

Water Quality Division

Montana Pollutant Discharge Elimination System (MPDES) ▪ Fact Sheet

Permit Number:	MT0000485
Permittee:	GCC Three Forks, Inc.
Receiving Water:	Missouri River
Facility Information:	GCC Three Forks, Inc. 4070 Trident Road, Three Forks, MT 59752
Facility Contact:	Greg Gannon, Environmental Manager 4070 Trident Road, Three Forks, MT 59752
Type of Facility:	Minor Private Wastewater Treatment Plant
Type of Treatment:	Extended aeration package plant with settling and ultraviolet disinfection
Number of Outfalls:	1
Outfall Name:	002
Outfall Location:	45.94942, -111.47501
Fact Sheet Date:	March 2019

I. Summary of Proposed Changes

DEQ proposes to renew the Montana Pollutant Discharge Elimination System (MPDES) permit for GCC Three Forks, Inc Wastewater Treatment Facility, MT0000485. This fact sheet documents the legal requirements and technical rationale that serve the decision-making process involved with developing effluent limits, monitoring and reporting requirements, and special conditions which are specific to GCC. The proposed permit renewal has the following changes to effluent limits and monitoring requirements:

- The existing permit limits and monitoring requirements for E. coli are maintained in this renewal, and GCC has the option to report the most probable number in organisms/100 mL instead of colony forming units/100 mL.
- The monitoring requirement and effluent limits for total residual chlorine will be removed.
- Ambient/upstream monitoring will be required for arsenic, ammonia, pH, and temperature quarterly.
- The reporting units for arsenic will be changed from mg/L to µg/L.

II. Facility Information

A. Permit Status

The permit was administratively extended in 2016.

- July 1, 2011 2011-issued permit became effective
- June 30, 2016 2011-issued permit expired
- January 4, 2016 2011-issued permit administratively extended

The facility has had two changes in ownership since the 2011-permit issuance.

- August 1, 2015: The permit was transferred from Holcim (US) Inc. to Oldcastle Materials Cement Holdings, Inc. on August 1, 2015.
- September 4, 2018: DEQ received a Permit Transfer Notification (PTN) from Oldcastle Materials Cement Holdings, Inc. and GCC Three Forks, Inc. The permit transfer will be incorporated into this 2019-permit renewal.

B. Facility Description and Design Criteria Summary

GCC treats sanitary wastewater and discharges to Outfall 002, which is located on the Missouri River near Trident, MT. Outfall 002 is the facility's only outfall, as Outfall 001 was eliminated in 1993, and removed from the 2011-issued permit. GCC uses the non-leaching process to manufacture cement and does not discharge process water because GCC's cement manufacturing process uses a "closed loop system", of which groundwater is the source, and process wastewater is lost as steam. Potable water is sourced from groundwater and then disinfected with chlorine and treated for arsenic prior to being used for drinking. Additional design criteria are summarized below:

- Extended aeration package plant with settling and ultraviolet (UV) disinfection.
- Design flow rate of 7,000 gal/d (0.007 mgd)
- Outfall 002 located at 45.94942, -111.47501
- Installed in 1985
- Collection system has one lift station.
- All stormwater is contained onsite (2008 EPA Stormwater Inspection).
- Effluent flow is measured with a magnetic flow meter.
- Effluent samples are obtained at the sampling station located after the UV disinfection system.

C. Existing Permit Requirements

Parameter	Units	Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit
Biochemical Oxygen Demand (BOD ₅)	mg/L	30	45	-
	lb/day	1.8	2.6	-
Total Suspended Solids (TSS)	mg/L	30	45	-
	lb/day	1.8	2.6	-
pH	s.u.	Within the range of 6.0 to 9.0 (instantaneous)		
<i>E. coli</i> Bacteria, Summer	cfu/100mL	126	252	-
<i>E. coli</i> Bacteria, Winter	cfu/100 mL	630	1260	-
Oil and Grease	mg/L	-	-	10
Total Residual Chlorine	mg/L	0.011	-	0.019
Total Nitrogen	lb/day	1.0	-	-

D. Effluent Quality

Because treatment has remained consistent for the past five years, effluent data from January 2014 - December 2018 were selected to represent the period of record (POR), and are representative of the facility's effluent quality. **Table 2** summarizes effluent quality as reported on discharge monitoring reports.

