence of PPCPs. Monitoring conducted by others, such as the EPA, in other parts of the country, has shown that PPCPs are often present in surface water, frequently attributed to discharges of treated domestic wastewater. Montana DEQ conducted monitoring for PPCPs in surface waters near Big Sky following a spill of treated wastewater in 2016. Several PPCPs were detected in the wastewater and in surface waters (Third Yellow Mule Creek, South Fork West Fork Gallatin River, West Fork Gallatin River, and the Gallatin River) and compared to standards developed by the state of Minnesota (DEQ, 2016). DEQ concluded that the concentrations observed in surface waters were not a threat to human health. While concentrations of at least one parameter did exceed levels that might affect aquatic life, there remains considerable uncertainty as to the impact of low-concentration pharmaceuticals such that DEQ's ability to assess this impact is limited. It is important to note also that this monitoring event was after a large volume spill of wastewater following a catastrophic failure of a wastewater pond.

While PPCPs are assumed to be present in the effluent from the BSCWSD, it is unlikely that they are present in concentrations that will cause harm to human health or aquatic life. DEQ finds that PPCP effluent limits or monitoring are not necessary for the Spanish Peaks snowmaking operation based on the following:

- Montana does not have water quality standards for PPCPs. What constitutes harmful levels of these compounds has not been fully studied and adopted into law in Montana.
- The proposed discharge is intermittent, will be diluted by natural snowfall, and discharge to receiving waters will occur during the highest flow of the year (spring runoff) such that it is subject to the maximum amount of dilution available annually.
- DEQ is unaware of adverse effects to aquatic life attributable to PPCPs from domestic wastewater plants discharging to surface waters as authorized by an MPDES permit, as evaluated by Whole Effluent Toxicity (WET) testing. DEQ requires Whole Effluent Toxicity (WET) testing at all major publicly owned treatment works (POTWs) in the state. WET testing evaluates the effluent for toxicity caused by synergistic effects and for toxicity that may be attributable to compounds that are present but not regulated by the numeric effluent limits of the permit. WET test failures attributable to PPCPs have not occurred at any of the major POTWs in the state in at least the last 20 years.

Therefore, the possibility that any PPCPs discharged by the proposed snowmaking project will cause adverse aquatic life impacts is low enough that DEQ finds no reasonable potential to cause or

contribute to an exceedance of a water quality standard and no need for an effluent limitation for any of these compounds.

PFAS

Per and polyfluoroalkyl substances or PFAS, are a family of thousands of synthetic chemicals. Similar to PPCPs, they are used in many consumer products and as such find their way into the environment via various routes. PFAS presence in wastewater treatment systems is well known. Montana DEQ has adopted human health water quality standards for ground water for two PFAS: perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS). EPA has developed aquatic life criteria for PFOA and PFOS, but Montana has not yet adopted aquatic life criteria. These water quality criteria are shown below for informational purposes. None of these criteria apply to surface waters in Montana at this time.

Table 14 – PFAS Water Quality Criteria

Parameter	Units	Human Health	Chronic Aquatic Life[2]	Acute Aquatic Life[2]
PFOA	µg/L	0.07 [1]	100	3,100
PFOS	µg/L	0.07 [1]	0.25	71

1. PFOA + PFOS must be less than 0.07.
2. EPA criteria not yet adopted by Montana

In 2021, DEQ conducted monitoring for PFAS at multiple locations around the state. Monitoring focused near four at-risk areas - Helena, Great Falls, Bozeman, and Billings - where PFAS were considered likely to be found in surface waters (DEQ, 2022). The Monitoring and Assessment Program used the ground water standard of 0.07 µg/L as a screening level for surface water samples. At most sites selected, sampling results were non-detect for all 28 PFAS selected for analysis. For the most part, the highest PFOA and PFOS concentrations near these sources were 0.017 µg/L for PFOS and 0.016 µg/L for PFOA, except for Whitmore Ravine in Great Falls where PFOS was detected at 0.932 µg/L and PFOA at 0.256 µg/L. These were the only samples that exceeded the ground water human health standard. It does not appear that the City of Great Falls POTW is the source for these results. Malmstom Air Force Base is a potential source for these PFAS and is investigating possible PFAS contamination at the base.

