UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 WYNKOOP STREET
DENVER, COLORADO 80202-1129

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended, (33 U.S.C. § 1251 et seq; "the Act"),

The Blackfeet Tribe's Blackfeet Water Department

is authorized to discharge from the Town of Browning (Browning) Wastewater Treatment Lagoon located in the Section 11, Township 32 N, Range 11 W, TR IN N2, at latitude 48.552469 and longitude -112.998822, Glacier County, Montana,

to Depot Creek

in accordance with discharge point(s), effluent limitations, monitoring requirements and other conditions set forth herein. Authorization for discharge is limited to those outfalls specifically listed in the Permit.

This Permit shall become effective **to be determined upon issuance**

This Permit and the authorization to discharge shall expire at midnight, **to be determined upon issuance**

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Authorized Permitting Official

Stephanie DeJong, Manager
Clean Water Branch

NPDES BP (Rev.11/2021)

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(Note- Only the major sections that will be included in the final permit are displayed as the page numbers associated with each section are subject to change once all final language/sections are incorporated into the final permit)

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3 Effluent Limitations

Effective immediately and lasting through the life of this Permit, the quality of effluent discharged by the facility shall, at a minimum, meet the limitations as set forth below:

Table 1. 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/
Flow, mgd	report only	N/A	report only
Biochemical Oxygen Demand (BOD5), mg/L	30	45	N/A
BOD_5, percent removal	≥ 65%	N/A	N/A
Total Suspended Solids (TSS), mg/L	30	45	N/A
TSS, percent removal	≥ 65%	N/A	N/A
Escherichia coli (*E. coli*), number/100 mL, b/	126	N/A	410
Total Residual Chlorine, mg/L	0.011	N/A	0.019
Total Ammonia Nitrogen (as N), mg/L, c/	report only	N/A	report only
Total Kjeldahl Nitrogen (TKN) (as N), mg/L	report only	N/A	report only
Nitrate-Nitrite (as N), mg/L	report only	N/A	report only
Total Nitrogen	report only *(calculated- see footnote g of Table 3)*	N/A	report only *(calculated- see footnote g of Table 3)*
Total Phosphorus, mg/L	report only	N/A	report only
Temperature, °C	report only	N/A	report only
Oil and Grease (O&G), mg/L, d/	N/A	N/A	10

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Effluent Characteristic	30-Day Average Effluent Limitations a/	7-Day Average Effluent Limitations a/	Daily Maximum Effluent Limitations a/
Oil and Grease (O&G), visual, d/	Upon visual inspection, there shall be no visible sheen or floating oil detected. If either is detected in the discharge, a grab sample shall be taken immediately and analyzed.		
pH, standard units	Must remain in the range of 6.5 - 9.0 *at all times*		

a/ See Definitions, Section 1.1. of the Permit, for definition of terms.

b/ Per EPA's 2012 recommended *E. coli* criteria for primary contact recreation ("Recreational Water Quality Criteria", Office of Water 820-F-12-058), the 30-day Average is to be calculated using the 30-Day geometric mean. The 30-day geometric mean calculation will be based on the geometric mean from the total number of samples collected during the 30-day period. The 30-day average geometric mean shall not exceed 126 Number/100 mL. The daily maximum limitation will be 410 Number/100 mL.

c/ Effluent monitoring in addition to Ammonia Best Management Practice (BMP) management plan requirements (See Section 5.2 Special Conditions of the Permit).

d/ 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 C.F.R. Part 136.

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5 Special Conditions

5.1 Industrial Waste Survey:

Due to the potential for non-domestic wastewater facility discharges within the service area to interfere with facility operations, **an Industrial Waste Survey (IWS) shall be completed within one year of issuance of coverage under** the Permit (i.e., within one year after the Permit effective date) and regularly updated by the Permittee to ensure that the information remains current. This provision is being added to ensure the facility operators are aware of the nature of discharges received by the facility and any non-domestic waste being received from the service area that could impact the collection system or wastewater treatment lagoon facility, in alignment with the objectives of the general pretreatment regulations (40 CFR § 403.2). See Section 8.9 (Industrial Waste Management) of the Permit for details on the IWS and further requirements for controlling discharges from Industrial Users into the wastewater treatment lagoon system.

5.2 Ammonia BMP Management Plan:

The Permittee must develop and implement a written BMP management plan that includes management practices (including maintenance and inspections), control techniques, system design, engineering methods, and other provisions appropriate for the control of ammonia discharged from the facility.

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The BMP management plan does not need to be a comprehensive document which describes all procedures used to operate the facility. However, the plan should reference policies, procedures, or other documents which provide additional details used to control ammonia in the discharge. The management plan must provide sufficient detail for facility operators and staff to understand the procedures, processes, methods and equipment being used to control ammonia. The BMP management plan can include citations of documents and electronic records (e.g., manuals, guidance, procedures, electronic management systems, intergovernmental agreements) used to comply with permit requirements. It is not required that the BMP management plan repeat information included in the cited documents or information systems, but the BMP management plan should include the names of the most recent versions of the cited documents or information systems and the locations where the supporting documentation is maintained.

