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

PERMITTEE:	Town of Lodge Grass
FACILITY NAME AND ADDRESS:	Town of Lodge Grass Wastewater Treatment Plant 14623 Highway 451 (P.O. Box 255) Lodge Grass, Montana 59050
PERMIT NUMBER:	MT-0021890
RESPONSIBLE OFFICIAL:	Quincy Dabney, Mayor, Town of Lodge Grass Phone number: (406) 639-2362 Email: quincy.dabney@townoflodgegrass.com
FACILITY CONTACT:	Joe Lovato, Interim Public Works Director Phone number: (406) 639-2362 Email: joe.lovato@townoflodgegrass.com
PERMIT TYPE:	Indian Country, Minor, Permit Renewal, POTW
FACILITY LOCATION:	SE1/4 Section 12, Township 65N, Range 35E Crow Reservation, Big Horn County, Montana Latitude 45.325367, Longitude -107.365034

1 INTRODUCTION

This statement of basis (SoB) is for the re-issuance of a National Pollutant Discharge Elimination System (NPDES) permit (the Permit) to the Town of Lodge Grass' (Lodge Grass or Permittee) wastewater treatment facility (Facility). The Permit establishes discharge limitations for any discharge of wastewater from the Facility through Outfalls 001 and 002 to a slough that flows into the Little Bighorn River. 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 Crow 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:

- A new compliance schedule is added. The upgraded treatment system is expected to be complete and in operation at the end of 2024.
- Quarterly Discharge Monitoring Report (DMR) data submittal is required in lieu of monthly submittal.
- Added a 5-day biological oxygen demand (BOD_5) 65 percent removal effluent limitation for Outfall 002.
- Added a requirement for development, maintenance, and implementation of an asset management plan (AMP) and Industrial Waste Survey (IWS), no later than one year after the effective date of this Permit.

3 BACKGROUND INFORMATION

The Facility serves approximately 1,000 residents of the Town of Lodge Grass and adjacent tribal housing. Based on a cursory online review of the service are, the Lodge Grass also includes a high school, senior center, restaurant, grocery store, post office, and propane supply. The design flow rate is 0.186 million gallons per day (mgd) based on the upgraded facility preliminary design report. The average daily flow rate of the Facility's original configuration was 0.00627 mgd, based on the permit application.

As a result of recurrent compliance issues and an Administrative Order on Consent (AOC) filed April 6, 2015 (Docket No. CWA 08-2015-0014), the Facility is being upgraded as part of the Lodge Grass Wastewater Improvement Project. The Phase 1A project was completed in 2017, replacing approximately 2,811 feet of vitrified clay pipe (VCP) sewer main with polyvinyl chloride (PVC) pipe. This project upgraded approximately 23% of Lodge Grass's previously-VCP sewer main. This project prioritized sections of sewer main with the most significant structural and health and safety concerns, identified in-part through the historical collection

system assessments. The project also replaced 705 feet of service lines (3 service lines up to private property boundaries) with PVC.

Prior to commencing the wastewater improvement projects, the lagoon comprised two cells, an aerated Cell 1 and a quiescent Cell 2. Around 2017-2018, the Phase 1B project re-routed influent directly to Cell 2 and replaced Cell 1 with two newly constructed, synthetically lined, baffled cells, Cell 1A/B and Cell 2A/B, located in the approximate footprint of the previous Cell 1. The final design and construction of the two baffled Cells 1A/B and 2A/B superseded a previous design of three cells recommended in the 2012 Preliminary Engineering Report (PER). The Phase 1B project was originally intended to complete the construction of the new lagoon and all appurtenances, place Cells 1A/B and 2A/B into service, and decommission Cell 2; however, due to unanticipated circumstances (legal disputes involving Lodge Grass and a contractor), the Phase 1B project was terminated prior to completion. Currently, influent continues to be routed directly into Cell 2 and Cells 1A/B and 2A/B remain offline.

According to the 2021 PER Update, work completed during the Phase 1B project prior to termination included:

- Sludge removal from Cell 1
- Earthwork for Cells 1A/B and 2A/B
- Installation of synthetic lagoon liner in Cells 1A/B and 2A/B
- Partially complete installation of gravity sewer piping, including some influent lines, overflow and connecting piping, effluent lines, bypass, and associated manholes
- Construction of influent metering manhole
- Construction of blower building foundation

Major work that was intended to be part of the Phase 1B project but was not completed prior to termination has been included in the scope of the ongoing Phase 2 project (see more details about Phase 2 project in Section 3.2 below).

3.1 Facility Process Description

The Facility is currently only using the 5.15 acres, existing Cell 2 with partially aerated lagoon system without disinfection. New Cells 1A/B and 2A/B are offline. The Facility discharges from Outfall 001 from the northeast corner of existing Cell 2 into a slough which drains into the Little Bighorn River (See Figure 1 below).

3.2 Treatment Process

During 2017-2018, the Phase 1B project re-routed influent directly to existing Cell 2. Since the premature termination of the Phase 1B project, the lagoon has continued operating at reduced capacity, with only existing Cell 2 providing treatment. Although existing Cell 2 was previously a quiescent cell, it currently features limited aeration. During the EPA's compliance

inspection of August 11, 2022, two floating aerators were observed to have been installed in existing Cell 2 but only one was functional, a reduction from the two functional aerators observed during the EPA's September 11, 2019, inspection. At present, effluent is discharged directly from existing Cell 2 through Outfall 001 at latitude 45.326606, and longitude -107.363278 without disinfection.

