U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 8
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
STATEMENT OF BASIS

PERMITTEE:	City of Ronan
FACILITY NAME AND MAILING ADDRESS:	City of Ronan WWTF 207 Main St. SW Ronan, MT 59864
PERMIT NUMBER:	MT-0021474
RESPONSIBLE OFFICIAL:	Chris Adler, Mayor (406) 676-4231 ronan@cityofronan.org
FACILITY CONTACT:	Dan Miller, Director of Public Works (406) 676-4231 publicworks@cityofronan.org
PERMIT TYPE:	Minor, Renewal, POTW, lagoon
FACILITY LOCATION:	36780 Mink Lane Ronan, MT 59864 Lake County

1 INTRODUCTION

This statement of basis (SoB) is for the issuance of a National Pollutant Discharge Elimination System (NPDES) permit (the Permit) to the City of Ronan for the City of Ronan Wastewater Treatment Facility (the Facility). The Permit establishes discharge limitations for any discharge of wastewater from the Facility through Outfall 001 to an unnamed tributary to Crow Creek. The SoB explains the nature of the discharges, EPA's decisions for limiting the pollutants in the wastewater, and the regulatory and technical basis for these decisions.

The Facility is located on the Flathead Indian Reservation. EPA Region 8 is the permitting authority for facilities located in Indian country, as defined in 18 U.S.C. § 1151, located within Region 8 states and implements federal environmental laws in Indian country consistent with the EPA Policy for the Administration of Environmental Programs on Indian Reservations and the federal government's general trust responsibility to federally recognized Indian tribes.

2 MAJOR CHANGES FROM PREVIOUS PERMIT

Major changes from the previous permit include the following:

- Fecal coliform effluent limitations and monitoring requirements have been added
- *E. coli* effluent limitations have been revised
- pH effluent limitations have been revised
- Ammonia effluent limitations have been revised
- Dissolved oxygen monitoring requirements have been added on a monthly frequency
- Temperature monitoring requirements have been added on a monthly frequency
- Total dissolved solids monitoring requirements have been added on a semi-annual frequency
- Ammonia monitoring frequency has decreased from weekly to monthly
- Oil and grease visual monitoring frequency has increased from monthly to weekly
- Nutrient monitoring frequency has increased from annually to quarterly
- An Internal Diagnostics and Treatability Special Study has been added
- A Receiving Water Fate and Transport Special Study has been added
- The Discharge Monitoring Report (DMR) reporting frequency for Outfall 001 has been changed from three monthly DMRs due every quarter, to one monthly DMR due every month
- Requirements for implementing an Asset Management Plan have been added
- Requirements for implementing in Industrial Waste Survey have been added

3 BACKGROUND INFORMATION

The Facility is the City of Ronan's publicly owned treatment works (POTW), which lies approximately 12 miles south of Flathead Lake in northwestern Montana. The Facility is located at 36780 Mink Lane at coordinates 47.5205 °N, 114.1151 °W. The Facility is located within the external boundaries of the Flathead Indian Reservation, which is home to the Confederated Salish and Kootenai Tribes (CSKT or the Tribes). The City of Ronan is the owner and operator of the Facility. The Facility has one outfall that discharges treated effluent,

along with several internal and receiving water monitoring locations (Table 1). These additional monitoring locations are further discussed in section 8 of this SoB.

Table 1. Facility Outfall Location and Monitoring Points

Outfall or Monitoring Point	Latitude (°N)	Longitude (°W)	Description	Receiving Water
001	47.51963	114.11622	Outfall: treated domestic wastewater after UV treatment	Unnamed tributary to Crow Creek
IM01	At or near 47.52072	At or near 114.11504	Internal Monitoring Location: Manhole between Cells #1 and #2 - effluent from Lagoon Cell #1	N/A
IM02	At or near 47.52172	At or near 114.11411	Internal Monitoring Location: Manhole between Cells #2 and #3 - effluent from Lagoon Cell #2	N/A
IM03	At or near 47.52050	At or near 114.11360	Internal Monitoring Location: Vault between Cell #3 and Wetland Cells - effluent from Lagoon Cell #3	N/A
RW01	At or near 47.49837	At or near 114.14772	Downstream Receiving Water Monitoring Location: Unnamed tributary to Crow Creek just upstream from confluence with Crow Creek	N/A
CC01	At or near 47.49835	At or near 114.14838	Downstream Receiving Water Monitoring Location: Crow Creek just downstream from confluence with (and within the mixing plume of) unnamed tributary to Crow Creek	N/A

3.1 Service Area Description

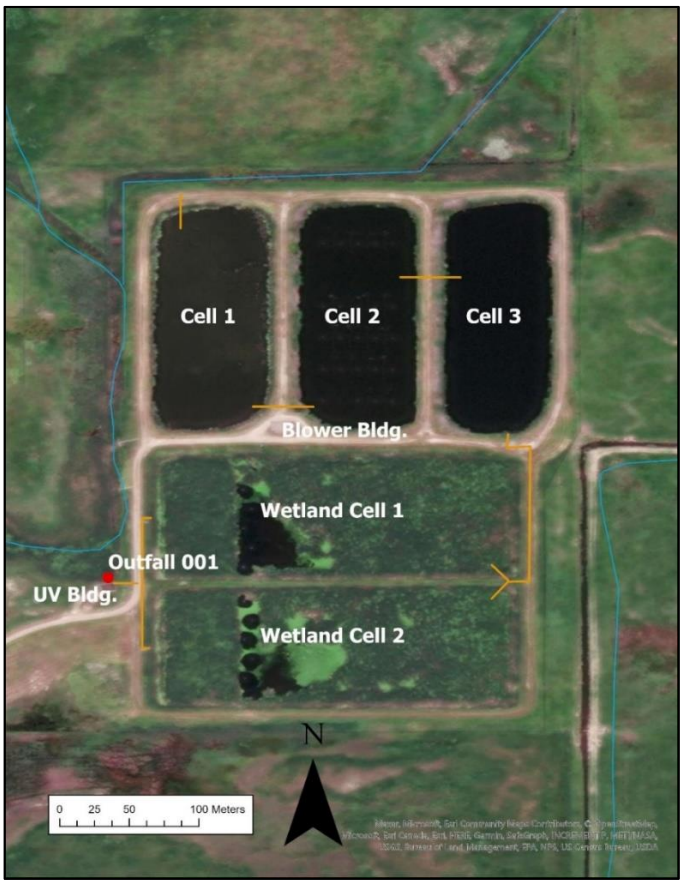
The Facility's service population was approximately 2,200 people and 970 connections as of 2020. The influent to the Facility is largely domestic, but Ronan does have a hospital (St. Luke Community Healthcare), which according to the Permittee had an average water use of approximately 1,000 gallons per day over the past two years. The hospital's discharge volumes and rates are unknown. The city's drinking water treatment plant does not discharge to the city sewer system. The city also has an RV dumping station that contributes loading to the POTW. Ronan is in a popular seasonal tourism area, and the load from the RV dumping station likely varies significantly throughout the year.

Approximately one third of the City's residents live below the poverty line. The per capita income in Ronan is 48% lower than the national average, according to US Census Bureau data from 2020.

3.2 Treatment Process

The Facility consists of a lagoon system with three clay-lined cells, and two unlined constructed wetland cells (Figure 1). Wastewater enters the Facility through an initial bar screen before entering lagoon cell #1. Lagoon cell #1 discharges to lagoon cell #2, followed by lagoon cell #3. Lagoon cells #1 and #2 are mechanically aerated using blowers, while lagoon cell #3 is facultative. The aeration control building (blower building) is located near the southeast corner of lagoon cell #1. Lagoon cell #3 discharges to the two wetlands cells in parallel before they discharge via a joint pipe to the ultraviolet (UV) building. The effluent is treated with UV light prior to discharge to the unnamed tributary to Crow Creek at Outfall 001. A flow meter is installed at the discharge point and is read regularly to determine average discharge flow rates. According to the Permittee's NPDES application, the design flow of the Facility is 0.368 million gallons per day (mgd), and the actual *annual* average flows over three years ranged from approximately 0.26 mgd to 0.33 mgd. The facility reported a maximum daily flow of 0.77 mgd that occurred in 2017. The data reported in the DMRs was slightly lower than the actual and maximum flow values reported in the permit application (Table 2).

Figure 1. Ronan Wastewater Treatment Facility



3.3 Chemicals Used

No chemicals are added during the treatment process. The discharge is treated with UV light to control bacteria.

4 PERMIT HISTORY

According to EPA records maintained for the Facility, this renewal is at least the 5th issuance of this NPDES permit. Additionally, it appears that the Montana Department of Environmental Quality (MDEQ) permitted this facility's discharge up until approximately 2004. MDEQ sent a letter to the Facility in July 2004 stating that they would discontinue permitting the Facility because their permit was duplicative of the NPDES permit issued by EPA.

The previous permit for the Facility became effective on July 1, 2013 and was set to expire on June 30, 2018. The Facility did not submit a permit renewal application prior to the expiration date, and thus the previous permit expired on June 30, 2018. The Facility subsequently submitted a complete permit application on August 20, 2019.

4.1 Discharge Monitoring Report (DMR) Data

The Facility's July 2015 through June 2018 DMR data for Outfall 001 is summarized in Table 2. Outfall 001 discharges more or less continuously, and the Facility reported 33 months of discharge data over the final 36 months (three years) of its permit coverage. They reported either "Operation Shutdown" or "No Discharge" for the other three months during this period. During this period, the Facility reported one violation of the 30-day average *E. coli* limit (October 2015), and regularly exceeded their ammonia limits. Combining the summer and winter data, the Facility exceeded the 30-day average ammonia limits 33 times out of 33 sampling events and exceeded the daily maximum ammonia limits 29 times out of 33 sampling events.

Table 2. Summary of the DMR Data (2015-2018) for Outfall 001 from EPA Integrated Compliance Information System (ICIS) database (date accessed 11/4/21)

Parameter	Permit Limit(s)	Reported Average	Reported Range	Number of Data Points	Number of Violations
Average Monthly Discharge Rate, million gallons per day (mgd)	N/A	0.23	0.12 – 0.50	33	N/A
5-Day Biochemical Oxygen Demand (BOD_5), 30-Day average, mg/L	30/45 a/	6.4	2 – 19	33	0/0 a/
BOD_5 % Removal	85%	96%	90 – 99%	33	0
E. coli, #/100 mL	126/252 a/	5.3 b/	1-219	33	1/0 a/
Ammonia, Winter (Nov.-Mar.), as N, mg/L	1.79/3.15 c/	14.7	1.93 – 26.8	12	12/10 c/

Parameter	Permit Limit(s)	Reported Average	Reported Range	Number of Data Points	Number of Violations
Ammonia, Summer (Apr.-Oct.), as N mg/L	0.74/1.47 c/	7.6	0.96 – 18.7	21	21/19 c/
Total Suspended Solids (TSS), 30-Day Average, mg/L	30/45 a/	3.2	1 – 11	33	0/0 a/
TSS % Removal	85%	97%	85 – 100%	33	0
Oil and Grease, Visual	N/A	Never observed	Never observed	33	N/A
pH, standard units	6.5-9.0	7.2 d/	6.9 – 7.8	66	0
Nitrogen, Total Kjeldahl, mg/L	N/A	9.3	N/A	1	N/A
Nitrogen, Nitrate/Nitrite, mg/L	N/A	10.4	5.1 – 15.8	2	N/A
Nitrogen, Total, mg/L	N/A	18.0	14.3 – 21.6	2 e/	N/A
Phosphorus, Total, mg/L	N/A	6.6	3.9 – 9.3	2	N/A

a/ The value to the left of the slash represents the 30-day average, and the value to the right of the slash represents the 7-day average.
b/ geometric mean
c/ The value to the left of the slash represents the 30-day average, and the value to the right of the slash represents the daily maximum.
d/ median pH value
e/ Two samples were reported for TN, but only one sample was reported for TKN. Since TN is the sum of both TKN and nitrate + nitrite (see Table 7, footnote 'i'), either a TKN sample was taken but not reported, or one of the TN samples was reported in error.