In the Helena area, sampling was conducted on Prickly Pear Creek at a location downstream of the City of East Helena. East Helena's POTW discharges continuously into Prickly Pear Creek at an average rate of approximately 250,000 gallons per day. East Helena does not have an MBR plant, like that under development at BSCWSD, which likely results in a lower quality effluent. PFAS were not detected in Little Prickly Pear Creek downstream of East Helena.

DEQ is unaware of any sampling results for PFAS in the BSCWSD effluent. It is assumed that PFAS are present in most domestic wastewater treatment systems at varying concentrations. Nonetheless, DEQ finds that PFAS effluent limits or monitoring are not necessary for the Spanish Peaks snowmaking operation based on the following:

- The initial discharge is land application as manmade snow, not a direct discharge to surface water.

- The potential discharge to surface water will occur as snowmelt and will be diluted by the natural snowpack over the course of the winter.
- The potential discharge will be further diluted by spring runoff high flows in the receiving waters.
- Despite the probable presence of PFAS in wastewater treatment plant effluents, DEQ has not yet detected PFAS in surface water above Montana human health criteria or EPA aquatic life criteria at any location attributable to a domestic POTW.
- PFAS concentrations were below laboratory detection limits at one location downstream of and near a smaller POTW (East Helena) that is more comparable to the BSCWSD.

2.3 Final Effluent Limitations and Conditions

Final Effluent Limitations—Outfall 001 and 002

Table 15 – Final Effluent Limitations Outfall 001 and 002

Parameter	Units	Effluent Limitations	
		Average Monthly	Average Weekly
pH	s.u.	6.0 to 9.0	
Total Suspended Solids	mg/L	30	45
5-day Biochemical Oxygen Demand	mg/L	30	45
E. coli	Number of organisms/mL	2.2 (1)	12.6 (3)
Total Residual Chlorine (2)	mg/L	0.002	0.019 (3)

Footnotes:
1. Geometric mean.
2. Analytical results less than 0.1 mg/L are considered in compliance with these effluent limits.
3. Daily Maximum

3 MONITORING AND REPORTING REQUIREMENTS

All test procedures must be approved under 40 CFR 136, unless another method is specified in the permit. Analytical methods must achieve the required reporting value (RRV) specified in the latest version of Department Circular DEQ-7. The RRVs specified in the following monitoring tables are included for convenience and are the RRVs at the time of permit development. RRVs are subject to change during water quality standards triennial review.

3.1 Monitoring Location

The authorization to discharge is limited to the following designated outfalls. The Permittee must monitor the effluent to demonstrate compliance with the effluent limitations and other requirements of this permit at the locations specified in the table below.

Table 16 – Outfall Monitoring Locations		
Outfall Designation	**Monitoring Location Designation**	**Monitoring Description**
001 and 002	SUM-A	Compliance with TBELs (BOD, TSS, and pH) shall be monitored between the South Pond and the Hole 10 Pond. Effluent monitoring for all other parameters must be monitored after discharge from the Hole 10 Pond and prior to discharge by the snowmaking guns (except for TRC, see monitoring table)

3.2 Monitoring Determination

Monitoring requirements for the discharges and monitoring locations described in Section 3.1 are given in the following tables specific to each monitoring location and are incorporated into the discharge permit.

Total nitrogen in effluent is calculated as the sum of total Kjeldahl nitrogen and nitrite plus nitrate. Ambient receiving water samples may be measured via persulfate digestion.

3.3 Reporting Requirements

All monitoring results shall be electronically reported to DEQ on Discharge Monitoring Reports (DMR) via NetDMR. If no discharge occurs during an entire monthly monitoring period, then no discharge shall be reported.