Due to funding constraints, the Phase 2 project scope will likely be modified from the description included in the 2021 PER Update and the EPA's 2022 Desk Audit Report. Notably, some collection system improvements may be removed from the project, discussed further in Section 3.7, and a sewer main study may be added. In January 2023, Morrison-Maierle Engineering Consultant provided the following updated tentative planned scope of work for the Phase 2 project:

- Cleaning and TV inspection of all VCP sewer mains and PVC and RCP sewer trunk mains and sewer main study
- Liner integrity testing of Cells 1A/B and 2A/B
- Installation of baffle curtains
- Installation of a fine bubble diffused aeration system
- Installation of a non-contact ultraviolet (UV) disinfection system, designed to treat an average flow of 185,000 gpd
- Installation of a new discharge structure, Outfall 002, from Cell 2B, comprising a v-notch weir and an ultrasonic flow meter
- Installation of piping and all other appurtenances required to complete lagoon renovations
- Re-routing of influent from existing Cell 2 to Cells 1A/B and 2A/B and removal of existing Cell 2 from service
- Miscellaneous site improvements, including fencing, a new access gate, gravel surface road around the lagoon cells, and site restoration
- Decommissioning of existing Cell 2

Due to delays and potential changes in project scope, the Phase 2 preliminary implementation schedule included in the 2021 PER Update is no longer accurate. Some of the Phase 2 project schedule is dependent on Lodge Grass meeting financial requirements of Phase 2 project funders and obtaining sufficient funding to complete the project. The Phase 2 project is provisionally scheduled to be complete at the end of 2024. The interim milestone for construction completion is January 1, 2025. The schedule for final effluent limitations is set to June 1, 2025, for this Permit. This final effluent limitations date will give the Facility time to start-up the new cells and fix any operational challenges after the upgraded Facility is put in normal operational mode.

Upon completion of the Phase 2 project, the existing partially aerated two-cell lagoon system (i.e., Cell 1A/B and Cell 2) will be replaced with an aerated four-cell lagoon system with continuous discharge. The upgraded facility will have an average annual design flow of 0.186 mgd and will consist of two synthetically lined earthen basins (i.e., Cell 1A/B and Cell 2A/B) that are divided into four cells with baffle curtains. Aeration will be provided by indoor positive displacement blowers (two active and one standby), and will be delivered via floating lateral, fine bubble diffusers. The supplied air is intended to lower five-day BOD_5 levels and provide partial mixing in three of the four treatment cells. The fourth cell, Cell 2B, will be a quiescent zone for sludge settling. Influent flows will be measured with a Parshall flume and effluent flow metering will be done at a V-notch weir.

This Permit now includes Outfalls 001 and 002. Outfall 001 is the original outfall at the northeast corner of existing Cell 2 that is currently in use. Outfall 002 is a new outfall at the southeast corner of Cell 2B that will become the permanent outfall after decommissioning of existing Cell 2 and removal of Outfall 001.

The outfall location will be moved to the southeast corner of Cell 2B at latitude 45.324450 and longitude -107.363970 and named Outfall 002. This Permit will provide coverage for effluent discharges from both the current facility and the upgraded facility.

Figure 1 is an aerial photograph supplied by the Permittee that shows the existing facility layout and outfall location, as well as the planned upgrades to the lagoon system and new outfall location.

Figure 1. Aerial photograph showing the existing and future layout of the Lodge Grass facility.

3.3 Chemicals Used

The Facility does not use any chemicals for treatment.

4 PERMIT HISTORY

According to EPA records maintained for the Facility, this renewal is at least the 5th issuance of this NPDES Permit. The previous permit for the Facility became effective on May 1, 2017, and expired on March 31, 2022. The Facility submitted a permit renewal application prior to the permit's expiration, and thus the previous permit was administratively continued.

4.1 Discharge Monitoring Report (DMR) Data

Table 1 below summarizes the DMR self-monitoring results for Outfall 001 from May 2017 – June 2022. Outfall 002 is not constructed and there is no data. It shows there were some effluent limitation exceedances for BOD_5, TSS, and pH.

Table 1. Summary of the DMR Data (May 2017 – June 2022) for Outfall 001 from EPA Integrated Compliance Information System (ICIS) database (date accessed February 7, 2023)

Parameter	Permit Limit(s)	Reported Average	Reported Range	Number of Data Points	Number of Exceedances
Flow Discharge Volume, million gallons per day (mgd)	N/A	0.0153	0.0072-0.0288	13	N/A
5-Day Biochemical Oxygen Demand (BOD_5), 30-Day average, mg/L	45	28.8	7.2-72	37	3
BOD_5, 7-Day average, mg/L	65	28.8	7.2-72	37	1
Total Suspended Solids (TSS), 30-Day Average, mg/L	100	62.2	10.0-150.0	37	3
TSS, 7-Day Average, mg/L	135	62.2	10.0-150.0	37	1
pH	6.5 – 9.0	8.15	6.97-9.36	37	1
E. coli, # org/100 ml	N/A	21,065	131-42,000	2	N/A
Total Nitrogen as N, mg/L	N/A	No data	No data	No data	N/A
Total Phosphorus as P, mg/L	N/A	No data	No data	No data	N/A
Nitrate + Nitrite as N, mg/L	N/A	No data	No data	No data	N/A
Oil and Grease, Daily maximum, mg/L	10	0	0	37	0
Total Ammonia as N, mg/L	N/A	2.78	2.78	1	N/A

4.2 Other Facility History

EPA Region 8, NPDES and Wetlands Enforcement Section (Enforcement) conducted an inspection on August 11, 2022. At the time of issuance of the inspection report on January 30, 2023, Lodge Grass was subject to two open EPA administrative enforcement actions, an Administrative Order on Consent (Docket No. CWA-08-2015-0014), entered into voluntarily by the Lodge Grass and EPA, filed April 6, 2015 (2015 AOC), and an Administrative Order (Docket No. CWA-08-2019-0004), issued unilaterally to the Town of Lodge Grass by EPA, filed August 2, 2019 (2019 AO). The 2015 AOC and 2019 AO can be accessed online by searching the EPA Administrative Enforcement Dockets database at yosemite.epa.gov/oa/rhc/epaadmin.nsf.