4.2 Additional Monitoring Data

The Facility's permit expired on June 30, 2018. However, the Facility continued sampling for parameters limited in the previous permit, and increased sampling frequency for certain parameters (Table 3).

The additional data shows a similar pattern as Table 2 – the Facility is generally able to reduce BOD_5, TSS, and *E. coli* to the previous permit effluent limitations, but consistently struggles with ammonia. The Facility was also collecting percent removals for both BOD_5 and TSS and provided paper copies of those. Although EPA did not include those in this table, they ranged from 90% to 100% in all cases.

Table 3. Summary of Select Data Collected by Permittee After Permit Expiration Date (August 2019 – December 2021)

Parameter	Reported Average	Reported Range	Number of Data Points
Average Monthly Discharge Rate, mgd	0.18	0.11 – 0.25	24
5-Day Biochemical Oxygen Demand (BOD_5), 30-Day average, mg/L	4.2	3 – 10	11
E. coli, #/100 mL, Actual Observations	7.1 a/	1 – 179	11
Ammonia, as N, mg/L	9.32	0.08 – 23.9	122
Total Suspended Solids (TSS), 30-Day Average, mg/L	3	1 – 9	11
pH, standard units	7.2 b/	7.0 – 7.5	11

a/ geometric mean
b/ median pH value

4.3 Other Facility History

4.3.1 Inspections

EPA conducted an on-site inspection of the Facility on July 30, 2019. The inspection included the following findings:

- The Facility was discharging without a permit;
- The need for improved operations and maintenance with respect to vegetative growth, accumulated sludge, blower alarms, and expired pH buffering solution;
- Some operating records were not available; and
- The need to come up with a plan to meet ammonia limits.

The Facility responded to EPA in a letter dated August 20, 2019 and said that they had addressed these concerns by submitting an application, removing vegetation, and working on a plan to address maintenance issues and ammonia concentrations in the effluent. They also submitted a table titled "City of Ronan Wastewater Lagoon Optimization – 10 Year Plan." This plan laid out some steps that the Facility would take over the next 10 years to come into compliance with permit requirements.

4.3.2 Active Enforcement Cases

The Facility is currently under two active enforcement cases through EPA. Administrative Order CWA-08-2013-0010 (issued April 11, 2013) requires the Facility to address the Facility's lack of compliance with their ammonia permit limits and submit a plan and schedule to address the deficiency. Administrative Order CWA-08-2019-0007 (issued September 5, 2019) addresses the Facility's lack of a current NPDES discharge permit. It requires the Facility to submit an NPDES application, and provide a plan to eliminate unpermitted discharges and treat for wastewater parameters (including ammonia). Both administrative orders remain active at this time.

4.3.3 Performance Evaluation (October 2021)

On August 26, 2021, consultants from H&S Environmental, along with several employees from MDEQ, conducted field sampling at the Ronan wastewater lagoons as part of a Lagoon Performance Evaluation[1]. The performance evaluation drew conclusions based on the following primary data sources:

1. The results of the field sampling, sample collection, and sludge judging from August 26, 2021
2. The analysis of Ronan's DMR data and independent data collection
3. Flow data provided by the City of Ronan
4. Engineering plans of the Facility

The study found that the treatment cells have too much sludge in them and are not providing enough aerobic treatment of the wastewater. Both of these factors lead to poor ammonia removal. The report concluded by saying that "all data seems to point to the lack of dissolved oxygen as the reason for poor ammonia removal. Removing the sludge and increasing blower output will help reduce effluent ammonia…deliver more oxygen to Cell #1," and "After years of service, the Ronan lagoon system requires some much-needed maintenance. After desludging and improving air delivery to the system, ammonia concentrations will reduce during summertime operations. Nothing short of a heated tertiary reactor will remove ammonia levels down to the required wintertime permit levels."

Specifically, the report included four optimization action items for the Facility:

1. Desludge Cell #1 now (and closely monitor sludge levels in Cell #2 and Cell #3).
2. Add more oxygen to Cell #1.
3. Recirculate water high in dissolved oxygen from cells #2 and #3 to cell #1 for improved ammonia removal.
4. Quarterly perform intra-pond diagnostic BOD_5, TSS, ammonia, and nitrate sampling between each treatment cell to understand the nature of the system.

Additionally, the report recommended removing duckweed from cell #3 to increase dissolved oxygen levels, and removing weeds from the dike slopes of all treatment cells as a general best management practice. Optimization action items are addressed further in the Permit.

5 DESCRIPTION OF RECEIVING WATER

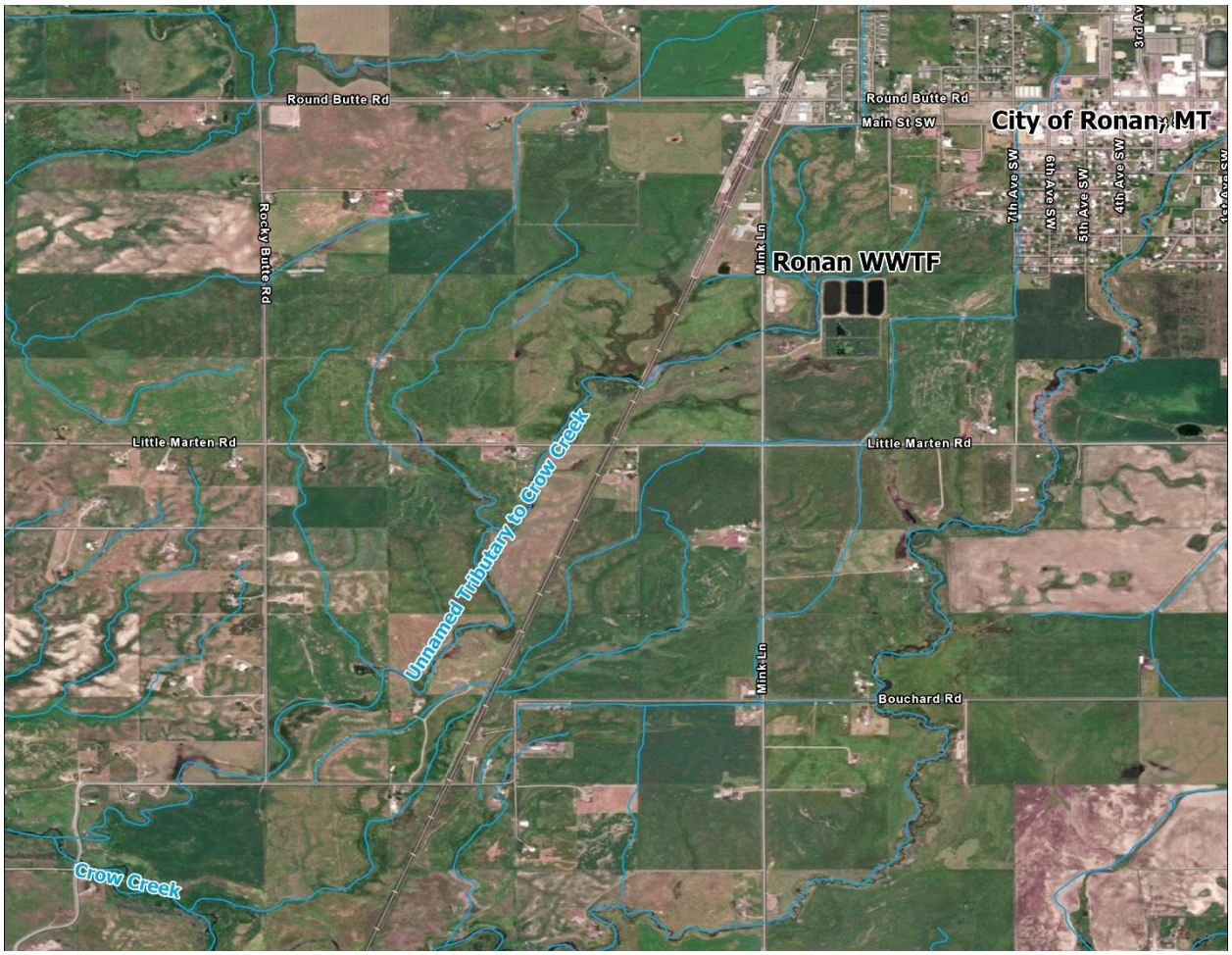
The Facility discharges to an unnamed tributary to Crow Creek. This unnamed tributary flows approximately three miles through cow pastures and hay fields before discharging to Crow Creek (Figure 2). Crow Creek flows into the Crow Creek Reservoir before joining the Flathead River. According to Facility personnel, the unnamed tributary is groundwater, spring and snowmelt fed, and dries up in the summer and fall – at these times, the Facility's discharge may

[1] H&S Environmental, LLC, under contract with the Montana Department of Environmental Quality. Performance Evaluation for the Ronan Montana Wastewater Lagoon System, October 11, 2021.

be the only flow in the stream. During a July 2021 site visit, EPA staff noted that the receiving stream was dry above the Facility's discharge, there was no discernible surface flow at one location downstream of the facility, and it was also noted that multiple irrigation return flows joined the receiving stream below the Facility. EPA staff also noted that one landowner had a pump and piping installed in the unnamed tributary. The pump was not running at the time of the site visit but it appeared someone may have been using this water for irrigation. Based on this information, the receiving water has no dilution flow. The Facility is in Hydrologic Unit Code 17010212 (Lower Flathead).

The receiving watershed is small (2,045 acres, or about three square miles), and according to a 2007 study by the CSKT[2], is composed of approximately 75% irrigated agriculture, 21% urban/developed, and 4% natural land cover. The watershed is heavily managed for cattle grazing, and the stream channel shows evidence of both human impacts (such as manmade earthen dams to create drinking water holes for cattle), as well as trampling and widening of the stream channel by cattle.

Figure 2. Facility Receiving Water



[2] Confederated Salish & Kootenai Tribes Natural Resources Department, 2007. Assessment of Water Quality Conditions in the Crow Creek Watershed, Flathead Indian Reservation.