Parameter	Units	Minimum Value	Maximum Value	Average Value	Sample Size
Effluent Flow Rate	gal/day	2780	54430	5343	60
Temperature	°C	9.2	24.6	15.3	60
Conventional Pollutants:					
Biochemical Oxygen Demand (BOD ₅)	mg/L	0.60	120.	4.83	60
	lb/day	0.02	1.84	0.19	60
Total Suspended Solids (TSS)	mg/L	0.90	74.0	12.5	60
	lb/day	0.02	3.5	0.49	60
<i>E. coli</i> , April – October	cfu/100mL	0.4	380	13.2 ⁽¹⁾	35
<i>E. coli</i> , November – March	cfu/100 mL	0.3	3100	34.9 ⁽¹⁾	25
Oil and Grease	mg/L	0.009	4.00	1.15	20

Table 2. GCC Effluent Characteristics January 2014 through December 2018 – Outfall 002					
Parameter	Units	Minimum Value	Maximum Value	Average Value	Sample Size
pH	s.u.	6.9	8.5	7.6	60
Nonconventional Pollutants:					
Total Ammonia as N	mg/L	1.3	45.2	12.2	60
Nitrate + Nitrite	mg/L	0.01	9.41	2.75	59
Total Kjeldahl Nitrogen	mg/L	2.4	49.4	13.5	60
Total Nitrogen	mg/L	4.4	49.4	16.4	60
	lb/day	0.24	3.3	0.6	60
Total Phosphorus	mg/L	0.30	4.2	1.7	60
	lb/day	0.03	0.6	0.08	60
Toxic Pollutant:					
Arsenic	mg/L	0.008	0.012	0.009	20
⁽¹⁾ Geometric mean					

III. Receiving Water: Missouri River

GCC's wastewater treatment facility discharges to the Missouri River two miles downstream from the confluence of the Jefferson, Madison, and Gallatin Rivers. This section of the Missouri River has been identified as impaired but does not have a total maximum daily load (TMDL).

A. Receiving Water Summary

The following information is used to develop water quality based effluent limits.

- Water Use Classification: B-1
- Watershed: Missouri
- Waterbody Name/Location: Missouri River, Headwaters to Toston Dam
- Montana Stream Segment: MT41I001_011
- USGS Hydrologic Unit Code: 10030101
- USGS Stream Gage: Missouri River at Toston, 06054500
- Ecoregion: Middle Rockies
- Identified as Impaired: 2016 303(d) List
- Total Maximum Daily Load (TMDL): None
- Salmonids and early life stages: Present
- 7Q10: 735 mgd (1137 cfs)
- Dilution Ratio (7Q10:facility design flow): 105,000:1

B. Water Use Classification

According to Montana Water Use Classifications, this section of the Missouri River is classified as B-1. The goal of the state of Montana is to maintain B-1 class waters suitable for:

- 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.

C. Impairments

The 2016 303(d) list shows this segment of the river as not fully supporting aquatic life or drinking water.

Pollutants identified as causing impairments:

- Arsenic
- Total Nitrogen
- Sedimentation/Siltation

Probable Sources of impairments:

- Grazing in riparian or shoreline zones
- Irrigated crop production
- Municipal point source discharges
- Natural sources
- Non-irrigated crop production

D. Applicable Water Quality Standards

Each waterbody classification has numeric and narrative water quality standards designed to ensure that the beneficial uses are protected. Discharges to B-1 classified waters are subject to the specific water quality standards of:

- Administrative Rules of Montana 17.30 Subchapter 6
- Department Circular DEQ-7, Numeric Water Quality Standards
- Department Circular DEQ-12A, Base Numeric Nutrient Standards

In addition to these water quality standards, dischargers are also subject to:

- Administrative Rules of Montana 17.30 Subchapter 5; Mixing Zones
- Administrative Rules of Montana 17.30 Subchapter 7; Nondegradation of Water Quality

E. Ambient Stream Conditions

1. Instream Pollutant Concentrations

Recent ambient (instream/upstream) water quality data for the Missouri River near GCC is unavailable. Therefore, permit development is based on ambient conditions established in the 2011-Fact Sheet. Ammonia is the only parameter identified in the 2011 Fact Sheet as having instream data. The instream critical condition of the receiving water is the 75th percentile (0.6 mg/L).