The EPA inspection report identified two findings and corrective actions as follows, which are provided here verbatim from the inspection report:

> Finding 1. Throughout the duration of the Permit, the Town consistently failed to submit DMRs via EPA's electronic NetDMR reporting platform as required by the Permit. In May 2022 and again during the inspection, the Town declined a NetDMR waiver, indicating they would like to receive NetDMR training and utilize NetDMR. During the inspection, Mayor Dabney and Inspector developed and agreed on the following general plan to ensure the provision of NetDMR training to the Town.
>
> Corrective Action 1:
>
> 1. Within 30 days of receiving this report, submit to EPA names, titles, email addresses, and phone numbers for up to two Town representatives to be designated signatory authority accounts (review, edit, and certification privileges) in NetDMR. EPA will coordinate with the designated representative(s) to set-up signatory authority accounts in NetDMR. Once established, a signatory authority account can add additional non-signatory accounts (review and edit privileges only), if desired.
>
> 2. Within 30 days of receiving this report, contact the Inspector via phone or email to schedule a NetDMR training appointment. The training will be conducted virtually via Microsoft Teams or similar platform, it will take 1-2 hours, and it will ideally be scheduled on a Monday, Wednesday, or Friday in March 2023, pending Town and EPA availability. The training will be recorded, and a copy of the recording will be provided to the Town.
>
> 3. Within 30 days of receiving this report, email the Inspector scanned images of completed hard-copy DMRs and copies of supporting analytical data for the January 2023 reporting period. These materials will be utilized during the NetDMR training when, via screensharing, EPA will virtually assist the Town with entering this data into NetDMR.
>
> 4. At the scheduled time, ensure all relevant Town representatives participate in the NetDMR training.

5. Within 14 days of the completing the NetDMR training, submit all required DMRs for concluded monthly reporting periods since January 2023 via NetDMR, and continue to submit DMRs via NetDMR as required by the Permit and future NPDES permits on an ongoing basis.

Finding 2. The Facility has not consistently met interim or final effluent limits or associated compliance schedule requirements in the Permit. Interim effluent limits in the Permit were intended to be effective from May 1, 2017, through November 31, 2018, for any discharges from Outfalls 001 or 002. Final effluent limits in the Permit were intended to become effective December 1, 2018, for all parameters excepting E. coli, for which final effluent limits were intended to become effective June 30, 2021. Final effluent limits in the Permit were intended to apply to Outfall 002 of the new lagoon. According to the Permit and Statement of Basis, at the time of permit issuance, construction of the new lagoon was expected to be complete in autumn of 2017 and the addition of a disinfection system was expected to be complete by June 30, 2021. As discussed throughout this report, construction of the new lagoon and UV disinfection system has yet to be completed and the schedule for completing these improvements is in-flux.

Corrective Action 2:

As soon as possible, complete the lagoon upgrades included in the updated tentatively planned scope of work for the Phase 2 project, then operate and maintain the new lagoon to comply with final effluent limits in the Permit or any subsequent NPDES permit.

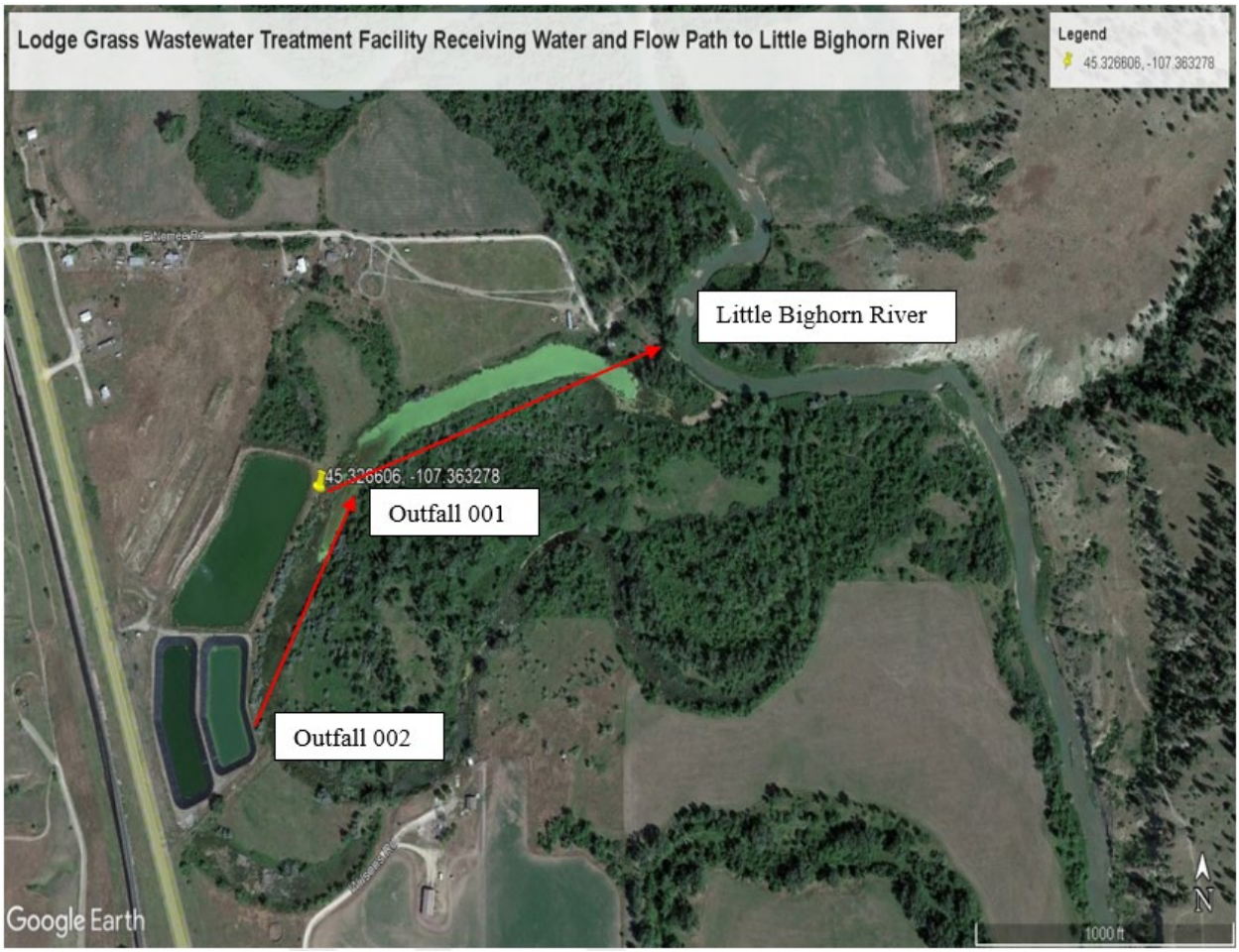
Corrective Action 3:

In the interim, optimize treatment at the existing lagoon to meet the final effluent limits in the Permit or applicable effluent limits in any subsequent NPDES permit. EPA will remain updated on this status of these actions through continued participation in the ongoing Phase 2 calls. No response is requested pursuant to Corrective Actions 2 and 3.

5 DESCRIPTION OF RECEIVING WATER

The discharge from the Facility goes to a slough that flows into the Little Bighorn River. The river is approximately 0.35 miles downstream of the existing outfall. After the outfall is relocated to Outfall 002, the river will be approximately 0.6 miles downstream. There is typically some water in the slough, but it is often ponded, and the critical low flow in the slough is zero. See Figure 2 below for receiving water and flow path to the Little Bighorn River.

Figure 1. Lodge Grass Facility Receiving Water and Flow Path



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 publicly owned treatment works (POTWs).

40 CFR § 133.102 establishes the minimum level of effluent quality attainable by secondary treatment for BOD_5, TSS, and pH. 40 CFR § 133.105 allows for the secondary treatment standards to be derived on a case-by-case basis to a different minimum level of effluent quality attainable for BOD_5, TSS, and pH for facilities eligible for treatment equivalent to secondary (TES) treatment. 40 CFR Part 133.101(g) defines facilities eligible for TES if they meet the following requirements:

1) The BOD_5 and TSS effluent concentrations consistently achievable through proper operation and maintenance of the treatment works exceed the minimum level of the effluent quality set forth in 133.102(a) and (b).

2) A trickling filter or waste stabilization pond is used as the principal process, and
3) The treatment works provide significant biological treatment of municipal wastewater.

The Facility continues to qualify for TES based on the following:

1) As shown above in Table 1, some of the BOD_5 and TSS effluent concentrations exceeded the effluent quality set forth in 40 CFR § 133.102(a) and (b): 30 mg/L 30-day average and 45 mg/L 7-day average for both BOD_5 and TSS.
2) The Facility's primary treatment system is waste stabilization ponds that provide significant biological treatment of municipal wastewater.

40 CFR § 133.105(a) and (b) contains TES limits for BOD_5 and TSS (i.e., 30-day average is 45 mg/L and the 7-day average is 65 mg/L), and a 30-day percent removal requirement of 65 percent. The primary purpose of percent removal requirements for TSS and BOD_5 is to promote municipalities to reduce infiltration and inflow in their collection systems and to prevent intentional dilution of the influent. The planned upgrades to the sewer system should help reduce infiltration and inflow.

The BOD_5 65 percent removal requirement from 40 CFR § 133.105(a)(3) and (b)(3) has been added for this Permit for Outfall 002. The percent removal requirements are being added to ensure the Permit meets the minimum equivalent to secondary treatment requirements. In addition, the BOD_5 percent removal is being added to ensure that requirements for equivalent to secondary treatment standards/allowances are achieved, per 40 CFR §133.101(g); to align with the minimum equivalent to secondary treatment requirements (taking into consideration the allowances per 40 CFR §133.101(g) for facilities utilizing waste stabilization ponds as their principal process); ensure significant biological treatment as defined in 40 CFR §133.101(k); and to better support future decision making regarding the application of these regulations, including 40 CFR § 133.103(d), and 133.105 (a)(3) and (b)(3). The additional monitoring and reporting requirements associated with the BOD_5 percent removal are intended to provide representative influent and effluent data for percent removal calculations of BOD_5 that account for variations in wastewater treatment lagoon facility detention times (e.g., may range from several months to over a year).

Inclusion of the BOD_5 percent removal limitation, to go into effect with Final Effluent Limitations, will require that additional influent sampling and an influent sample location be added to collect BOD_5 data at the influent point to the wastewater treatment facility system (e.g., prior to any treatment) so that the percent removal can be calculated when the Facility discharges. A minimum of monthly influent sampling (regardless of discharge status) shall be implemented. This minimum influent sampling will provide data that accounts for influent characteristics over time and potential seasonal variations to be able to make a more valid comparison between influent and effluent concentrations. Flow data will also be collected at the influent to provide additional information on the nature of the influent flow.

Effluent concentrations of TSS from the previous permit term were consistently above the TES levels established in 40 CFR 133.105(b). However, section 133.103(c) authorizes the

EPA to adjust the minimum levels of effluent quality for SS set forth in section 133.105(b) upwards "to conform to the SS concentrations achievable with waste stabilization ponds" if:

> (1) Waste stabilization ponds are the principal process used for secondary treatment at the facility; and
> (2) Operation and maintenance data indicate that the SS values specified in section 133.105(b) cannot be achieved.