6 PERMIT LIMITATIONS

6.1 Technology Based Effluent Limitations (TBELs)

The secondary treatment standards (40 CFR Part 133) have been developed by EPA and represent the level of effluent quality attainable through the application of secondary or equivalent treatment. The regulation applies to all POTWs. The applicable TBELs for the Facility are listed in Table 4.

Table 4. Secondary treatment standards

Parameter	30-day average (mg/L)	7-day average (mg/L)	30-day average percent removal (%)
BOD_5	30	45	85
TSS	30	45	85
pH	Maintained within the limits of 6.0 to 9.0		

EPA Region 8 has also developed a technology based and water quality based guidance on oil and grease for POTWs. It states *"if a visible sheen or floating oil is detected in the discharge, a grab sample shall be taken immediately, analyzed and recorded in accordance with the requirements of 40 CFR Part 136. The concentration of oil and grease shall not exceed 10 mg/L in any sample."* The visual narrative "sheen or floating oil" requirement was developed in alignment with 40 CFR § 401.16 which lists "oil and grease" as a conventional pollutant (as related to technology-based limitations in line with 40 CFR § 125.3(h)(1)) pursuant to section 304(a)(4) of the Act, as well as the National Recommended Aquatic Life Criteria which recommends that "surface waters shall be virtually free" from floating oils of petroleum origin and floating nonpetroleum oils of vegetable or animal origin, as "floating sheens of such oils result in deleterious environmental effects." This consideration for oil and grease will be included in the Permit.

6.2 Water Quality Based Effluent Limitations (WQBELs)

The Facility discharges to an unnamed tributary to Crow Creek. The receiving water is within the Flathead Indian Reservation, and thus the CSKT Water Quality Standards (WQS) apply. The CSKT published the latest revision of their WQS in October 2018, and these updated WQS became CWA-effective when EPA approved them in April 2019[3]. EPA considered these during the development of effluent limitations for the Permit.

This discharge is located approximately 60 stream miles upstream from the Reservation boundary with the State of Montana. Based on the relatively small size of the discharge, the large dilution provided by the Flathead River (still within the Reservation), and the distance from the discharge point to the border with the state of Montana, EPA did not consider Montana's WQS in the development of the Permit.

[3] Confederated Salish and Kootenai Tribes of the Flathead Reservation, Surface Water Quality Standards and Antidegradation Policy, October 2018.

According to Section 1.3.7 of the CSKT WQS, the unnamed tributary to Crow Creek is classified as a B-1 stream ("Flathead River and its tributaries downstream of the highway bridge at Polson…"). Waters classified as B-1 must be "*maintained suitable for drinking and culinary and food processing purposes after conventional treatment; bathing, swimming and recreation; wildlife (birds, mammals, amphibians and reptiles); the growth and propagation of salmonid fishes and associated aquatic life; and agricultural and industrial water supply purposes.*"

Further downstream, the Tribes' WQS are either B-2 or B-1. The B-2 classification requires either equal or less stringent protections as the B-1 classification in all cases, so protection of the B-1 classification will protect further downstream classifications as well.

The Tribes have adopted designated uses, numeric and narrative water quality criteria, and antidegradation requirements as part of their WQS. The Permit will not allow any pollutants and/or pollution to be discharged which, either alone or in combination with other pollutants and/or pollution, will cause exceedances of surface WQS.

Although the CSKT have adopted WQS that have been approved by EPA, they have not listed water bodies as impaired, nor developed a 303(d) list to require Total Maximum Daily Loads (TMDLs). Thus, there are no TMDLs to consider for the Permit at this time. The Permit contains a reopener provision that would allow the Permit to be reopened to include any applicable Waste Load Allocation developed and approved by the CSKT and EPA.

6.2.1 BOD_5 and TSS

The Tribes do not have any numeric WQS *directly* related to BOD_5, but several of their narrative and numeric criteria address suspended sediments, turbidity, emulsions and sludge, etc. Implementation of the BOD_5 and TSS secondary treatment standards, along with the Facility's extremely low BOD_5 and TSS discharge values (typically less than 10 mg/L and often near the method detection limit – see Tables 2 and 3) will protect the Tribes' numeric criterion for turbidity (see Section 1.3.7(3)(d)), as well as their narrative criteria which states Tribal waters must be free from substances that may or will *settle to form objectionable sludge deposits or emulsions beneath the surface of the water or upon adjoining shorelines* (CSKT WQS, Section 1.3.13(1)(a)).

6.2.2 pH

The Tribal WQS for B-1 classified waters for pH is that *induced variation of pH within the range of 6.5 to 8.5 must be less than 0.5 pH unit. Natural pH outside this range must be maintained without change, and natural pH above 7.0 must be maintained above 7.0.* This standard is difficult to implement without detailed knowledge of the receiving water flows and pH at any given time, so EPA has simplified implementation by requiring the Facility to discharge within the stated range (i.e., 6.5 to 8.5) at all times. This updated permit limit is more protective than the previously permitted limit of 6.5 to 9.0 (which may have been based upon the B-2 classification for Crow Creek downstream of the receiving water), the associated National Secondary Standards (see section 6.1), and the CSKT Human Health WQS of 5.0 to 9.0.

6.2.3 *E. coli*

The relevant CSKT WQS for *E. coli* is that the geometric mean number of *E. coli* may not exceed 126 colony forming units (cfu)/100 mL, and ten percent of the total samples may not exceed 252 cfu/100 mL during any 30 day period. These standards apply year-round and are based on a minimum of five samples (although Section 1.3.14 of the CSKT WQS does clarify that less than five samples can be used to determine compliance). Bacteria are a pollutant of concern in domestic wastewater discharges. The Facility uses UV light to help reduce bacteria in the discharge and reported one exceedance of the CSKT WQS for *E. coli* during the last permit term. EPA Region 8 does not allow for any type of mixing zone for bacteria – the relevant water quality standard is applied at the end of pipe. Based on these factors, EPA has determined that there is reasonable potential to exceed the *E. coli* standard, and that effluent limitations are appropriate.

Due to the various testing methods for bacteria approved in 40 CFR Part 136, and the variability in lab testing methods, EPA Region 8 implements bacteria permit limits as a generic number per volume analyzed (i.e., "Number/100 mL" or "#/100 mL"), rather than as a specific method (i.e., colony forming units [cfu] per 100 mL or most probable number [mpn] per 100 mL).

The previous permit contained a 30-day average limit of 126 #/100 mL and a 7-day average limit of 252 #/100 mL. The 30-day average is a geometric mean. EPA has determined that the '10% may not exceed' criteria should be implemented as a daily maximum rather than as a 7-day average. This is because a 7-day average could allow exceedance rates much higher than 10% of the time (e.g., four measurements in the same week of 260, 260, 260, and 220 would meet the 7-day average limit of 252 cfu/100 mL, but exceed the criteria 75% of the time). Alternatively, implementing this criterion as a daily maximum limit is more protective, as it allows for no exceedances of this value. Since the Facility only samples for bacteria once per month (see section 7.1), for all practical purposes the daily maximum and '10% may not exceed' criteria are equivalent. This change provides consistency with how EPA has issued other NPDES permits within the Flathead Reservation. Other than changing the 252 #/100 mL from a 7-day average effluent limitation to a daily maximum effluent limitation, the existing limits will be maintained in the reissued Permit.

6.2.4 Fecal coliform

The relevant CSKT WQS for fecal coliform is that the geometric mean number of fecal coliform may not exceed 200 cfu/100 mL, and ten percent of the total samples during any 30 day period are not to exceed 400 cfu/100 mL. These standards apply year-round and are based on a minimum of five samples (although Section 1.3.14 of the CSKT WQS does clarify that less than five samples can be used to determine compliance). Bacteria are a pollutant of concern in domestic wastewater discharges. The Facility uses UV light to help reduce bacteria in the discharge. EPA Region 8 does not allow for any type of mixing zone for bacteria – the relevant water quality standard is applied at the end of pipe. Based on these factors, EPA has determined that there is reasonable potential to exceed the fecal coliform standard, and that effluent limitations are appropriate.

Due to the various testing methods for bacteria approved in 40 CFR Part 136, and the variability in lab-testing methods, EPA Region 8 implements bacteria permit limits as a generic number per volume analyzed (i.e., "Number/100 mL" or "#/100 mL"), rather than as a specific method (i.e., colony forming units [cfu] per 100 mL or most probable number [mpn] per 100 mL).

The previous permit did not include fecal coliform limits. In the 2008 permit, the statement of basis mentioned that fecal coliform limits were being removed because the CSKT had replaced the fecal coliform WQS with *E. coli* standards. This is incorrect – for B-1 streams, the CSKT adopted *E. coli* WQS *in addition to* the fecal coliform WQS (CSKT WQS, Section 1.3.7(3)(a)). Therefore, EPA is re-implementing a fecal coliform effluent limitation (and associated monitoring requirements) for the Facility. The limits will be based on the relevant CSKT WQS mentioned above and implemented as a 30-day average limit of 200 #/100 mL and a daily maximum value of 400 #/100 mL. The 30-day average is a geometric mean. The rationale for implementation of the '10% may not exceed' criteria as a daily maximum is the same as discussed in section 6.2.3.

6.2.5 Temperature

The Tribes' temperature water quality criteria allow a slight increase or decrease in naturally occurring water temperatures. In this case, the Facility is a large wastewater lagoon with a residence time of approximately 45 days (according to the Performance Report from October 2021). Furthermore, the discharge is pulled from underneath the surface of the final, deepest wetland cell. The receiving stream also regularly dries up in the summer according to the Permittee (this was also observed during EPA's July 2021 site visit), so the "naturally occurring" temperatures of receiving waters cannot be determined during these times. Based on these considerations, EPA has determined that temperature effluent limitations are not required at this time. However, EPA will implement temperature monitoring requirements – see section 7.1 for more information.

6.2.6 Oil and Grease

The CSKT WQS include a narrative criterion, which states Tribal waters must be free from substances that may or will *create floating debris, scum, a visible oil film (or be present in concentrations at or above 10 mg/L) or globules of grease or other floating materials* (CSKT WQS, Section 1.3.13(1)(b)). EPA Region 8 has developed a protocol for limiting oil and grease (see section 6.1) that aligns very closely with the CSKT WQS. EPA's protocol uses a dual approach: frequent visual observations of the discharge, looking for a visible sheen or floating oil, and when either of those is observed, a sample must be immediately taken and analyzed for oil and grease with an effluent limitation of 10 mg/L. This same approach was taken in the previous permit and will be retained.