2. Low Flow

In the 2011 Fact Sheet, the 7-day, 10-year average low flow (7Q10) for the receiving water was calculated by combining the 7Q10 values from each of the three major tributaries to the Missouri River. However, the USGS gage at the Madison River has not been active since 1950, making this an insufficient method for determining and updated 7Q10 value.

USGS collects flow data for the Missouri River at Toston gage 06054500, which is a long-term gaging station within five percent of the watershed area at the Trident discharge. DEQ will use the 7Q10 calculated at this USGS gaging station in the reasonable potential analysis.

- 7-day, 10-year average low flow (7Q10) = 1,137 cfs = 735 mgd

IV. Technology Based Effluent Limits

Technology-based effluent limitations (TBELs) represent the minimum treatment requirements implemented in MPDES permits. The limits are based on actual, available control technologies to treat pollutants, and must be met prior to dilution. For non-municipal dischargers, TBELs are derived by National effluent limitations guidelines and standards established by EPA, and/or the permit writer using best professional judgement on a case-by-case basis.

A. Applicable Effluent Limits

1. *ELGs for Cement Manufacturing Point Source Category, 40 CFR Part 411*

Effluent limitations guidelines (ELGs) are established by EPA for different non-municipal categories. These guidelines are developed based on the degree of pollutant reduction attainable by an industrial category through the application of pollutant control technologies. DEQ evaluated the following ELGs for GCC:

a. The Nonleaching Subcategory A

GCC does not discharge process water because the plant's cement manufacturing process uses "a closed loop system" in which the only process wastewater is lost as steam. ELGS in the Nonleaching Subcategory are not applicable to GCC.

b. The Materials Storage Piles Runoff Subcategory C

In 2008 EPA conducted an inspection and determined that the plant does not discharge stormwater. Because stormwater is retained on-site, ELGs in this subcategory are not applicable to GCC.

2. *Best Professional Judgement*

Limit development through Best Professional Judgement considers the same statutory factors EPA staff would use to promulgate a national effluent guideline, and apply particular circumstances relating to the applicant.

In past permit cycles, discharges from the wastewater treatment facility had TBELS for pH, 5-day biochemical oxygen demand (BOD₅), and total suspended solids (TSS). These TBELS were reflective of a combination of the national secondary treatment standards and BPJ. The TBELS from the 2011-issued permit will be retained:

- **BOD₅ and TSS monthly average:** shall not exceed 30 mg/L
- **BOD₅ and TSS weekly average:** shall not exceed 45 mg/L
- **pH:** must be maintained within the range of 6.0 to 9.0.

3. Mass-Based Expression of Limits

Effluent limits must be expressed in terms of mass, identified as load (pounds/day). GCC’s mass-based load limits were calculated by multiplying the facility’s average daily design flow and the national secondary treatment standards for each pollutant by a conversion factor:

- $BOD_5 \text{ and TSS monthly average load} = 0.007 \text{ mgd} \times 30 \frac{\text{mg}}{\text{L}} \times 8.34 \frac{\text{lb} \cdot \text{L}}{\text{Mgal} \cdot \text{mg}} = 1.8 \frac{\text{lb}}{\text{day}}$
- $BOD_5 \text{ and TSS weekly average load} = 0.007 \text{ mgd} \times 45 \frac{\text{mg}}{\text{L}} \times 8.34 \frac{\text{lb} \cdot \text{L}}{\text{Mgal} \cdot \text{mg}} = 2.6 \frac{\text{lb}}{\text{day}}$

Load limits for BOD₅ and TSS will apply to the effluent and will be maintained at the more stringent of the TBELS shown above or the nondegradation load allocations discussed next.

B. Nondegradation

Montana’s Nondegradation Policy prevents degradation of state waters and ensures that existing uses continue to be achieved. Sources that comply with the conditions of their permit and do not exceed the limits are not considered new or increased sources. Nondegradation load values are compared to the actual average loads discharged from the facility from the past five years. GCC did not exceed the load during the permit cycle.