As explained above, the Facility uses a waste stabilization pond as its principal process for secondary treatment, and it regularly exceeds the treatment equivalent to secondary treatment levels for TSS in section 133.105(b) of 45mg/L (30-day average) and 65 mg/L (7-day). Thus, the Facility meets the criteria for further adjustment of these limits to conform to the "TSS concentrations achievable with waste stabilization ponds," which is defined in section 133.103(c) as "a SS value, determined by the Regional Administrator. . . which is equal to the effluent concentration achieved 90 percent of the time within a State or appropriate contiguous geographical area by waste stabilization ponds that are achieving the levels of effluent quality for BOD5 specified in § 133.105(a)(1)."

For waste stabilization ponds in Montana, the state has established the minimum level of effluent quality for waste stabilization ponds as 100 mg/L for 30-day average and 135 mg/L for 7-day average. These Montana-specific levels were approved by EPA through on October 7, 1977 (42 FR 195). Because of similar treatment and climate conditions at the Facility to other waste stabilization ponds in Montana, the Montana value for TSS was applied to the Facility in the previous permit as a TBEL and will be continued in this Permit.

EPA is not including the TSS percent removal requirement from 40 CFR 133.102(b)(3) in this Permit for the following reasons. The previous permit did not have this requirement, the adjusted limits at 49 FR 37005 (September 20, 1984) do not include a TSS percent removal requirement, section 40 CFR 133.101(f) does not provide a method to calculate an adjusted TSS percent removal limit from the adjusted 30-day average limit, and the anti-backsliding provision of 40 CFR 133.105(f) does not require more stringent percent removal requirements. Given these facts, EPA has decided to omit TSS percent removal from this Permit.

A. <u>TBEL Considerations Following Completion of the Facility Upgrade</u>

As BOD_5 violations are the primary driver for the facility upgrade, the new facility is being designed to consistently achieve the secondary treatment standards for BOD_5 of a 30-day average of 30 mg/L and a 7-day average of 45 mg/L. Although the TSS concentrations and loads will likely decrease, the final effluent concentrations are less certain because the treatment system is still waste stabilization ponds, and the improvements are largely focused on addressing BOD_5. Therefore, the applicable TBEL for BOD_5 will be shifted from TES to the secondary treatment standard after performance has stabilized following the upgrade and switch to Outfall 002. However, due to the uncertainty in TSS removal after the upgrade, the TSS TBEL based on 40 CFR 133.103(c) will be applicable during the entire permit term, but it may be modified in the future if effluent data demonstrate consistently lower concentrations of TSS. Table 2 summarizes the applicable TBELs for the Facility.

Table 2. Technology Based Effluent Limitations

Effluent Characteristic	30-Day Average	7-Day Average
BOD_5, mg/L (Treatment Equivalent to Secondary)	45	65
BOD_5, percent removal (Treatment Equivalent to Secondary)	≥ 65%	--
BOD_5, mg/L (National Secondary Standards)	30	45
Total Suspended Solids, mg/L (Achievable Concentration)	100	135
The pH of the effluent shall not be less than 6.0 s.u. or greater than 9.0 s.u. in any single sample or analysis.		

6.2 Water Quality Based Effluent Limitations (WQBELs)

The Facility discharges to a slough that flows into the Little Bighorn River. The receiving water is within the Crow Indian Reservation. The Crow Tribe does not have tribally adopted or EPA-approved water quality standards under Section 303(c) of the Clean Water Act (CWA). Section 101(a)(2) of the CWA states, "[I]t is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water to be achieved by July 1, 1983." To achieve this Congressional goal in the absence of federally-approval Tribal water quality standards (WQS) on the Reservation, EPA considers the beneficial uses of the receiving waters to include aquatic life, human health, and recreation. EPA relied on CWA § 301(b)(1)(C) and principles of Tribal sovereignty in establishing WQBELs based on EPA's Section 304(a) recommended water quality criteria (WQC) to protect the uses of the Tribe's receiving water(s). EPA has national recommended water quality criteria for the protection of aquatic life and human health in surface water, which are referred to as 304(a) criteria, and they are used to inform development of WQBELs in the absence of tribal water quality standards.

C. Reasonable Potential Analysis

WQBELs, which are based on water quality standards, must be established for any parameters where TBELs are not sufficient to ensure water quality standards will be attained in the receiving water (40 CFR 122.44(d)). The parameters that must be limited are those that are or may be discharged at a level that will cause, or have the reasonable potential to cause or contribute to an exceedance of water quality standards.

Pollutants typically present in treated effluent from domestic wastewater treatment facilities that may cause or contribute to exceedances of water quality standards include conventional pollutants such as biological material (measured by BOD_5), TSS, oil & grease, *Escherichia coli* (*E. coli*) bacteria, and pH; and non-conventional pollutants such as total residual chlorine (TRC), ammonia (NH_3), nitrate/nitrite (NO_3 / NO_2), total nitrogen (TN), and total phosphorus (TP). Based on the domestic nature of the discharge, no other parameters, including whole

effluent toxicity, are anticipated to have reasonable potential to cause or contribute to exceedances of 304(a) criteria.

1. Conventional Pollutants

TSS, BOD_5, and pH – The Facility provides a significant reduction in biological material and solids through secondary treatment, and as there are no applicable numeric water quality standards for TSS and BOD_5, no WQBELs are necessary. However, EPA's National Recommended Aquatic Life 304(a) criterion for pH in freshwater is 6.5 to 9.0, which is more stringent than the TBEL, and will apply as the WQBEL. Monthly monitoring will be required for effluent BOD_5, TSS, and pH.

Oil and Grease – There is potential for oil and grease in the effluent due to schools and commercial businesses that generate oil and grease in the service area. The previous permit required semi-annual sampling. The DMR data show there has been no detection of oil and grease. For this Permit, the oil and grease requirement will be change to monthly visual monitoring. If a sheen is observed, a grab sample must be taken and analyzed immediately for oil and grease.