Table 17 - Monitoring Requirements at Outfall SUM-A

Parameter	Units	Minimum Monitoring Frequency	Sample Type	Reporting Requirements	RRV
Effluent Flow Rate	mgd	Continuous	Recording Device	Monthly Average and Daily Maximum	--
pH	s.u.	1/Week	Instantaneous	Monthly Average and Maximum Weekly Average	0.1
Total Suspended Solids	mg/L	1/Week	Composite	Monthly Average and Maximum Weekly Average	1
5-day Biochemical Oxygen Demand	mg/L	1/Week	Composite	Monthly Average and Maximum Weekly Average	10
E. coli	Number of organisms /mL	1/Week	Grab	Monthly Geometric Mean and Daily Maximum	1
Total Residual Chlorine (TRC)	mg/L	1/Week	Composited Grab [1]	Monthly Average and Daily Maximum	0.1
Temperature	° F	1/Month	Instantaneous	Monthly Average	--
Ammonia, as N	mg/L	1/Month	Composite	Monthly Average	0.07
Nitrate plus Nitrite, as N	mg/L	1/Month	Composite	Monthly Average	0.02
Total Nitrogen	mg/L	1/Week	Composite	Monthly Average and Daily Maximum	0.225
Total Phosphorus	mg/L	1/Week	Composite	Monthly Average and Daily Maximum	0.003

1. TRC samples may be collected as grab samples collected after deposition by the snowmaking guns, composited, and analyzed immediately

4 SPECIAL CONDITIONS

4.1 Instream and Surface Runoff Monitoring Plan

The permittee must develop and implement an instream and surface water runoff monitoring plan. The plan is necessary to ensure that the addition of runoff from artificial snowmaking does not create a significant impact, as defined by ARM 17.30.715, to the North and South Unnamed Tributaries and by extension, any downstream receiving waters.

The plan must be submitted to DEQ for approval at least thirty days prior to any discharge from the Facility for snowmaking. The plan must at minimum include:

- Monitoring for total nitrogen, total phosphorus, pH, temperature, and total ammonia at all monitoring locations.
- At least one monitoring location, in both NUN and SUN, that is upstream of all potential snowmaking runoff.
- At least one monitoring location corresponding to the middle of each stream reach potentially affected by snowmaking runoff.
- Monitoring of snowmelt runoff at the locations RO-2, RO-3, and RO-4.
- In addition to RO-1, RO-2, and RO-4, monitoring locations must be established to measure runoff quality for at least three locations corresponding to discharges from Outfall 002 to the SUN.
- Continued monitoring at the existing downstream location submitted in the permit application (UN-1/UN-3).
- Effluent sampling must be conducted for all parameters listed above as required by the permit monitoring requirements during snowmaking operations. Effluent sampling results must be incorporated into the report for this monitoring plan.
- Instream and snowmelt sampling must occur monthly at each location during the April to June runoff period and at least once in August unless the receiving water has zero flow.
- Monitoring of chlorophyll-*a* must be conducted at each monitoring location at least once in June and at least once in August unless the receiving water has zero flow.
- A proposed format for a written report summarizing all monitoring activities. The report must include latitude and longitude of each monitoring location, photographs of the monitoring locations, dates and times of sampling, sampling methods including collection of QA/QC samples, and all bench sheets and field notes. The report must include a comparison of all sampling results to the sampling results submitted with the permit application. Once the format is approved, the written report must be submitted to DEQ no later than December 31st of each year.

5 STANDARD CONDITIONS

Standard conditions must be included in all MPDES permits and the Permittee must comply with all standard conditions at all times. ARM 17.30.1342. These requirements are expressly incorporated into the permit. In addition to these requirements, ARM 17.30.1343 and 40 CFR 122.42 establishes additional conditions applicable to specific categories of MPDES permits including notification requirements for municipal and non-municipal dischargers

The additional requirements of ARM 17.30.1343(1)(a) are included in the permit. The requirement establishes additional notification requirements for toxic pollutants that exceed a specified level, exceed the level given in the Facility's permit application or are not regulated in the permit.