<u>Nondegradation Allocated Limits</u>		<u>Actual Average Monthly Load (lb/day)</u>				
<u>Parameter</u>	<u>Load (lb/day)</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>
BOD ₅	1.8	0.20	0.22	0.19	0.11	0.24
TSS	1.8	0.31	0.47	0.22	0.53	0.92

C. Final Technology-Based Effluent Limits

Parameter	Units	Average Monthly Limit	Average Weekly Limit
Biochemical Oxygen Demand (BOD ₅)	mg/L	30	45
	lb/day	1.8	2.6
Total Suspended Solids (TSS)	mg/L	30	45
	lb/day	1.8	2.6
pH	s.u.	6.0 - 9.0 (instantaneous)	

⁽¹⁾ See Definition section at end of permit for explanation of terms.

V. Water Quality-Based Effluent Limits

Permits are required to include Water Quality-Based Effluent Limits (WQBELs) when TBELs are not adequate to protect state water quality standards. WQBELs are developed for each parameter demonstrating reasonable potential to cause or contribute to an excursion from any water quality standard.

A. Scope and Authority

The Montana Water Quality Act states that a permit may only be issued if DEQ finds that it will not result in pollution of any state waters. No wastes may be discharged that can reasonably be expected to violate any state water quality standards. Montana water quality standards define both water use classifications for all state waters and numeric and narrative standards that protect those designated uses. MPDES permit limitations must control all pollutants which will cause or have reasonable potential (RP) to cause or contribute to an excursion above any state water quality standard, including narrative criteria.

B. Pollutants of Concern

Pollutants and parameters are identified as a pollutant of concern for the following reasons:

- Listed as TBELs
- Identified as needing WQBELs in the previously issued permit
- Identified as present in effluent monitoring or otherwise expected present in the discharge
- Associated with impairment which may or may not have a wasteload allocation (WLA) in a TMDL

Parameters typically present in sanitary wastewater that may cause or contribute to a violation of water quality standards include those found in **Table 5**. Identification of a pollutant of concern (POC) is not an indication that WQBELs are necessary, but an indication that further evaluation is required.

Table 4. Identification of Pollutants of Concern	
Parameter	Basis for POC Identification
<i>Conventional Pollutants:</i>	
BOD ₅ , TSS, and pH	TBEL, WQBEL in Previous Permit
<i>E. coli</i> , Oil and Grease	WQBEL in Previous Permit
<i>Nonconventional Pollutants:</i>	
Total Residual Chlorine	WQBEL in Previous Permit
Total Nitrogen	WQBEL in Previous Permit, Impairment
Total Ammonia, Total Phosphorus, Nitrate Nitrite	Permit Monitoring
<i>Toxic Pollutants:</i>	
Total Recoverable Arsenic	Permit Monitoring

C. Mixing Zone

A mixing zone is an area where the effluent mixes with the receiving water and certain water quality standards may be exceeded. Mixing zones must have the smallest practicable size, a minimum practicable effect on water uses, and definable boundaries. DEQ sets the available dilution flow on a parameter-by-parameter basis to assess RP and to achieve acute, chronic, and human health standards.

- Acute water quality standards for aquatic life may not be exceeded in any portion of the mixing zone unless the Department finds that allowing minimal initial dilution will not threaten or impair existing uses.
- An effluent in its mixing zone may not block passage of aquatic organisms nor may it cause acutely toxic conditions.
- No mixing zone will be granted that will impair beneficial uses.
- Aquatic life-chronic, aquatic life-acute and human health standards may not be exceeded outside of a designated mixing zone.
- DEQ may require information from the permittee before determining appropriate mixing and the conditions which should be applied.

GCC did not request a mixing zone. For this permit renewal, DEQ will allow dilution for total ammonia, which will naturally decay in the receiving water. When determining reasonable potential for this parameter, DEQ will use:

- 1% of the 7Q10 (7.35 mgd) for acute conditions
- 10% of the 7Q10 (73.5 mgd) for chronic conditions.

D. Reasonable Potential Analysis

DEQ uses a statistical approach outlined in Chapter 3 of EPA's *Technical Support Document for Water Quality-based Toxics Control* (TSD) to determine reasonable potential for individual pollutants to exceed water quality standards. **Section VI. Final Pollutant Evaluation** describes the full reasonable potential analysis for each pollutant of concern.