Because of the potential for oil and grease in the effluent, the WQBEL for oil and grease of 10 mg/L will be carried over from the previous permit. The numeric limit (i.e., 10 mg/L) is used by EPA Region 8 as a translation of the narrative 304(a) criterion for oil and grease pursuant to CWA § 301(b)(1)(C).

E. coli – EPA's 2012 recommended recreational water quality criteria for primary contact recreation are as follows: a monthly geometric mean of 126 colony forming units (cfu)/100 mL and a statistical threshold value (STV), which should not be exceeded by more than 10 percent of samples, of 410 cfu/100 mL. Based on the two samples collected during the previous permit term, these samples exceeded the monthly geometric mean criterion and issued to meet the new limit. Therefore, there is reasonable potential for *E. coli*, and WQBELs will be based on meeting EPA 304(a) recreational water quality criteria at the end of pipe. Since the Facility does not currently disinfect its wastewater, and UV disinfection is part of the upgrade in progress, a compliance schedule will be issued to meet the new limit. Monthly monitoring will be required.

2. Non-conventional Pollutants

TRC – The Facility does not disinfect the effluent so there is no reasonable potential for TRC. No effluent limit or monitoring is needed.

NH_3, NO_2, NO_3, TN, and TP – There is no available effluent data or limited data from the previous permit term for some of these nutrient parameters. The Crow Tribe has a water quality monitoring station (LBHR-065) on the Little Bighorn River approximately 1.5 miles upstream of where the slough flows into the river, and TN and TP were measured there in September 2015. To better evaluate the reasonable potential for the discharge from the Facility to affect water quality in the Little Bighorn River, nutrient monitoring will be required at the new Outfall 002 for NO_2, NO_3, TN, and TP. Seasonal monthly monitoring will be required for TN, TP, NO_2, and NO_3 to collect sufficient data for reasonable potential analysis because they are

most likely to affect beneficial uses during the warmest months (i.e. between July 1 and September 30 only).

Although ammonia is toxic at low concentrations, any ammonia discharged from the current and future outfall location is likely converted to nitrate via nitrification prior to the effluent-dominated slough flowing into the Little Bighorn River. Therefore, to assist with evaluating the reasonable potential for ammonia to exceed 304(a) criteria in the Little Bighorn River, instead of requiring effluent monitoring for ammonia, semi-annual ambient monitoring will be required in the slough at a location of channelized flow before it joins the river. All applicable WQBELs discussed above are summarized in Table 3.

Table 3. Water Quality Based Effluent Limitations

Effluent Characteristic	30-Day Average Effluent Limitations a/	Daily Maximum Effluent Limitations a/
E. coli, cfu/100 mL	126	410
Oil and Grease, mg/L	--	10
The pH of the discharge shall not be less than 6.5 or greater than 9.0 at any time.		
There shall be no discharge which causes a visible oil sheen, floating solids, or foam in other than trace amounts in the receiving water.		

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

6.3 Compliance Schedule

Compliance schedules are authorized under 40 CFR § 122.47 and are intended to be used when compliance with water quality based effluent limits is not feasible upon permit issuance. They provide a timeline for permittees to meet new or lower effluent limits and must require compliance as soon as possible. The Permit includes a new effluent limit for *E. coli* that the facility cannot meet without adding disinfection, which the Facility currently lacks. The Permittee has planned a series of facility improvements, including the addition of disinfection, and a compliance schedule is included in the Permit to allow time for the Facility to meet these upgrades. The Permittee will have until June 1, 2025, to complete the upgrades, and meet the *E. coli* WQBEL (Table 3).

6.4 Interim and Final Effluent Limitations

Discharge from the Facility will occur through Outfall 001 until the upgrades are complete and the Facility begins discharging through Outfall 002. Effective upon permit issuance, the discharge from either Outfall 001 or 002 shall, at a minimum, meet the interim effluent limitations in Table 4 until May 31, 2025. Limits are based on the most stringent of either the TBELs or WQBELs presented in Sections 6.1 and 6.2 above, respectively.

Table 4. Interim Effluent Limitations

Outfall	Effluent Characteristic	30-Day Average Effluent Limitations a/	7-Day Average Effluent Limitations a/	Daily Maximum Limit Effluent Limitations a/	Limit Basis b/
001 and 002	BOD_5, mg/L	45	65	--	TBEL, PP
001 and 002	Total Suspended Solids, mg/L	100	135	--	TBEL, PP
001 and 002	Oil and Grease, mg/L	--	--	10	TBEL, PP
001 and 002	The pH of the discharge shall not be less than 6.5 s.u. or greater than 9.0 s.u. at any time.				WQBEL
001 and 002	There shall be no discharge which causes a visible oil sheen, floating solids, or foam in other than trace amounts in the receiving water.				TBEL

a/ See section 1 of the Permit for definition of terms.
b/ WQBEL = Limitation based on water quality-based effluent limit; TBEL = Limitation based on technology based effluent limit; PP = Limitation based on previous permit

Effective June 1, 2025, when the upgrades are complete and Outfall 002 is in use, and continuing for the duration of the permit cycle, the effluent quality discharged by the Facility through Outfall 002 shall at a minimum, meet the limitations in Table 5.