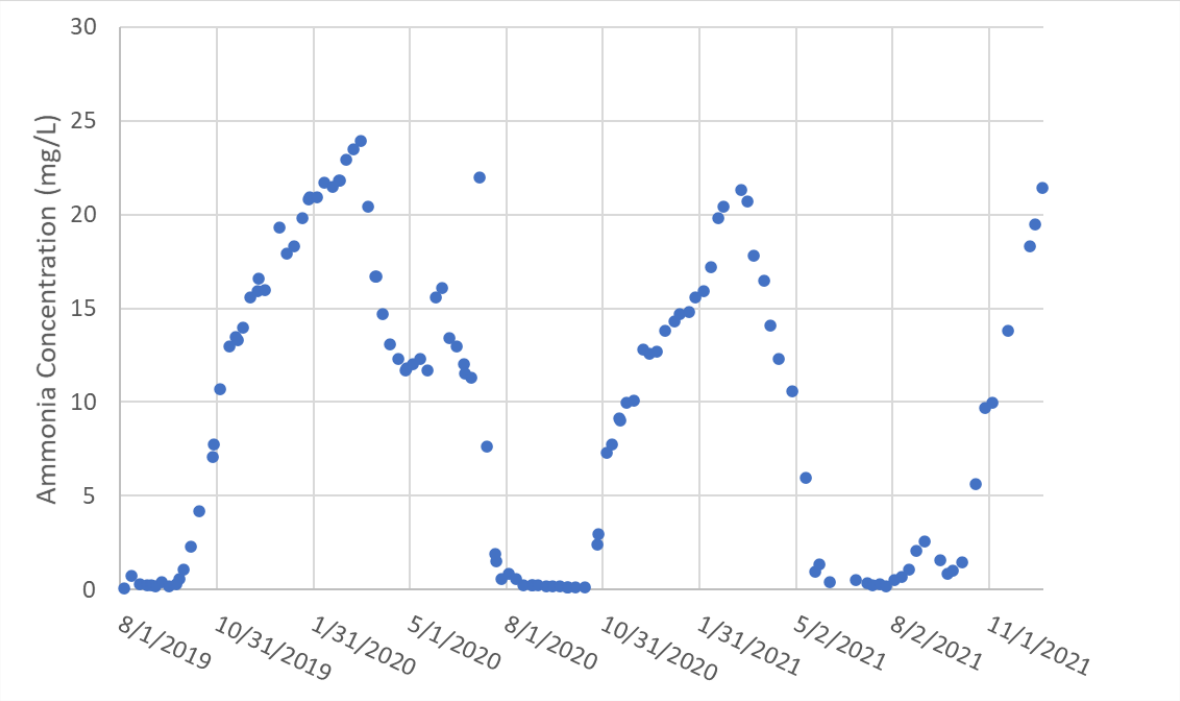
Additionally, the previous permit contained a narrative prohibition against floating solids and visible foam. This narrative prohibition is commonly used in many NPDES permits throughout the country and Region 8 to protect against pollutants that would cause or contribute to exceedances of narrative criteria such as the one discussed above. EPA will retain this narrative prohibition based on professional judgment.

6.2.7 Ammonia

CSKT ammonia WQS are pH and temperature dependent. As pH and temperature in the receiving water increase, the toxicity of ammonia to aquatic life increases. At high pH values, ammonia is much more likely to be present in its toxic (un-ionized) form, while higher temperatures are generally more stressful for many types of aquatic life.

Ammonia is a pollutant of concern in domestic wastewater discharges such as this one. The Facility displays a typical ammonia discharge pattern for a basic lagoon – higher ammonia removal in the summer when nitrifying bacteria are more active, and lower (or no) ammonia removal in the winter when those bacteria are less active or dormant (Figure 3). The Facility has exceeded its ammonia limits regularly for over a decade, and the recent performance evaluation identified several operating issues as to why the Facility's ammonia concentrations are elevated. Based on these factors, EPA has determined that there is reasonable potential to exceed the ammonia standard, and that effluent limitations are appropriate. The previous permit implemented ammonia limits based on an analysis of Crow Creek as the receiving water. The renewal permit changes this methodology and considers the unnamed tributary to Crow Creek as the actual receiving water, while still providing protections for downstream Crow Creek.

Figure 3. Facility Weekly Ammonia Discharge Concentrations (2019-2021)



The previous permit used data from Crow Creek to develop final effluent limitations for ammonia. Since the limited data from Crow Creek was relatively high in pH, this resulted in relatively low ammonia limits for the Facility. However, after review of the data listed below, EPA has concluded that the Facility's effluent discharge (which is over three miles upstream of Crow Creek) does not have an impact on the ammonia levels in Crow Creek,

and it would be more appropriate to develop effluent limitations based on protection of the actual receiving stream - the unnamed tributary to Crow Creek - while requiring downstream monitoring to ensure that ammonia from the Facility is not impacting Crow Creek. There are several pieces of evidence that support this approach:

- The Facility's discharge is over three miles upstream from Crow Creek. Non-conservative pollutants such as ammonia can quickly react and volatilize in natural streams.
- An ammonia fate and transport study performed from 1998 to 2000 showed that less than one mile downstream from the Facility, ammonia reductions were approximately 50% on average. This data was collected throughout the year, and the percent reduction remained relatively consistent across seasons. For example, average reductions were 46% in the winter months (12 samples, Nov.-Apr.), and 59% in the summer months (10 samples, May-Oct.).
- An aquatic invertebrate study performed in 2003 concluded "Below the confluence of the WWTF discharge stream [in Crow Creek], the invertebrate assemblage collected in June was similar to the upstream Crow Creek site…" This suggests that the aquatic invertebrate community in Crow Creek was not impacted by the WWTF inflow at the time of the study. Many aquatic invertebrates are extremely sensitive to ammonia.
- During EPA's July 2021 site visit to Crow Creek, no obvious ammonia impacts (i.e., no odor, no signs of fish kills, etc.) were observed near or downstream of the confluence of Crow Creek with the unnamed tributary. EPA could not find any evidence of a plume from the unnamed tributary when using a YSI meter to read pH and temperature in the immediate area of the confluence.
- The CSKT performed synoptic sampling events for ammonia on the unnamed tributary and Crow Creek in July and August 2021. Ammonia levels in the unnamed tributary near the confluence with Crow Creek were at non-detect levels, as were ammonia levels in Crow Creek below the confluence.
- Crow Creek is a perennial stream with a high dilution ratio compared to the Facility's discharge rate. The unnamed tributary to Crow Creek may run dry during certain times of the year, even below the Facility discharge.

Based on the evidence cited above, EPA believes that it is appropriate to base permit limits on protection of the immediate receiving water which provide for higher ammonia limitations than the previous permit and require further monitoring of Crow Creek.

Once this decision was made, EPA reviewed the available monitoring data for the unnamed tributary to Crow Creek. The CSKT Environmental Division collected six samples in this creek between 2017 and 2019 (Table 5).

Table 5. Stream Conditions in Unnamed Tributary to Crow Creek, 2017-2019

Date	pH	Temperature (°C)	Flow (cfs)
6/12/2017	7.26	15.36	0.21
7/11/2017	7.25	17.99	0.20
7/17/2018	7.11	16.58	0.26
8/28/2018	7.11	13.31	0.14
7/10/2019	7.5	15.57	0.28
8/26/2019	7.39	14.98	0
75th percentile of data	*7.36*	*16.33*	-

While the CSKT WQS do not specify the 'critical conditions' to use when applying ammonia criteria, EPA has typically used the 75th percentile of pH and temperature data to implement ammonia criteria on the Flathead Reservation. According to the tables on pages 66 and 67 of the CSKT WQS, the 75th percentiles above (rounded up to the next highest values of 7.4 and 18 °C [slightly more conservative]) equate to an acute water quality criterion of 15.4 mg/L, and a chronic water quality criterion of 3.78 mg/L. For the acute value, EPA used the 'Salmonids Present' column, since the stream is listed as a B-1 stream, which includes the "*growth and propagation of salmonid fishes*." For the chronic values, EPA defaults to the "Fish Early Life Stages Present" table unless site-specific data indicates otherwise. It should be noted that at temperatures above 16 °C, ammonia toxicity is the same for fish early life stages present or absent. These criteria will be implemented as permit effluent limitations.

To provide additional sampling data and collection of ambient pH and temperature, the Permit will require a special monitoring study of both the unnamed tributary to Crow Creek, and Crow Creek. This is further discussed in section 8.2.

The Permit does not contain separate summer and winter limits (as in the previous permit) because only summer monitoring data from the receiving stream has been collected so far (Table 5). Since limits based on higher temperatures are more stringent than those based on lower temperatures, these limits are likely protective throughout the year. As discussed in section 8.2, the Facility will be required to collect approximately 20 samples of pH and temperature from the receiving stream over the next five years. Furthermore, these values will be spread equally throughout the year. This dataset can then be used to refine ammonia effluent limitations, including the addition of seasonal limits if desired, in the next permit. Note that the CSKT WQS do not require seasonal limits; seasonal limits may be used as an optional implementation tool only.

The new permit limits are less stringent than the previous permit limits. However, the aquatic life protection is equally as stringent and this is further discussed in the anti-backsliding section (section 6.5).

6.2.8 Dissolved Oxygen (DO)

The relevant CSKT criteria for DO is that it must not be reduced below the applicable values from the *Freshwater Aquatic Life Standards for Dissolved Oxygen* table (CSKT WQS, page 65). The chart ranges in value from 4.0 mg/L to 9.5 mg/L, depending on the criteria and the presence of early life stages of fish. It is unknown whether the receiving water is meeting the values listed in the chart. However, the receiving stream is effluent dominated much of the year, so it is likely that the Facility's DO has a large influence on the receiving stream's ambient DO conditions. Additionally, high DO in the effluent means that the effluent continues to nitrify in the receiving stream. Thus, verifying high DO in the effluent will further protect downstream uses in both the unnamed tributary to Crow Creek and Crow Creek.

While no numeric DO effluent limitations are being added at this time, DO monitoring requirements at multiple locations will be added, and is discussed further below in sections 7.1 and 8.1. If the Facility's discharge is found to have reasonable potential to cause or contribute to an exceedance of the applicable WQS in the receiving stream, numeric DO effluent limitations will be added in the next permit cycle.

6.2.9 Metals

Metals are present in small quantities in domestic sewage, but the primary source of metals in a municipal wastewater system are industrial sources. The facility is a minor POTW, and the City of Ronan is a small town with limited industrial users. The only known industrial user is St. Luke Community Healthcare, a small hospital that appears to be a very small portion of the facility's inflow (see section 3.1). The Facility does not know of any other industrial users in Ronan. Another common source of metals in small towns is a drinking water treatment plant – backwash from filters and settling basins contains concentrated amounts of metals. However, the Ronan drinking water plant has its own NPDES coverage (permit number MTDW0001I, under Region 8's Drinking Water General Permit) and discharges directly to Middle Crow Creek. For these reasons, EPA does not consider metals to be a pollutant of concern at the Facility.

EPA is requiring the Facility to complete an Industrial Waste Survey (IWS) (see section 10.3) within one year of the Permit effective date. The IWS will ensure the Facility knows the sources and types of pollutants that may be introduced to the system, and will allow EPA to reassess this conclusion in the future.