1. **Critical Effluent Concentration (C_d) Calculation:** The facility's maximum reported effluent concentration (C_{max}) is converted into the projected critical effluent concentration (C_d). This accounts for variation in effluent concentration.
 - First, the statistical TSD 3-2 multiplier is determined by the data set, coefficient of variation (CV) and sample size at the 95th percentile confidence interval. A default CV of 0.6 is used if there are less than 10 samples.
 - Then the TSD 3-2 multiplier is applied to the facility's maximum reported effluent concentration (C_{max}) to determine the critical effluent concentration (C_d).
2. **Parameters Not Allowed Dilution:** If the $C_d > WQS$, reasonable potential exists.
3. **Parameters Allowed Dilution:** The steady-state mass balance model (**Equation 1**) is used to determine the projected receiving water concentration (C_r). If $C_r > WQS$, reasonable potential exists.

Equation 1. Using the Mass Balance Equation to Determine Reasonable Potential

$$\text{Mass Balance Equation: } Q_s C_s + Q_d C_d = Q_r C_r$$

$$\text{Receiving Water Pollutant Concentration: } C_r = \frac{Q_d C_d + Q_s C_s}{(Q_r)}$$

Variable:

Q_s = upstream flow
 Q_d = discharge flow
 Q_r = receiving flow after discharge
 C_s = upstream pollutant conc.
 C_d = discharge pollutant conc.

Calculated As:

Q_s = dilution flow from **Part V.C**
 Q_d = average daily design flow
 $Q_r = Q_s + Q_d$
 C_s = 75th percentile critical instream conc.
 C_d = max effluent concentration · TSD multiplier

E. Water Quality-Based Effluent Limits Development

DEQ uses the approach outlined in Chapter 5 of EPA's TSD Manual to develop WQBELs for each pollutant. WQBELs are expressed as **maximum daily limit (MDL)** and **average monthly limit (AML)**.

- The maximum daily limit (MDL) is the highest allowable discharge measured during a calendar day or 24-hour period representing a calendar day.
- The average monthly limit (AML) is the highest allowable value for the average of daily discharges over a calendar month.

Each parameter's MDL and AML is derived from a **wasteload allocation (WLA)**. The WLA is the concentration of a pollutant that the point source can discharge while conforming to DEQ implementation policies and assuring applicable water quality standards are attained in the receiving water.

WQBEL development is detailed on a parameter-by-parameter basis in **Section VI. Final Pollutant Evaluation**.

VI. Final Pollutant Evaluation

A. Conventional Pollutants:

1. **BOD₅, TSS, and pH:** These parameters are typical effluent quality indicators for wastewater treatment facilities and are regulated as TBELs. The facility provides a significant reduction in biological material and solids through secondary treatment.
 - No additional limits are necessary - TBELs adequately control these pollutants.
2. ***Escherichia coli* (*E. coli*) Bacteria:** Pathogens are known municipal wastewater contaminants. *E. coli* standards protect beneficial uses of receiving waters for pathogens. State waters must be free from substances that are harmful or toxic to humans. The standards for B-1 classified waters as expressed by most probable number, a statistical representation of the number of organisms in a sample, are:
 - Summer: April 1 through October 31 of each year
 - The geometric mean number must not exceed 126 organisms per 100 milliliters (org/100 mL)
 - 10% of the total samples may not exceed 252 org/100 mL during any 30-day period
 - Winter: November 1 through March 31 of each year
 - The geometric mean number of *E. coli* must not exceed 630 org/100 mL
 - 10% of the total samples may not exceed 1,260 org/100 mL during any 30-day period

The existing permit limits and monitoring requirements for *E. coli* are maintained in this renewal, and GCC has the option to report org/100 mL instead of cfu/100mL.
3. **Oil and Grease:** Montana regulations require state waters be free from substances attributable to municipal discharges that will result in concentrations of oil and grease at or in excess of 10 mg/L.
 - This limit will be retained in the proposed permit.
 - Monitoring is required quarterly.

B. Nonconventional Pollutants:

1. **Total Residual Chlorine**
The facility uses ultraviolet disinfection, so chlorine limits and monitoring requirements will be removed from the permit.
2. **Total Ammonia:** The numeric water quality standards for ammonia account for a combination of receiving water characteristics such as the presence/absence of salmonids and early life stages of fish and the 75th percentile of pH and temperature. The 2011-Fact Sheet contains the only available instream data for these factors, and this information was carried forward into this permit cycle.