Table 5. Final Effluent Limitations

Outfall	Effluent Characteristic	30-Day Average Effluent Limitations a/	7-Day Average Effluent Limitations a/	Daily Maximum Limit Effluent Limitations a/	Limit Basis b/
002	BOD_5, mg/L	30	45	--	TBEL, PP
002	BOD_5, percent removal	≥ 65%	--	--	TBEL
002	Total Suspended Solids, mg/L	100	135	--	TBEL, PP
002	Oil and Grease, mg/L	--	--	10	TBEL, PP
002	*E. coli*, #/100 ml	126	--	410	WQBEL
002	The pH of the discharge shall not be less than 6.5 s.u. or greater than 9.0 s.u. at any time.				WQBEL
002	There shall be no discharge which causes a visible oil sheen, floating solids, or foam in other than trace amounts in the receiving water.				TBEL

a/ See section 1 of the Permit for definition of terms.
b/ WQBEL = Limitation based on water quality-based effluent limit; TBEL = Limitation based on technology based effluent limit; PP = Limitation based on previous permit

6.5 Antidegradation

The Crow Tribe does not have an antidegradation policy because they do not have approved WQS. Therefore, no antidegradation requirement is applicable.

6.6 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. All effluent limitations, standards, and conditions in the Permit are either equal to or more stringent than those in the previous permit. The Facility had a final effluent limitation for E. coli that went into effect during the previous permit term on June 30, 2021, but installation of disinfection technology did not occur prior to this permit reissuance and is scheduled to be installed as part of the treatment upgrade prior to the end of 2024. The original final effluent limit applicability date of June 30, 2021 was established based on the scheduled completion date of the original plan facility improvements. However, due to unforeseen difficulties arising out of contractor issues, delays relating to funding losses, and the COVID-19 pandemic, those original facility improvements that would have led to compliance have not occurred. Based on new information provided by the Permittee and its new contractor, EPA has determined that a new compliance schedule is justified, and had more information been available, would have been the basis for a modification of the original compliance schedule. As a result, the effluent limitation for *E. coli* will go into effect with the other final effluent limitations on June 1, 2025, and is a valid exception to backsliding under CWA § 402(o)(2)(C) and 40 CFR 122.44 (l)(1).

7 MONITORING REQUIREMENTS

7.1 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.

With the exception of total ammonia, sampling shall be conducted at Outfall 001 and 002. Discharge monitoring for Outfall 001 will be conducted at a Parshall Flume and for Outfall 002 will be conducted at a weir. Sampling will be required as listed in Table 6. Monitoring for Outfall 001 will no longer be required beginning June 1, 2025 when Outfall 002 is in service, since no discharge will be permitted from Outfall 001 beginning that date. If Outfall 002 is not in service, monitoring from Outfall 001 is still required.

Monthly monitoring is required for most pollutants due to the low variability in effluent from a lagoon system while also accounting for the potential noncompliance based on past performance of the Facility. Ammonia is required semi-annually, because this will provide sufficient data for a future reasonable potential analysis. Nutrients sampling is only required during warm weather months, because warmer waters favor higher algal growth rates. Algal growth is related to nutrient concentrations.

A grab sample is required for pH, *E. coli*, and oil and grease, because they are not amenable to compositing in addition to expected low variability in concentrations in a lagoon system. Grab samples are also required for all other pollutants, because low variability in concentrations is expected in effluent from a lagoon system.

Table 6. Self-Monitoring and Reporting Requirements

Outfall	**Parameter**	**Monitoring Frequency**	**Sample Type a/**	**Data Value Reported on DMR b/**
001 and 002	Flow, mgd	Monthly	Instantaneous	N/A
001 and 002	BOD_5, mg/L	Monthly	Grab	30-Day Avg 7-Day Avg
I001 (Influent)	BOD_5, mg/L	Monthly	Grab	30-Day Avg
002	BOD_5, % removal, c/	Monthly	Calculated	30-Day Avg
001 and 002	TSS, mg/L	Monthly	Grab	30-Day Avg 7-Day Avg
001 and 002	pH, standard units	Monthly	Instantaneous	Instantaneous Min. Instantaneous Max.
002	*E. coli*, #/100 ml	Monthly	Grab	Daily Max. 30-Day Avg
001 and 002	Total Nitrogen as N, mg/L e/	Monthly (July thru September)	Calculated	30-Day Avg
001 and 002	Total Kjeldahl Nitrogen (TKN), mg/L e/	Monthly (July thru September)	Grab	30-Day Avg
001 and 002	Total Phosphorus as P, mg/L e/	Monthly (July thru September)	Grab	30-Day Avg
001 and 002	Nitrate + Nitrite as N, mg/L e/	Monthly (July thru September)	Grab	30-Day Avg
001 and 002	Oil and Grease, visual d/	Monthly	Visual	Narrative

Outfall	Parameter	Monitoring Frequency	Sample Type a/	Data Value Reported on DMR b/
001 and 002	Oil and Grease, mg/L d/	Immediately if visual sheen detected	Grab	Daily Max
See footnote f/	Total Ammonia as N, mg/L f/	Semi-annual	Grab	Semi-annual

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/ Percent removal is defined in 40 C.F.R. § 133.101(j) as a percentage expression of the removal efficiency across a treatment plant for a given pollutant parameter, as determined from the 30-day average values of the raw wastewater influent pollutant concentrations to the Facility and the 30-day average values of the effluent pollutant concentrations for a given time period.
d/ If a sheen is observed, a grab sample must be taken immediately and analyzed for oil and grease.
e/ Monthly monitoring between July 1 and September 30 only. Total Nitrogen may be calculated as the sum of Nitrate + Nitrite and Total Kjeldahl Nitrogen.
f/ Monitoring for total ammonia shall be conducted in the channelized section of the slough before it enters the Little Bighorn River (latitude: 45.327695, longitude: -107.357379).

8 SPECIAL CONDITIONS

N/A

9 REPORTING REQUIREMENTS

Reporting requirements are based on requirements in 40 CFR §§ 122.44, 122.48, and Parts 3 and 127. A discharge monitoring report (DMR) frequency of monthly DMRs with quarterly DMR submittal was chosen, because the Facility typically discharges at least once per month.