6 PUBLIC PARTICIPATION

In accordance with ARM 17.30.1372, DEQ issued Public Notice No. MT-06 dated February 3, 2025. The public notice states that a tentative decision has been made to issue an MPDES permit for CH SP Acquisitions, LLC, and that a draft permit, fact sheet and draft environmental assessment have been prepared. Public comments on the draft MPDES permit and EA impacts related to the permit are invited any time prior to the close of business March 6, 2025. Comments may be directed to:

DEQ Water Quality Division
Water Protection Bureau
PO Box 200901
Helena, MT 59620

or DEQWPBPublicNotices@mt.gov

All comments received or postmarked prior to the close of the public comment period will be considered in the formulation of the final permit. DEQ will respond to all substantive comments and issue a final decision as soon as possible after the close of the public comment period.

All persons, including Permittees, who believe any condition of a draft permit is inappropriate or that DEQ's tentative decision to deny an application, terminate a permit, or prepare a draft permit is inappropriate, shall raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by the close of the public comment period (including any public hearing) under ARM 17.30.1372.

6.1 Notification of Interested Parties

Copies of the public notice were mailed to the Discharger, state and federal agencies and interested persons who have expressed an interest in being notified of permit actions. A copy of the distribution list is available in the administrative record for this permit. In addition to mailing the public notice, a copy of the notice and applicable draft permit and fact sheet were posted on the DEQ website for 30 days.

Any person interested in being placed on the mailing list for information regarding this MPDES Permit should contact DEQ, reference this Facility, and provide a name, address, and phone number.

6.2 Public Hearing Written Comments

A public hearing may be held when if there is significant public interest. DEQ has not scheduled a public hearing for this permit action. If a public hearing is requested by the permittee or a significant number of interested persons, one may be scheduled. A public hearing is an opportunity for interested parties to submit comments in person. Public comments received at a public hearing are recorded by a

court recorder and are processed in the same manner and at the same time as written comments described in the public notice description in Section 6 above.

6.3 Permit Appeal

After the close of the public comment period DEQ will issue a final permit decision. A final permit decision means a final decision to issue, deny, modify, revoke and reissue, or terminate a permit. A permit decision is effective 30 days after the date of issuance unless a later date is specified in the decision, a stay is granted pursuant to ARM 17.30.1379, or the Permittee files an appeal pursuant to 75-5-403, MCA.

The Permittee may file an appeal within 30 days of DEQ's action to the following address:

Secretary, Board of Environmental Review
Department of Environmental Quality
1520 East Sixth Avenue
PO Box 200901
Helena, Montana 59620-0901

7 NONSIGNIFICANCE DETERMINATION

The Montana Water Quality Act states that it is unlawful to cause degradation of state waters without an authorization issued pursuant to 75-5-303, MCA [75-5-605(1)(d), MCA]. ARM 17.30.706(2) states that DEQ will determine whether a proposed activity may cause degradation for all activities which are permitted, approved, licensed, or otherwise authorized by DEQ, such as issuance of a discharge permit. A nondegradation analysis was conducted in Section 2 of this permit fact sheet for the proposed discharges and activities regulated by this permit. Based on this analysis DEQ has made the following determinations:

The discharges from the Facility are a new source. DEQ conducted the reasonable potential analysis, set the effluent limits and monitoring requirements, and established special conditions in the permit to comply with the nonsignificance criteria of ARM 17.30.715(1). DEQ reviewed the additional criteria in ARM 17.30.715(2) and at this time finds that cumulative impacts or synergistic effects are unlikely because the effluent limitations and monitoring requirements will ensure protection of water quality. Discharges in compliance with ARM 17.30.715(1) and (2) are nonsignificant and are not required to undergo review under Montana's Nondegradation Policy (75-5-303, MCA). If monitoring indicates changes in water quality are occurring, more stringent effluent limitations or treatment requirements may be implemented in future permits before the snowmaking discharge may continue.