Table 5 demonstrates that the calculated ammonia projected critical effluent concentration (C_d) value exceeds water quality standards, but with allowed dilution referenced in **Part V.C.**, reasonable potential does not exist. This is because the projected receiving water concentration (C_r) is below the water quality standards. **Part V.D.** above details the process for determining reasonable potential.

Table 5. Reasonable Potential Analysis for Total Ammonia										
Projected Critical Effluent Concentration (C_d)					Water Quality Standard					
CV	Sample Size	→ TSD Mult.	• C_{max}	= C_d	Acute	Chronic	HH			
0.82	59		1.0	9.4 mg/L	9.4 mg/L	1.2	0.7	-		
Projected Receiving Water Conc. (C_r) in mg/L					Reasonable Potential					
Dilution	C_s	• Q_s	+ C_d	• Q_d	/ Q_r	C_r	< or >	WQS	RP?	
1% acute	0.6	7.35	45	0.007	7.36	0.64	<	1.2	no	
10 % chronic	0.6	73.5	45	0.007	73.5	0.60	<	0.7	no	

- Reasonable potential does not exist, and this permit renewal will not include an ammonia limit.
- The monthly monitoring requirement will be continued for the effluent.
- Quarterly upstream monitoring of ammonia, pH and temperature will be required to provide a data set for analysis in the next permit cycle.

3. **Nitrate Plus Nitrite (N+N):** Nitrate and nitrite are toxic components of total nitrogen, which is a common constituent of domestic wastewater. The human health standard is the only standard that applies to this parameter. **Table 6** below shows that reasonable potential does not exist because the projected critical effluent concentration is less than the human health water quality standard.

Projected Critical Effluent Concentration (C_d)					Water Quality Standard			
CV	Sample Size	→ TSD Mult.	• C _{max}	= C _d	Acute	Chronic	HH	
0.82	59		1.0	9.4 mg/L	9.4 mg/L	-	-	10 mg/L

- This permit renewal will not include a limit for nitrate plus nitrite.
 - The monthly monitoring requirement will be continued.
4. **Total Nitrogen:** Montana does not have total nitrogen water quality standards for the Missouri River, so a reasonable potential analysis is not necessary. However, because the receiving water is impaired for total nitrogen, an average monthly load limit was incorporated for this parameter in the 2011-issued permit. This limit will be retained.
 - AML = 1.0 lb/day
 - The monthly monitoring requirement will be continued.
 5. **Total Phosphorus:** Montana does not have total phosphorus water quality standards for the Missouri River, so:
 - This permit renewal will not include a limit for total phosphorus.
 - The monthly monitoring requirement will be continued.

C. Toxic Pollutants

1. **Total Recoverable Arsenic:** This section of the Missouri River is impaired for arsenic from natural sources. The most obvious natural source in close proximity, the Madison River carries high arsenic concentrations from geothermal waters originating in Yellowstone National Park. GCC uses ground water from wells that are hydraulically connected to the Missouri River and naturally high in arsenic. Ambient data for arsenic is unavailable, so this permit renewal will not include effluent limits but will require additional data collection for ambient arsenic quarterly. This will establish a sufficient data-set for defining ambient conditions in this section of the Missouri River, the potential to evaluate mixing, and establishing appropriate future effluent limits if necessary.
 - This permit renewal will not include effluent limits.
 - Quarterly ambient/upstream monitoring will be required for the permit term.
 - The quarterly effluent monitoring requirement will be continued.

D. Whole Effluent Toxicity Testing

Water quality standards require that state water be free from substances attributable to municipal waste that create conditions which are harmful or toxic to human, animal, plant or aquatic life, and provides the basis for whole effluent toxicity (WET) requirements in MPDES permits. GCC is a small discharger that discharges only sanitary wastewater with no identified industrial contribution. WET testing will not be required in this permit renewal.

VII. Final Effluent Limits

The final effluent limits are a combination of the more stringent of the technology-based and water quality-based effluent limits developed. The final effluent limits in **Table 7** will be applied to the discharge at Outfall 001 beginning on the permit effective date and lasting through the term of the permit.

- There shall be no discharge of floating solids or visible foam other than in trace amounts.
- There shall be no discharge which causes visible oil sheen in the receiving stream.
- There shall be no discharge that settles to form objectionable sludge deposits or emulsions beneath the surface of the water or upon adjoining shorelines.