6.2.10 Whole Effluent Toxicity (WET)

The CSKT WQS include a narrative criterion, which states Tribal waters must be free from substances that may or will *create concentrations or combinations of materials that are toxic or harmful to human, animal or plant life* (CSKT WQS, Section 1.3.13(1)(d)). Many toxic pollutants have cumulative effects on aquatic organisms that cannot be detected by individual chemical testing. However, laboratory tests can measure toxicity directly by exposing living organisms to the wastewater and measuring their responses. Because these tests measure the aggregate toxicity of the whole effluent, this approach is called whole

effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Discharge data from the Facility indicates that the effluent is chemically consistent, and the Facility uses no chemicals at any point during the treatment process. The Facility is a POTW that treats domestic wastewater from a small city without any known industrial users (with the exception of a small hospital). For these reasons, EPA believes the chemical-specific effluent limitations are sufficient to attain and maintain any applicable water quality criteria and prevent toxicity in the receiving water. Therefore, WET effluent limitations and monitoring will not be required. The Permit contains a reopener provision if the need for WET effluent limitations or monitoring is determined at a future date.

6.2.11 Other CSKT Criteria

The CSKT WQS include several additional numeric or narrative criteria applicable to B-1 streams that are related to: odors, colors, and other conditions (CSKT WQS, Section 1.3.13(1)(c)), color (CSKT WQS, Section 1.3.7(3)(g)), toxic or deleterious substances (CSKT WQS, Section 1.3.7(3)(h) and Tribal Numeric Chart for Priority Pollutants), and total dissolved gas pressures (CSKT WQS, Section 1.3.13(5)). Due to the source of the water, the type of facility, its treatment processes and discharge type, and the existing effluent limitations in the Permit (including the narrative prohibition against floating solids and visible foam), EPA finds that there is not reasonable potential to cause or contribute to an exceedance of any of these narrative or numeric WQS, and so they will not be addressed further in the Permit.

The CSKT WQS also include a narrative criterion which states Tribal waters must be free from substances that may or will *create conditions that produce undesirable aquatic life* (CSKT WQS, Section 1.3.13(1)(e)). During the development of the Permit, EPA met with CSKT Environmental staff multiple times and conducted a joint field visit to the receiving stream (see section 5 for more information on the receiving stream and the site visit). Based on EPA's site visit, feedback received from the CSKT, and the limited number of nutrient sampling results available from the prior permit term, nutrient limits will not be included in the Permit at this time. EPA has instead increased the frequency of nutrient monitoring to better characterize the effluent concentrations (see section 7.1.9). Additionally, EPA plans to coordinate with the Tribes to prioritize collection of ambient nutrient data in the receiving stream and Crow Creek.

EPA will coordinate with the Tribes to review the increased effluent and ambient nutrient monitoring data, and if this additional data shows that the discharge has reasonable potential to cause or contribute to an exceedance of the narrative criteria in the receiving stream or other downstream waters, nutrient controls will be included in the next permit cycle.

The CSKT will be provided a copy of the draft Permit and draft SoB for review during the Clean Water Act Section 401 certification process. If the CSKT do not agree the draft Permit conditions assure compliance with applicable numeric or narrative criteria, the Tribes may provide additional Permit conditions in their 401 certification.

6.3 Final Effluent Limitations

Applicable TBELs and WQBELs were compared, and the most stringent of the two was selected for the following final effluent limitations (Table 6).

Table 6. Final Effluent Limitations for Outfall 001

Effluent Characteristic	**30-Day Average Effluent Limitations a/**	**7-Day Average Effluent Limitations a/**	**Daily Maximum Effluent Limitations a/**	**Limit Basis b/**
Flow, mgd	report only	N/A	report only	N/A
5-Day Biochemical Oxygen Demand (BOD_5), mg/L	30	45	N/A	TBEL
BOD_5 Percent Removal, %	≥85 c/	N/A	N/A	TBEL
Total Suspended Solids (TSS), mg/L	30	45	N/A	TBEL
TSS Percent Removal, %	≥85 c/	N/A	N/A	TBEL
Escherichia coli (*E. coli*), number/100 mL	126 d/	N/A	252	WQBEL
Fecal coliform, number/100 mL	200 d/	N/A	400	WQBEL
Oil and Grease, mg/L	N/A	N/A	10	TBEL/WQBEL
Total Ammonia Nitrogen (as N), mg/L e/	3.78	N/A	15.4	WQBEL
Dissolved Oxygen (DO), mg/L	report only	N/A	report only f/	WQBEL
Total Kjeldahl Nitrogen (TKN) (as N), mg/L	report only	N/A	report only	N/A
Nitrate-Nitrite (as N), mg/L	report only	N/A	report only	N/A
Total Nitrogen (as N), mg/L	report only	N/A	report only	N/A
Total Phosphorus, mg/L	report only	N/A	report only	N/A
Total Dissolved Solids (TDS), mg/L	report only	N/A	report only	N/A
pH, standard units	Must remain in the range of 6.5 to 8.5 at all times			WQBEL
Floating solids/visible foam/visible sheen prohibition (Narrative Limit)	There shall be no discharge of floating solids or visible foam in other than trace amounts, nor shall there be a discharge which causes a visible sheen in the receiving water or on the adjoining shoreline.			PJ

a/ See section 1 of the Permit for definition of terms.

b/ TBEL = Limitation based on technology based effluent limitation; WQBEL = Limitation based on water quality-based effluent limitation; N/A = Not Applicable (i.e., no limit); PJ = Professional Judgment

c/ The arithmetic mean of the concentration for effluent samples collected in a 30-day consecutive period shall not exceed 15 percent of the arithmetic mean of the concentration for influent samples collected at approximately the same times during the same period (i.e., a minimum 85 percent removal).To calculate percent removal, use the following equation (replacing X with either BOD_5 or TSS): $([X_{30\text{-day average, influent}} - X_{30\text{-day average, effluent}}]/X_{30\text{-day average, influent}}) * 100$.

d/ The 30-day average limit is a geometric mean.

e/ Unlike the previous permit, ammonia limits do not vary by season.

f/ Report daily minimum value.

6.4 Antidegradation

CSKT WQS include antidegradation provisions (CSKT WQS, Section 1.4). All surface waters within the Flathead Reservation are subject to Tier 1 (existing use) protection, and EPA typically assumes that all Tribal surface waters are subject to Tier 2 (high quality water) protection as well, unless otherwise noted by the Tribes. Tier 3 (outstanding tribal resource) protection is reserved for waters of exceptional quality, or waters of ecological, recreational, or cultural significance. EPA believes this receiving stream is not subject to Tier 3 protection.

This renewal is not permitting a new or expanded discharge - discharges from the Facility are existing and do not show any increasing trends in either flows or pollutant loadings. Additionally, no degradation of existing effluent quality is proposed. The Facility has been exceeding its ammonia effluent limitations since they were implemented in the 2008-issued permit. Thus, the ammonia effluent limitation revisions do not represent an antidegradation concern. In fact, EPA is actively working with the Facility to reduce ammonia discharge concentrations via several additional monitoring studies (see section 8). No exceedances of numeric or narrative criteria will be allowed in the Permit. EPA believes renewal of the Permit satisfies CSKT antidegradation requirements for both Tier 1 and Tier 2 protection. The CSKT will review the Permit during the Clean Water Act Section 401 certification process and may provide feedback on EPA's antidegradation determination at that time.

6.5 Anti-Backsliding

Federal regulations at 40 CFR Part 122.44(l)(1) require that when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit unless the circumstances on which the previous permit were based have materially and substantially changed since the time the Permit was issued and would constitute cause for permit modification or revocation and reissuance under 40 CFR Part 122.62.

This permit renewal complies with anti-backsliding regulatory requirements. With the exception of ammonia, all limits, standards and conditions in the Permit are at least as stringent as the previous permit.

In the case of ammonia, effluent limitations have been re-calculated based on additional data collected from the actual receiving stream (monitoring data collected in 2017-2019 – see Table 5). 40 CFR Part 122.44(l)(2)(i)(B) allows a permit to be renewed, reissued, or modified that contains a less stringent effluent limitation for a pollutant if information is available which was not available at the time of permit issuance and which would have justified the application of a less stringent effluent limitation, or if technical mistakes were made issuing the Permit. EPA believes that both of these apply – new information (i.e., pH and temperature data) from the actual receiving stream has been collected that show ammonia effluent limitations can be considerably higher without creating conditions which are toxic to aquatic life. Furthermore, the assumption that the downstream data was applicable to the receiving stream is likely inaccurate (and is being further investigated by a receiving water fate and transport study – see section 8.2). Therefore, this change to the ammonia limitation is an exception to the anti-backsliding rule.

7 MONITORING REQUIREMENTS

7.1 Self-Monitoring Discussion

In this section, EPA lays out the basis for assigning monitoring frequencies and types to the various pollutants in the Permit. The monitoring frequency should be sufficient to characterize the effluent quality and to detect events of noncompliance, considering the need for data and, as appropriate, the potential cost to the Permittee. All effluent monitoring requirements are further discussed below. The next section (section 8 – Special Conditions) describes some additional monitoring requirements included in the Permit at internal monitoring locations, and in ambient stream locations downstream of the discharge.

7.1.1 Flow monitoring

The previous permit required the Facility to monitor effluent flow on a weekly frequency using an instantaneous measurement. This frequency and sample type will be retained in the Permit. Weekly flow measurements are appropriate for a mid-sized lagoon such as Ronan. According to the Permittee, they observe the flow meter on a nearly daily basis and average these measurements out to report their flow on a monthly basis (30-Day Average and Daily Maximum). While only weekly observations are required in the Permit, EPA encourages the Facility to continue to observe flow rates on a more frequent basis.

7.1.2 BOD_5 and TSS

The previous permit required the Facility to monitor effluent BOD_5 and TSS on a monthly frequency using a grab sample. This monthly frequency will be retained in the Permit. Note that the Facility will also have to collect influent BOD_5 and TSS, and calculate the BOD_5 and TSS percent removal on a monthly frequency. While effluent BOD_5 and TSS are usually collected by composite samples, exceptions are made for waste stabilization ponds (lagoons) with a retention time greater than 24 hours. The Facility's retention time is closer to 45 days, and a grab sample method will be adequate to characterize the effluent. A monthly frequency and grab sample are appropriate for a lagoon with a long retention time such as Ronan.

Influent sampling for both BOD_5 and TSS should occur at or near the same time as the effluent sampling. Influent samples shall be taken, if possible, at a location prior to entering the lagoons.

7.1.3 pH

The previous permit required the Facility to monitor effluent pH on a monthly frequency using a grab sample. This monthly frequency and instantaneous grab sample type will be retained in the Permit. Note that pH samples must be analyzed within 15 minutes of collection. For this reason, most facilities use an *in situ* meter, such as a pH meter, to measure it directly in the field. A monthly frequency and grab sample are appropriate for a lagoon with a long retention time such as Ronan.

7.1.4 *E. coli*/fecal coliform

The previous permit required the Facility to monitor effluent *E. coli* on a monthly frequency using a grab sample. This monthly frequency and grab sample type will be retained in the Permit, and applied to the fecal coliform sampling requirements as well. A monthly frequency and grab sample are appropriate for a lagoon with a long retention time such as Ronan.

7.1.5 Oil and Grease

The previous permit required the Facility to monitor effluent oil and grease on a monthly frequency using a visual inspection, followed by an immediate grab sample if any oil and grease were observed. EPA is increasing the visual monitoring frequency to weekly in this renewal. A visual inspection is part of basic operation and maintenance of a Facility such as this (see section 6.2 of the Permit), and a weekly visual assessment is in line with other lagoon permits issued by EPA in Region 8.