The permit application indicated the Facility submitted electronic reporting waiver requests. However, as described above in Section 4.2 for the enforcement inspection finding 1, the Town declined a NetDMR waiver (same as an electronic reporting waiver), indicating they would like to receive NetDMR training and utilize NetDMR for DMR submittal.

Because the compliance schedule for *E. coli* is longer than one year and because the Permittee has expressed some uncertainty about funding, EPA is requiring the Permittee to submit a schedule and project plan to complete all tasks and milestones identified in the January 2023 scope of work provided by Morrison-Maierle Engineering Consultant. EPA is also requiring the Permittee to submit semi-annual progress reports to ensure that both EPA and the Permittee understand whether the facility upgrades are proceeding on time, and to avoid a situation in which the compliance schedule expires before the facility upgrades are complete. Final construction must be completed by January 1, 2025, and compliance with final effluent limits is required by June 1, 2025. 40 CFR § 122.41(l)(5) states, “Reports of compliance or

noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date." Compliance schedule reports for the final construction and final compliance are due on January 15, 2025 and June 15, 2025 respectively, which are14 days following the schedule date.

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 by the Permit. Weekly inspections shall be conducted to determine if a discharge is occurring, has occurred since the previous inspection, and/or if a discharge is likely to occur before the next inspection. A record of the Facility's discharge status (e.g., discharging or not discharging) shall be so recorded in the inspection log. The physical condition of the Facility, as outlined in Section 6 of the Permit, shall also be inspected with results recorded in the inspection log. Weekly inspections are required for this upgraded Facility to ensure proper operation and maintenance in accordance with 40 CFR 122.41(e) and to meet permit effluent limitations.

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 (AMP), 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.

An AMP can be used to forecast relevant needs and costs associated with long-term compliance concerns, particularly in communities that could be impacted by emerging or increased flooding risk, risk of wildfires, or drought risk. While flooding and wildfires can lead to damage to critical infrastructure, droughts could reduce flows in receiving waters resulting in more stringent permit limits in the future. Long-term construction, additional operation and maintenance, and funding plans for upgrading or relocating critical infrastructure may be necessary to mitigate these concerns. Facilities may also consider optimizing their energy efficiency, which can yield substantial economic benefits and help cut down on associated emissions.

Operation and maintenance 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 Publicly Owned Treatment Works (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 Section 8.9 of the Permit, within one year of the Permit effective date. An IWS is required, because there might be some unknown non-domestic dischargers and future industrial dischargers that might contribute non-domestic pollutants to this Facility.

10.4 Per- and Polyfluoroalkyl Substances (PFAS) Notification and Plan

EPA's PFAS Strategic Roadmap directs the Office of Water to leverage NPDES permits to reduce PFAS discharges to waterways "at the source and obtain more comprehensive information through monitoring on the sources of PFAS and quantity of PFAS discharged by these sources." The December 5, 2022 EPA memorandum, "Addressing PFAS Discharges in NPDES Permits and Through the Pretreatment Program and Monitoring Programs" recommends quarterly sampling for PFAS at POTWs. There are no suspected non-domestic sources of PFAS within the service area. The Facility serves approximately 1,000 residents of the Town of Lodge Grass, an adjacent tribal housing, a high school, a senior center, a restaurant, a grocery store, a post office, and a propane supply. The low likelihood of detectable PFAS present in wastewater does not warrant the expenditure of resources by this small community. Therefore, EPA Region 8 is not requiring this Facility to monitor PFAS for this permit term. Instead, EPA Region 8 plans to conduct PFAS sampling with EPA method 1633.

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 FWS Information for Planning and Conservation (IPaC) website (https://ecos.fws.gov/ipac/) was accessed on May 30, 2023, 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 entire Town of Lodge Grass site of about 15 square miles in Big Horn County, Montana, and the immediate facility site area of the receiving water.

Species	Scientific Name	Species Status	Designated Critical Habitat	Determination
Monarch Butterfly	*Danaus plexippus*	Candidate	No critical habitat has been designated	Candidate species does not need consultation. No critical habitat.

There are no federally listed threatened and endangered species found in the project area. The IPAC system listed only the Monarch Butterfly as a candidate species.

Because this Permit renewal is for an existing activity with no off-site effects, EPA finds that reissuance of this Permit will have "no effect" on any of the species listed by the U.S. Fish and Wildlife Service under the Endangered Species Act. When there is "no effect" to threatened, endangered or candidate species or critical habitat, no consultation is necessary; EPA did not request consultation from the FWS for this Permit.

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 are generally not the type of action with the potential to cause effects on historic properties.

13 401 CERTIFICATION CONDITIONS

At the time of the permit reissuance, EPA was the Clean Water Act (CWA) Section 401 certifying authority for the Permit, because the Crow Tribe had not received authorization to implement Section 303(c) of the CWA. EPA is waiving § 401 certification.

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 Qian Zhang, P.E., U.S. EPA, 303-312-6267

June 2, 2023

ADDENDUM

AGENCY CONSULTATIONS

During the public comment period, EPA notified the Crow Tribe's Tribal Historic Preservation Office (THPO). The THPO did not comment on EPA's preliminary determination that the Permit reissuance will not impact any historic properties.

PUBLIC NOTICE AND RESPONSE TO COMMENTS

The Permit and statement of basis, including the CWA Section 401 certification, were public noticed on EPA's website on November 29, 2023. No comments were received. The signing of the Permit shall constitute EPA's Section 401 certification.

Updates/changes made to the Statement of Basis/Permit

1. Part 3.3 Compliance schedule – The compliance schedule and report due date deadline of January 28, 2024 is changed to February 29, 2024 since the effective date of this Permit is February 1, 2024.

2. Provided a location clarification for Table 4 in the Permit and Table 6 in the SoB: Monitoring for total ammonia shall be conducted in the channelized section of the slough before it enters the Little Bighorn River (latitude: 45.327695, longitude: -107.357379).