Table 7. Final Effluent Limits – Outfall 003

Parameter	Units	Average Monthly Limit ⁽¹⁾	Average Weekly Limit ⁽¹⁾	Maximum Daily Limit ⁽¹⁾
Biochemical Oxygen Demand (BOD ₅)	mg/L	30	45	-
	lb/day	1.8	2.6	-
Total Suspended Solids (TSS)	mg/L	30	45	-
	lb/day	1.8	2.6	-
<i>E. coli</i> , April - October	org/100 mL	126 ⁽²⁾	252 ⁽²⁾	-
<i>E. coli</i> , November - March	org/100 mL	630 ⁽²⁾	1,260 ⁽²⁾	-
Oil and Grease	mg/L	-	-	10.0
pH	s.u.	6.0-9.0 instantaneous minimum and maximum		
Total Nitrogen	lb/day	1.0	-	-
⁽¹⁾ See Definitions section at the end of the permit for explanation of terms.				
⁽²⁾ Geometric Mean				

VIII. Monitoring and Reporting Requirements

A. Requirement to Monitor and Report

GCC must monitor their effluent. The samples collected and analyzed must be representative of the volume and nature of the facility's discharge. The Required Reporting Value is DEQ's best determination of a level of analysis that can be achieved by the majority of commercial, university, or governmental laboratories using EPA-approved methods or methods approved by DEQ, unless another reporting level is specified by DEQ, in writing.

- Monitoring will start with the effective date of the permit and last for the duration of the permit cycle.
- All analytical procedures must comply with the specifications of 40 CFR Part 136.
- GCC must submit NetDMR results for each month by the 28th of the following month.

B. Monitoring Locations, Frequency, Sample Type, and Calculations

The monitored parameters, their respective monitoring locations, and the reporting requirements are presented in **Tables 8 and 9**.

1. Effluent Monitoring

Effluent samples must reflect the nature and effect of the discharge at the frequency presented in **Table 8**. A magnetic flow meter will be used to measure effluent flow. Samples are to be obtained at the sampling station located after the UV disinfection system.

2. Upstream/Ambient Monitoring

- GCC will be required to monitor ambient data quarterly until the expiration of the permit as specified in **Table 9**.
- Monitoring must take place at a consistent location below the confluence with the Gallatin River and upstream and outside the influence of Outfall 002 with the sample type, frequency, and required reporting values (RRVS) as identified in **Table 9**. The value will be reported on the facility's discharge monitoring reports.
- GCC may choose to collect ambient data for additional parameters during the permit term if they plan to request a mixing zone for that parameter.

Table 8. Self-Monitoring Requirements for Outfall 002					
Parameter	Unit ⁽¹⁾	Sample Frequency	Sample Type ⁽²⁾	Reporting Requirement	Required Reporting Value ⁽³⁾
Effluent Flow	gal/day	Daily	Instantaneous	Monthly Maximum Daily Average	1
Biochemical Oxygen Demand (BOD ₅)	mg/L	1/Month	Grab	Monthly Average Weekly Average	5
	lbs/day	1/Month	Calculated	Monthly Average	0.1
Total Suspended Solids (TSS)	mg/L	1/Month	Grab	Monthly Average Weekly Average	5
	lbs/day	1/Month	Calculated	Monthly Average	0.1
pH	s.u.	1/Week	Instantaneous	Daily Minimum Daily Maximum	0.1
Temperature	°C	1/Week	Instantaneous	Monthly Average Weekly Maximum	0.1
<i>E. coli</i> ⁽⁴⁾	org/100 mL	1/Week	Grab	Monthly Average Weekly Maximum	1/100 mL
Oil and Grease	Presence	Daily	Observation	Present/Absent	NA
	mg/L	1/Quarter	Grab	Monthly Maximum	1
Total Ammonia, as N	mg/L	1/Month	Composite	Monthly Average	0.07
Nitrate + Nitrite, as N	mg/L	1/Month	Composite	Monthly Average	0.02
Kjeldahl Nitrogen, as N	mg/L	1/Month	Composite	Monthly Average	0.225
Total Nitrogen, as N ⁽⁵⁾	mg/L	1/Month	Calculated	Monthly Average	0.245
	lbs/day	1/Month	Calculated		NA
Total Phosphorus, as P	mg/L	1/Month	Composite	Monthly Average	0.003
	lbs/day	1/Month	Calculated		NA
Arsenic, Total Recoverable	µg/L	1/Quarter	Grab	Monthly Average Daily Maximum	1
⁽¹⁾ See narrative discussion in the permit for additional details on calculating load.					
⁽²⁾ See Definition section at end of permit for explanation of terms.					
⁽³⁾ See Circular DEQ-7 for minimum RRVs.					
⁽⁴⁾ Geometric mean.					
⁽⁵⁾ Calculated as the sum of nitrate + nitrite (as N) and total Kjeldahl nitrogen concentrations.					