7.1.6 Ammonia

The previous permit required the Facility to monitor effluent ammonia on a weekly frequency using a grab sample. EPA is reducing the monitoring frequency to monthly in this renewal, and retaining the grab sample type. The data collected over the last several years has shown a relatively predictable trend in ammonia concentrations – these trends are related to season and water temperature (Figure 3). Thus, weekly sampling is likely not necessary to accurately evaluate the Facility's ammonia discharge concentrations. Additionally, EPA is requiring a significant increase in overall monitoring in this renewal and thus is reducing monitoring frequencies in certain places in consideration of the economic costs to the Facility. A monthly frequency and grab sample are appropriate for a lagoon with a long retention time such as Ronan.

7.1.7 Temperature

The previous permit did not contain any temperature monitoring requirements. However, the Facility is struggling to meet its ammonia effluent limitations, and a significant driver behind this is temperature. Nitrifying bacteria tend to shut down when the temperature drops

below 10 °C. The Facility is also considering upgrades, and may need to consider a cold weather nitrification system. Based on these considerations, EPA believes that temperature monitoring of the effluent is necessary to collect data that may be needed in the future and is therefore implementing a monthly effluent temperature monitoring requirement. The method will be an instantaneous grab sample. Note that temperature samples must be analyzed within 15 minutes of collection. For this reason, most facilities use an *in situ* meter, such as a calibrated thermometer, to measure it directly in the field. A monthly frequency and grab sample are appropriate for a lagoon with a long retention time such as Ronan.

7.1.8 Total Dissolved Solids (TDS)

EPA permit testing requirements in 40 CFR Part 122, Appendix J, Table 1 require that all POTWs with a design flow equal to or greater than 0.1 mgd provide effluent data in their application for total dissolved solids. The Facility has a design flow of 0.37 mgd so it meets this threshold. EPA has typically waived this application requirement in the past.

However, high TDS concentrations can have a negative effect on biological activity in a lagoon and can be one cause of treatment issues. Additionally, high TDS values may be indicative that an industrial user is having some effect on the Facility. Since the Facility is working to solve some treatment issues related to nitrifying bacteria, and is required to conduct an Industrial Waste Survey, identifying or ruling out any concerns related to TDS would be beneficial for several reasons. Therefore, EPA will implement a semi-annual grab sample monitoring event for TDS.

7.1.9 Nutrients

The previous permit required the Facility to monitor the effluent for nutrients (including nitrate/nitrite, total kjeldahl nitrogen, total nitrogen [calculated], and total phosphorus) on an annual frequency using a grab sample. The grab sample type will be retained in the Permit. However, due to the lack of data collected, the concerns with ammonia (which could signify issues with nitrification/denitrification) and EPA's commitment to partnering with the Tribes to collect more comprehensive nutrient data and better define nutrient levels and seasonal variability at individual facilities, the sampling frequency for nutrients will increase to quarterly.

7.1.10 Dissolved Oxygen

The previous permit did not require the Facility to monitor for dissolved oxygen. However, due to the performance evaluation pointing towards low dissolved oxygen as the primary driver of poor removal of ammonia, and the identification of dissolved oxygen as a pollutant of concern, EPA is requiring the Facility to monitor the effluent for dissolved oxygen on a monthly basis. The method will be using an instantaneous grab sample. Note that dissolved oxygen samples must be analyzed within 15 minutes of collection. For this reason, most facilities use an *in situ* meter to measure it directly in the field. A monthly frequency and grab sample are appropriate for a lagoon with a long retention time such as Ronan.

7.2 Self-Monitoring Requirements

Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, as required in 40 CFR Part 122.41(j), unless another method is required under 40 CFR subchapters N or O.

Table 7. Monitoring requirements for Outfall 001

Effluent Characteristic	Monitoring Frequency	Sample Type a/	Data Reported on DMR b/
Flow, mgd c/	Weekly	Instantaneous	Daily Max. 30-Day Avg.
BOD_5, mg/L d/	Monthly	Grab	Daily Max. 30-Day Avg.
Influent BOD_5, mg/L d/	Monthly	Grab	Daily Max. 30-Day Avg.
BOD_5 Percent Removal, %	Monthly	Calculated e/	30-Day Avg. % removal
TSS, mg/L d/	Monthly	Grab	Daily Max. 30-Day Avg.
Influent TSS, mg/L d/	Monthly	Grab	Daily Max. 30-Day Avg.
TSS Percent Removal, %	Monthly	Calculated e/	30-Day Avg. % removal
Escherichia coli (*E. coli*), number/100 mL	Monthly	Grab	Daily Max. 30-Day Avg.
Fecal coliform, number/100 mL	Monthly	Grab	Daily Max. 30-Day Avg.
Oil and Grease, visual	Weekly	Visual	Narrative
Oil and Grease, mg/L	Immediately if visual sheen detected f/	Grab	Daily Max.
pH, standard units	Monthly	Instantaneous g/	Instantaneous Min. Instantaneous Max.
Temperature, °C	Monthly	Instantaneous g/	Instantaneous Min. Instantaneous Max.
Dissolved Oxygen, mg/L	Monthly	Instantaneous g/	Daily Min. 30-Day Avg.
Total Ammonia Nitrogen (as N), mg/L h/	Monthly	Grab	Daily Max. 30-Day Avg.
Total Kjeldahl Nitrogen (TKN) (as N), mg/L	Quarterly	Grab	Daily Max. 30-Day Avg.
Nitrate-Nitrite (as N), mg/L	Quarterly	Grab	Daily Max. 30-Day Avg.

Effluent Characteristic	Monitoring Frequency	Sample Type a/	Data Reported on DMR b/
Total Nitrogen (as N), mg/L	Quarterly	Calculated i/	Daily Max. 30-Day Avg.
Total Phosphorus (as P), mg/L	Quarterly	Grab	Daily Max. 30-Day Avg.
Total Dissolved Solids (TDS), mg/L	Semi-annually	Grab	Daily Max. 30-Day Avg.

a/ See section 1 of the Permit for definition of terms.
b/ Refer to the Permit for requirements regarding how to report data on the DMR.
c/ Flow measurements of effluent volume shall be made in such a manner that the Permittee can affirmatively demonstrate that representative values are being obtained. The average flow rate in million gallons per day (mgd) during the reporting period and the maximum flow rate observed, in mgd, shall be reported.
d/ Influent and effluent samples for BOD_5 and TSS must be taken on the same day and as close in time as feasible. Influent samples shall be collected from the influent stream at the first influent access point, and if feasible prior to entering the lagoon.
e/ To calculate percent removal, use the following equation (replacing X with either BOD_5 or TSS): $([X_{30\text{-day average, influent}} - X_{30\text{-day average, effluent}}]/X_{30\text{-day average, influent}}) * 100$.
f/ If a visible sheen or floating oil is detected in the discharge, a grab sample shall be taken immediately, analyzed and recorded in accordance with the requirements of 40 CFR Part 136. The concentration of oil and grease shall not exceed 10 mg/L in any sample.
g/ This sample must be analyzed within 15 minutes of collection per 40 CFR Part 136. Typically, these samples are measured *in situ* using a meter that records an instantaneous measurement.
h/ Receiving water ammonia, temperature, and pH at RW01 and CC01 must be taken as close in time as feasible with the effluent ammonia sample at Outfall 001 (Table 9).
i/ For the purposes of the Permit, the term "Total Nitrogen" is defined as the sum of analytical results from "Total Kjeldahl Nitrogen (TKN)" plus "Nitrate+Nitrite."

8 SPECIAL CONDITIONS

The Permit contains requirements for the Permittee to perform two additional monitoring studies. Additional monitoring requirements (beyond those required under the effluent limitations section of the Permit) and special studies are useful for collecting data that can be used to supplement numeric effluent limitations or support future permit development activities.

The two additional monitoring studies include an internal diagnostics and treatability study, and a receiving water fate and transport study. Both are related to the Facility's long-term ammonia exceedances, and both are needed to collect data that will be used to support future permit development activities. The basis and details of both are further described in this section, and implemented in section 5 of the Permit.

8.1 Internal Diagnostics and Treatability Study

The Facility has had long-term ammonia exceedances since ammonia effluent limitations were first established in 2008. EPA and the CSKT are in the process of determining how to address this. It is possible that the existing facility may not be able to comply with the effluent limitations in the Permit. To evaluate options and potential permitting flexibilities, it is imperative that the lagoon first 'optimize' its ability to treat and reduce ammonia in the effluent. A performance evaluation was conducted in fall 2021 by H&S Environmental (see section 4.3.3 for more details). A key recommendation and action item from that evaluation was that the Facility should perform quarterly intra-pond diagnostic BOD_5, carbonaceous biochemical oxygen demand ($CBOD_5$), ammonia, nitrate, and dissolved oxygen sampling between each treatment cell to better understand the nature of the system and track changes in the system. As detailed in the evaluation, this will gather information that can be used to determine how each cell is performing and track where in the system treatment is occurring.

Additionally, EPA will require the Facility to calculate the 5-day nitrogenous biochemical oxygen demand ($NBOD_5$) on a quarterly basis. $NBOD_5$ is a measurement of the oxygen consumed during the oxidation of nitrogenous compounds (mainly ammonia) to nitrates (with nitrites being an intermediate step). On a more basic level, $NBOD_5$ approximates the relative number of nitrifying bacteria in a system, and can be thought of as a lagoon system's ability to remove ammonia through nitrification. When $NBOD_5$ is high, it means that nitrification is (or has the potential of) occurring. By calculating $NBOD_5$ between cells on a quarterly basis, the Facility will be able to track where nitrification is occurring in the system. $NBOD_5$ can be calculated by subtracting the $CBOD_5$ from the BOD_5 ($NBOD_5 = BOD_5 – CBOD_5$). The requirement to calculate $NBOD_5$ on a quarterly basis was also suggested in the performance evaluation.

This information will help the Facility optimize performance, increase ammonia treatment, and also allow EPA and the CSKT to better evaluate options for future permit implementation and flexibility. EPA may discontinue or reduce the frequency of monitoring in this study in the next permit cycle.

The performance evaluation suggested a quarterly sampling frequency. This suggested quarterly frequency and grab sample type will be applied to this study for all parameters mentioned in the performance evaluation except dissolved oxygen. Because dissolved oxygen was mentioned several times as one of the primary drivers of ammonia removal, and the performance evaluation (page 9) mentioned that the Facility must maintain a dissolved oxygen concentration above 2 mg/L at all times of the day and night in cell #1, EPA believes quarterly sampling is not frequent enough to inform this study. Therefore, EPA will require dissolved oxygen monitoring at a monthly frequency. Additionally, EPA is adding pH and temperature monitoring to the monthly frequency along with dissolved oxygen. Both pH and temperature are critical factors in evaluating intra-pond activity, and are relatively easy to sample along with dissolved oxygen. Dissolved oxygen, pH, and temperature will all be sampled using an "instantaneous" grab sample.