Table 9. Quarterly Upstream/Ambient Monitoring and Reporting Requirements				
Parameter	Unit	Sample Type ⁽¹⁾	Reporting Requirement	Required Reporting Value ⁽²⁾
pH	s.u.	Instantaneous	Minimum, Maximum	0.1
Temperature	°C	Instantaneous	Minimum, Maximum	0.1
Total Ammonia, as N	mg/L	Grab	Single Sample	0.07
Total Recoverable Arsenic	µg/L	Grab	Single Sample	1
⁽¹⁾ See Definition section at end of permit for explanation of terms.				
⁽²⁾ See Circular DEQ-7 for minimum RRVs.				

IX. Public Participation

DEQ issued Public Notice No. MT-19-09 dated April 22, 2019. The public notice states that a tentative decision has been made to issue an MPDES permit to the Permittee and that a draft permit, fact sheet and environmental assessment (EA) have been prepared. Public comments are invited any time prior to the close of the business on May 22, 2019. Comments may be directed to:

Department of Environmental Quality
Water Protection Bureau
PO Box 200901
Helena, MT 59620
or
DEQWPBPublicComments@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 within sixty days of the close of the public comment period or as soon as possible thereafter.

All persons, including the applicant, 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).

A. 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, fact sheet and EA were posted on DEQ's 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 email address.

B. Public Hearing

During the public comment period provided by the notice, DEQ will accept requests for a public hearing. A request for a public hearing must be in writing and must state the nature of the issue proposed to be raised in the hearing.

C. 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, or the applicant files an appeal pursuant to 75-5-403, MCA.

The Applicant 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

D. Additional Information

Requests for additional information or questions regarding this permit should be directed to the Water Protection Bureau at 406-444-5546.

VIII. Information Sources

Federal Water Pollution Control Act (Clean Water Act), 33 U.S.C. §§ 1251-1387, October 18, 1972, as amended 1973-1983, 1987, 1988, 1990-1992, 1994, 1995 and 1996.

Montana Code Annotated (MCA), Title 75-5-101, *et seq.*, “Montana Water Quality Act,”.

Administrative Rules of Montana Title 17 Chapter 30 - Water Quality

Subchapter 2 - *Water Quality Permit and Application Fees.*

Subchapter 5 - *Mixing Zones in Surface and Ground Water.*

Subchapter 6 - *Montana Surface Water Quality Standards and Procedures.*

Subchapter 7- *Nondegradation of Water Quality*

Subchapter 12 - *MPDES Standards.*

Subchapter 13 - *MPDES Permits.*

Montana Department of Environmental Quality. *Circular DEQ-7, Montana Numeric Water Quality Standards.* May 2017.

Montana Department of Environmental Quality. *Circular DEQ-12A, Montana Base Numeric Nutrient Standards.* July 2017.

Montana Department of Environmental Quality. *Montana 2016 Integrated Report and 303(d) List. A Compilation of Impaired and Threatened Water bodies in Need of Water Quality Restoration. Part A. Water Quality Assessment Results.*

Montana Pollutant Discharge Elimination System Permit Number MT0000485:

Administrative Record

Renewal Application EPA Form 1 and 2A, December 2015

US Code of Federal Regulations, 40 CFR Parts 122-125, 130-133, 136 and 442.

US EPA NPDES *Permit Writers' Manual*, EPA 833-B-96-003, September 2010.

US EPA. *EPA Region VIII Mixing Zones and Dilution Policy.* December 1994 (Updated September 1995)

US EPA. Report on NPDES Storm Water Inspection of October 19, 2008.

US EPA *Technical Support Document for Water Quality-Based Toxics Control*, EPA/505/2-30-001, March 1991.

Prepared by: Joanna McLaughlin

Date: March 2019