The Permittee must develop and implement an internal diagnostics and treatability study. To do this, the following specific steps are required:

1) The Permittee must establish monitoring locations for the effluent of cell #1 (IM01), the effluent of cell #2 (IM02), and the effluent of cell #3 (IM03). EPA proposes using the manhole or vault in between each cell that accesses the connecting pipe between cells as an easily accessible and representative sampling location. Sampling sites must be located to obtain a representative sample of the effluent from each cell. EPA has provided an initial description and latitude/longitude for each of these three locations in Table 1. Within 30 days of the effective date of the Permit, the Permittee must verify that the information provided by EPA for IM01, IM02, and IM03 in Table 1 is accurate and represent feasible sampling locations, or discuss alternative options.
2) The Permittee must perform monthly monitoring of dissolved oxygen, temperature, and pH at each of these three locations (Table 8). The monthly sampling should occur at or near the same time as the monthly influent and outfall sampling so that additional evaluations can be performed.
3) The Permittee must perform quarterly monitoring of BOD_5, $CBOD_5$, ammonia, and nitrate at each of these three locations (Table 8). The quarterly sampling should occur at or near the same time as the monthly influent and outfall sampling so that additional evaluations can be performed (e.g., BOD_5 percent removal from cell #1 can be calculated). The quarterly sampling events should be evenly spaced out approximately once every three months. In no case should the quarterly sampling events be less than two months apart (i.e., sampling for Q1 in March, followed by sampling for Q2 in April, would not be in compliance with the Permit). The Permittee must calculate quarterly $NBOD_5$ (see Table 8, footnote e/) from the data as well.
4) All monitoring results shall be recorded in a log devoted to this particular study. The log shall record the date and time of sampling event, sampling results, personnel involved, any weather/field conditions that may have affected sampling, as well as any other pertinent information. Any changes, alterations, events, or construction to the lagoons that occurred during that month/quarter and to which areas they occurred shall also be recorded. The Permittee must maintain this log at the Facility, and the log must be made available to EPA upon request.
5) The Permittee shall submit the monitoring data from Table 8 each quarter on a DMR. A separate DMR will be established for each monitoring point in this internal diagnostics and treatability study.
6) The Permittee shall submit a report each year summarizing the results from this study, identifying any changes to treatment that occurred during the year, discussing conclusions about treatment effectiveness based on the results of the study, and identifying any planned changes to treatment that will occur in the upcoming year.

Table 8. Internal Monitoring requirements at IM01, IM02, and IM03

Internal Monitoring Characteristic	Monitoring Location	Monitoring Frequency	Sample Type a/	Data Reported on DMR b/
Dissolved Oxygen, mg/L	IM01, IM02, IM03	Monthly	Instantaneous c/	Daily Min. 30-Day Avg.
pH, standard units	IM01, IM02, IM03	Monthly	Instantaneous c/	Instantaneous Min. Instantaneous Max.
Temperature, °C	IM01, IM02, IM03	Monthly	Instantaneous c/	Instantaneous Min. Instantaneous Max.
BOD_5, mg/L d/	IM01, IM02, IM03	Quarterly	Grab	Daily Max. 30-Day Avg. 30-Day % removal
$CBOD_5$, mg/L	IM01, IM02, IM03	Quarterly	Grab	Daily Max. 30-Day Avg.
$NBOD_5$, mg/L e/	IM01, IM02, IM03	Quarterly	Calculated	Daily Max. 30-Day Avg.
Ammonia, mg/L	IM01, IM02, IM03	Quarterly	Grab	Daily Max. 30-Day Avg.
Nitrate, mg/L	IM01, IM02, IM03	Quarterly	Grab	Daily Max. 30-Day Avg.

a/ See section 1 of the Permit for definition of terms.
b/ Refer to the Permit for requirements regarding how to report data on the DMR.
c/ This sample must be analyzed within 15 minutes of collection per 40 CFR Part 136. Typically, these samples are measured *in situ* using a meter that records an instantaneous measurement.
d/ BOD_5 sampling should occur on the same day and as close in time as feasible as the influent BOD_5 sample (see Table 7).
e/ $NBOD_5 = BOD_5 – CBOD_5$

8.2 Receiving Water Fate and Transport Study

The Facility has had long-term ammonia exceedances since ammonia effluent limitations were first established in 2008. EPA and the CSKT are in the process of determining how to address this. It is possible that the existing facility may not be able to comply with the effluent limitations in the Permit. EPA reviewed a number of studies and sampling events which indicated that applying ammonia criteria calculated using Crow Creek data is likely not appropriate for the Facility (see section 6.2.7). To collect data for a more robust ammonia criteria evaluation on the receiving stream, and to verify the results of the previous Crow

Creek studies discussed in section 6.2.7, the Facility must collect ambient data in both the immediate receiving water and Crow Creek.

EPA is establishing a quarterly monitoring frequency at these two locations using either a grab sample (ammonia) or instantaneous sample (pH and temperature) in the Permit. This will provide enough samples over five years to provide a robust dataset for analysis, while considering the economic burden to the Permittee associated with sampling multiple locations off-site. It will also provide a 'seasonal' dataset should seasonal analysis of the data be desired.

The Permittee must develop and implement a receiving water fate and transport study. To do this, the following steps are required:

1) The Permittee must establish monitoring locations in both the receiving water (RW01) and Crow Creek (CC01). These locations should be established near the confluence of the two streams. The monitoring locations should be established to obtain a representative sample of the monitored stream.
    a. RW01 Location Requirements: The monitoring location in the unnamed tributary to Crow Creek should be far enough upstream from the confluence that it is not affected by any backwater or comingling from Crow Creek.
    b. CC01 Location Requirements: The monitoring location on Crow Creek must be representative of the immediate mixing area downstream of the confluence with the unnamed tributary. The location must be no more than ten (10) feet downstream of the confluence, and must be within three (3) feet of the right (east) bank of Crow Creek. EPA believes this area will best represent the immediate mixing between the two streams.

   EPA has provided a description and suggested latitude/longitude for each of these locations in Table 1. Within 30 days of the effective date of the Permit, the Permittee must verify that the information provided by EPA is acceptable and accurate, or discuss alternative locations if warranted.
2) The Permittee must perform quarterly monitoring of pH, temperature, and ammonia at each of these two locations (Table 9). The quarterly sampling should be coordinated to be at or near the same time as one of the monthly effluent ammonia sampling events (see Table 7), so that ammonia reductions in the receiving stream can be calculated. The quarterly sampling events should be evenly spaced out approximately once every three months. In no case should the quarterly sampling events be less than two months apart (i.e., sampling for Q1 in March, followed by sampling for Q2 in April, would not be in compliance with the Permit).
3) This information shall be recorded in a log devoted to this particular study. The log shall record the date and time of sampling event, sampling results, personnel involved, any weather/field conditions that may have affected sampling, as well as any other pertinent information. The Permittee must maintain this log at the facility, and the log must be made available to EPA upon request
4) The Permittee shall submit the monitoring data from Table 9 each quarter in their DMR. A separate DMR will be established for each monitoring point in this receiving water fate and transport study.

5) The Permittee shall submit a report each year summarizing the results from this study up to that point.

Table 9. Receiving Water Monitoring requirements at RW01 and CC01

Receiving Water Characteristic	Monitoring Location	Monitoring Frequency	Sample Type a/	Data Reported on DMR b/
Temperature, °C	RW01, CC01	Quarterly c/	Instantaneous d/	Instantaneous Min. Instantaneous Max.
pH, standard units	RW01, CC01	Quarterly c/	Instantaneous d/	Instantaneous Min. Instantaneous Max.
Total Ammonia Nitrogen (as N), mg/L	RW01, CC01	Quarterly c/	Grab	Daily Max. 30-Day Avg.

a/ See section 1 of the Permit for definition of terms.
b/ Refer to the Permit for requirements regarding how to report data on the DMR.
c/ Samples must be taken as close in time as feasible with the effluent ammonia sample at Outfall 001 (Table 7).
d/ This sample must be analyzed within 15 minutes of collection per 40 CFR Part 136. Typically, these samples are measured *in situ* using a meter that records an instantaneous measurement.

9 REPORTING REQUIREMENTS

Reporting requirements are based on requirements in 40 CFR §§ 122.44, 122.48, and Parts 3 and 127. A DMR reporting frequency of monthly was chosen, because the Facility monitors and submits monthly DMRs, and typically discharges continuously. The Facility previously only reported on a quarterly basis (they would report three months at a time), but after discussion with the Permittee, the reporting frequency was changed to monthly submittals.

10 COMPLIANCE RESPONSIBILITIES AND GENERAL REQUIREMENTS

10.1 Inspection Requirements

On a weekly basis, unless otherwise modified in writing by EPA, the Permittee shall inspect its treatment facility. The Permittee shall document the inspection, as required in the Permit (see section 6.2 of the Permit). Inspections are required to ensure that the Facility is operating properly. EPA typically requires a weekly inspection for lagoon facilities.

10.2 Operation and Maintenance

40 CFR § 122.41(e) requires permittees to properly operate and maintain at all times, all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. In addition to an operation and maintenance plan, regular facility inspections, an asset management plan, and consideration of staff and funding resources are important aspects of proper operation and maintenance. Asset management planning provides a framework for setting and operating quality assurance procedures and helps to ensure the Permittee has sufficient financial and

technical resources to continually maintain a targeted level of service. Consideration of staff and funding provide the Permittee with the necessary resources to operate and maintain a well-functioning facility. These requirements have been established in sections 6.3.3 and 6.3.4 of the Permit to help ensure compliance with the provisions of 40 CFR § 122.41(e).

10.3 Industrial Waste Management

The Facility is a POTW as defined in 40 CFR § 403.3(q). The Permit contains requirements for the Permittee to protect the POTW from pollutants which would inhibit, interfere with, or otherwise be incompatible with operation of the treatment works including interference with the use or disposal of municipal sludge. Pass through and interference are defined in 40 CFR §§ 403.3(p), (k), respectively.

The Facility is required to conduct an Industrial Waste Survey (IWS), as described in the Permit, within one year of the Permit effective date. The Facility must continue to update and maintain the IWS. The IWS will ensure the POTW knows what potential pollutants may be introduced to the system.

11 ENDANGERED SPECIES CONSIDERATIONS

The Endangered Species Act of 1973 requires all Federal Agencies to ensure, in consultation with the U.S. Fish and Wildlife Service (FWS), that any Federal action carried out by the Agency is not likely to jeopardize the continued existence of any endangered species or threatened species (together, "listed" species), or result in the adverse modification or destruction of habitat of such species that is designated by the FWS as critical ("critical habitat"). See 16 U.S.C. § 1536(a)(2), 50 CFR Part 402. When a Federal agency's action "may affect" a protected species, that agency is required to consult with the FWS (formal or informal) (50 CFR § 402.14(a)).

The U.S. Fish and Wildlife Information for Planning and Conservation (IPaC) website (https://ecos.fws.gov/ipac/) was accessed on December 21, 2021 to determine federally-listed Endangered, Threatened, Proposed and Candidate Species for the area near the Facility. The IPaC Trust Resource Report findings are provided in the table below. The designated area utilized was identified in the IPaC search and covers the lagoons and the entirety of the unnamed tributary to Crow Creek (i.e., the receiving stream) for a total area of approximately 1,000 acres.

Table 10. IPaC Federally listed Threatened and Endangered Species

Species	Scientific Name	Species Status	Designated Critical Habitat
Canada Lynx	*Lynx canadensis*	Threatened	"There are no critical habitats at this location."
Grizzly Bear	*Ursus arctos horribilis*	Threatened	"There are no critical habitats at this location."
Yellow-billed Cuckoo	*Coccyzus americanus*	Threatened	"There are no critical habitats at this location."

Species	Scientific Name	Species Status	Designated Critical Habitat
Monarch Butterfly	*Danaus plexippus*	Candidate	"There are no critical habitats at this location."

11.1 Biological Evaluation

The proposed action is renewal of an expired discharge permit at a wastewater lagoon. Although the Permittee's previous permit has expired, the lagoon has been continuously discharging since its expiration, so with respect to potential impacts to listed species and their critical habitats this is similar to a permit renewal. The proposed action may include some upgrades at the Facility, but these upgrades would occur to or at the existing wastewater lagoons. The Facility is located just outside of the City of Ronan, MT in a semi-rural area near a hay field and ball park that is unlikely to provide much habitat for the species listed above. The receiving stream flows approximately three miles through cow pastures and homesteads before entering Crow Creek. The receiving stream is groundwater, spring and snowmelt fed, and dries up in the summer and fall. During a July 2021 site visit, EPA staff noted that the receiving stream was dry above the Facility's discharge, there was no discernible surface flow at one location downstream of the facility. This renewal does not allow for any increases in volumetric discharges or pollutant loads, and all effluent limitations are protective of water quality criteria (see section 6.2). Furthermore, IPaC determined there was no critical habitat in the action area. A brief biological evaluation for each species in Table 10 is provided below.

Canada lynx, *Lynx canadensis* – This species inhabits subalpine forests of the western United States, specifically locations that receive deep snow and have high populations of snowshoe hares, which are their principal prey. The 'action area' for the proposed action (renewal of an NPDES discharge permit) is comprised mainly of lower elevation pasture, rural homesteads, and hay fields, and is likely not primary habitat for this species. Regardless of whether Canada lynx are found in this area, the permit reissuance will not authorize new ground disturbance or substantial changes in flows or pollutant loadings, and permit limits are protective of all water quality standards. Therefore, EPA finds that this proposed permit action is *not likely to adversely affect* this species.

Grizzly bear, *Ursos arctos horribilis* – This species can be found throughout the Northern Continental Divide Ecosystem of north-central Montana, although they typically avoid areas with high human population. The 'action area' for the proposed action (renewal of an NPDES discharge permit) is comprised mainly of lower elevation pasture, rural homesteads, and hay fields, and is likely not primary habitat for this species. Regardless of whether grizzly bear are found in this area, the permit reissuance will not authorize new ground disturbance or substantial changes in flows or pollutant loadings, and permit limits are protective of all water quality standards. Therefore, EPA finds that this proposed permit action is *not likely to adversely affect* this species.

Yellow-billed cuckoo, *Coccyzus americanus* – This species was not listed in the previous permit renewal, but is now listed as threatened. Yellow-billed cuckoos inhabit wooded areas with dense cover and water nearby, including woodlands with low, scrubby vegetation, overgrown orchards, abandoned farmland, and dense thickets along streams and marshes. It is

possible that this species is found in the vicinity of the Facility. However, the permit reissuance will not authorize new ground disturbance or substantial changes in flows or pollutant loadings, and permit limits are protective of all water quality standards. Therefore, EPA finds that this proposed permit action is *not likely to adversely affect* this species.

Monarch butterfly, *Danaus plexippus* – This species is currently listed as a candidate species. There are generally no section 7 requirements for candidate species. However, EPA believes reissuance of the Permit will have minimal impact on this species for the same reasons provided for other species above.

Based on the IPaC information, EPA determined the permitting action *may affect, but is not likely to adversely affect* one or more of the species listed above. A copy of the draft Permit and this Statement of Basis was sent to the FWS requesting concurrence with EPA's finding that reissuance of this NPDES Permit "may affect, but is not likely to adversely affect" the species listed as threatened or endangered in the action area, or their critical habitat.

12 NATIONAL HISTORIC PRESERVATION ACT REQUIREMENTS

Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470(f) requires that federal agencies consider the effects of federal undertakings on historic properties. The first step in this analysis is to consider whether the undertaking has the potential to affect historic properties, if any are present. See 36 CFR § 800.3(a)(1). Permit renewals where there is no new construction (even in this case where the previous permit had expired) are generally not the type of action with the potential to cause effects on historic properties. During the public comment period, the CSKT's Tribal Historic Preservation Office will be notified as an interested party to ensure that historic properties are not negatively affected by the conditions of the Permit.

13 401 CERTIFICATION CONDITIONS

The CSKT are the Clean Water Act (CWA) Section 401 certifying authority for the Permit, and a CWA Section 401 certification will be requested prior to Permit finalization.

14 MISCELLANEOUS

The effective date of the Permit and the Permit expiration date will be determined upon issuance of the Permit. The intention is to issue the Permit for a period not to exceed 5 years.

Permit drafted by Erik Makus, U.S. EPA, (406) 457-5017 (December 2021)

ADDENDUM

AGENCY CONSULTATIONS

On May 25, 2022, the FWS concurred with EPA's preliminary conclusion that the Permit reissuance is not likely to adversely affect listed species.

The Tribal Historic Preservation Office was notified during public notice but did not comment on EPA's preliminary determination that the Permit reissuance will not impact any historic properties.

On April 28, 2022, EPA sent a sent a CWA Section 401 certification request to the CSKT. On May 25, 2022, the CSKT certified without Section 401 requirements.

PUBLIC NOTICE AND RESPONSE TO COMMENTS

The Permit and SoB were public noticed on EPA's website and in the *Missoulian* on April 29, 2022. EPA received no written comments; however, the Permittee did ask for clarification on two aspects of monitoring and reporting. These topics are further discussed below.

Influent Monitoring: The Permittee stated that they were confused regarding the influent monitoring requirements – influent monitoring is mentioned several times, but there is no formal influent monitoring location. The Permittee asked for some clarification on this topic.

EPA Clarification: The influent BOD_5 and TSS measurements are used in a number of calculations, and EPA acknowledges it would help to further clarify how and when they are used. EPA includes influent monitoring of BOD_5 and TSS to comply with the percent removal requirements of 40 CFR Part 133, and does not typically assign a separate DMR for this location.

Monthly influent sampling is required for BOD_5 and TSS (see Table 3 in the Permit). These samples shall be collected from the influent stream to the facility at the first influent access point – if feasible prior to entering any treatment unit (see section 7.1 of the Permit – Representative Sampling). These samples shall also be collected on the same day and as close in time as possible to the effluent BOD_5 and TSS samples (see footnote d in Table 3 of the Permit), and the internal monitoring BOD_5 samples (see footnote d in Table 4 of the Permit). The influent TSS sample is used for one calculation, while the influent BOD_5 sample is used for two calculations:

- The influent TSS sample is used to calculate 30-day average TSS percent removal at Outfall 001 as described in footnote e of Table 3 in the Permit. This value (30-day average TSS percent removal) shall be reported in the monthly DMRs for Outfall 001.

- The influent BOD_5 sample is used to calculate 30-day average BOD_5 percent removal at Outfall 001 as described in footnote e of Table 3 in the Permit. This value (30-day average BOD_5 percent removal) shall be reported in the monthly DMRs for Outfall 001.

- The influent BOD_5 sample is also used to calculate 30-day average BOD_5 percent removal in cell #1 as part of the Internal Diagnostics and Treatability Study (section 5.1 of the Permit), as described in footnotes b and d of Table 4 in the Permit. This 30-day average BOD_5 percent removal shall be reported in the quarterly DMRs for monitoring point IM01. Note that a 30-day average percent BOD_5 removal will be reported for *each internal monitoring point* per footnote b of Table 4 of the Permit. Also, be aware that the percent BOD_5 removal calculated at these internal locations will most likely be different than the reported overall percent BOD_5 removal calculated at Outfall 001. The 30-day average percent BOD_5 removal at each internal monitoring point is calculated as follows:

    - IM01 = $([BOD_{influent} - BOD_{IM01}]/BOD_{influent}) * 100$
    - IM02 = $([BOD_{IM01} - BOD_{IM02}]/BOD_{IM01}) * 100$
    - IM03 = $([BOD_{IM02} - BOD_{IM03}]/BOD_{IM02}) * 100$

EXAMPLE CALCULATION: Last month, say the facility recorded the following measurements:

- Influent BOD_5: 200 mg/L
- Influent TSS: 100 mg/L
- Effluent BOD_5: 10 mg/L
- Effluent TSS: 10 mg/L
- IM01 BOD_5: 70 mg/L
- IM02 BOD_5: 30 mg/L
- IM03 BOD_5: 15 mg/L

Then the reported 30-day average percent removal values for last month would be:

Outfall 001 (see Table 3 in the Permit, footnote e)

- BOD_5: ([200 mg/L – 10 mg/L]/200 mg/L) *100 = 95%
- TSS: ([100 mg/L – 10 mg/L]/100 mg/L) *100 = 90%

IM01 (see Table 4 in the Permit, footnote b)

- BOD_5: ([200 mg/L – 70 mg/L]/200 mg/L) *100 = 65%

IM02 (see Table 4 in the Permit, footnote b)

- BOD_5: ([70 mg/L – 30 mg/L]/70 mg/L) *100 = 57%

IM03 (see Table 4 in the Permit, footnote b)

- BOD_5: ([30 mg/L – 15 mg/L]/30 mg/L) *100 = 50%

DMR Reporting Frequencies: In section 2 of the SoB (page 2), major changes from the previous permit were listed. One bullet stated that the DMR reporting frequency was changing to monthly. However, this permit renewal adds several new monitoring locations with quarterly reporting frequencies. Clarify the reporting frequencies for the various monitoring locations.

EPA Clarification: To avoid confusion, the bullet in section 2 above should have stated that the reporting frequency ***for Outfall 001*** was changing to monthly – the new monitoring locations have monthly and quarterly reporting frequencies. The monitoring and reporting frequencies for all locations are further explained in the table below:

Monitoring Location	Monitoring Frequency	Reporting Frequency (see Table 6 in the Permit)	Notes
001	Various (see Table 3 in the Permit)	Monthly	Submit one monthly DMR once each month.
IM01	Various (see Table 4 in the Permit)	Monthly	Submit one monthly DMR once each month.
IM02	Various (see Table 4 in the Permit)	Monthly	Submit one monthly DMR once each month.
IM03	Various (see Table 4 in the Permit)	Monthly	Submit one monthly DMR once each month.
RW01	Quarterly (see Table 5 in the Permit)	Quarterly	Submit one quarterly DMR once each quarter.
CC01	Quarterly (see Table 5 in the Permit)	Quarterly	Submit one quarterly DMR once each quarter.

Section 2 of the SoB has been clarified to indicate the DMR reporting frequency change is for Outfall 001.