5.2.1 Implementation of Ammonia BMP Management Plan and Timeline:

The Permittee must develop and implement a BMP management plan that achieves the objectives and the specific requirements listed below. Through implementation of the BMP management plan the Permittee must minimize the potential for the release of ammonia from the facility to the waters of the United States.

The Permittee must maintain a copy of the BMP management plan at the facility and must make the plan available to EPA and the Tribe upon request.

A) Within **1 year** of the permit effective date:

1. The Permittee must establish specific objectives for the control of ammonia by conducting the following evaluation:
    - Each facility treatment component or system must be examined for its waste minimization opportunities and its potential for causing a release of significant amounts of pollutants to waters of the United States because of equipment failure, improper operation, temperature changes, operational processes, etc. The examination must include all normal lagoon operations and ancillary activities involved in the treatment of ammonia.
2. The Permittee must evaluate its treatment/maintenance processes and procedures, which may include a documented treatability study, to determine appropriate BMPs to implement that will optimize the facility's treatment for ammonia.
3. The Permittee must develop and implement a written BMP optimization plan based on the above evaluation and any documented treatability study to reduce ammonia in facility discharges. The written BMP optimization plan must:
    - incorporate the appropriate BMPs as supported by the evaluation and any documented treatability study to optimize the facility's treatment for ammonia (this includes documenting specific BMPs, including any preventative or remedial measures to be implemented, that will be used to reduce ammonia from the facility's discharge);

- include a BMP implementation schedule that is consistent with the requirements of this section, as well as any regular maintenance schedules needed to maintain the BMPs for optimal treatment;
- be developed and implemented to assure adequate design, implementation, and maintenance of optimization BMPs to reduce ammonia in the discharge and protect water quality. Additional optimization BMP troubleshooting/information has been included as an optional reference in Appendix B of the Permit;
- include a statement indicating that the plan has been reviewed by the facility's Authorized Official, Operator, and any other appropriate personnel involved in the facility's operation, maintenance and treatment processes/procedures; and
- include a statement documenting approval by the facility's Authorized Official.

4. The Permittee must submit the written BMP management plan to the EPA Region 8, Wastewater Section at the address given below:

U.S. EPA, Region 8 (8WD-CWW)
Attention: Wastewater Section Supervisor
1595 Wynkoop Street
Denver, Colorado 80202-1129

EPA will review the BMP management plan and implementation schedule, and may provide written comments/request for changes to the Permittee within 30 days of receipt of the BMP management plan. A final BMP management plan and schedule that addresses the EPA comments, if provided, shall be submitted to the EPA Region 8, Wastewater Section within 30 days of receipt of the EPA comments.

5. Initiate steps to begin the BMP management plan within 7 days after submitting the BMP management plan that addresses comments from the EPA, if provided, or within 60 days of the date of when the Permittee originally submitted the plan to EPA, if EPA does not provide comments.

B) Within **2 years** of permit effective date:

1. Provide and document training to facility operators and staff which perform the maintenance and installation of BMPs. This training is required at least once during the term of this Permit and within one year of hiring new facility operators/staff. This shall include training on procedures for how operators/staff will document inspections and maintenance.

C) Within **4 years** of permit effective date:

1. Appropriate BMP optimization control measures must be selected, designed, installed, implemented, inspected, and maintained to minimize ammonia in

discharges from the facility. Specific control measures must be assessed for applicability to address the following, at a minimum:

- Procedure to prevent short circuiting (i.e., wastewater takes a short-cut through the lagoon bypassing the treatment process). Short circuiting reduces retention time and limits the lagoon's ability to remove ammonia.
- Procedure for removal of sludge. Excess sludge can feed ammonia back into a lagoon system.
- For aerated lagoon cells, measure dissolved oxygen as part of the assessment, and develop a procedure to troubleshoot aeration equipment and air delivery system to ensure that enough dissolved oxygen is maintained to satisfy nitrification oxygen demand (as well as carbonaceous biological oxygen demand where needed).
- For non-aerated lagoon cells, measure dissolved oxygen as part of the assessment, and develop a procedure to evaluate whether the addition of aeration is feasible and will help increase biological nitrification for ammonia removal. If so, implement an aeration process as well as a procedure to troubleshoot aeration equipment and air delivery system to ensure that enough dissolved oxygen is maintained to satisfy nitrification oxygen demand (as well as carbonaceous biological oxygen demand where needed).
- Procedures to address the following:
  - Remove any excess sludge accumulation from the bottom of the lagoon and at conveyances, chlorine contact chambers, and influent/effluent structures.
  - Minimize algae overgrowth. Stifle excess algae growth if the Permittee suspects it is causing low dissolved oxygen.
  - Minimize scum and trash accumulation. If you see excess surface scum or floating trash, inspect and repair screens and grates or install pretreatment.
  - Minimize overgrown vegetation. Remove duckweed, trees, and brush around the treatment cell.
- Use a controlled discharge, if possible and there is adequate storage volume, to limit discharges to warmer months. Since ammonia treatment is generally less effective in the winter months, holding the water and discharging in warmer months may allow for additional treatment.
- If necessary, consider initiating an engineering study of feasible options for upgrading the lagoon treatment system for consistent ammonia removal.

5.2.2 Documentation of Ammonia BMP Management Plan Activities

The Permittee shall document its actions to implement the BMP management plan as part of the operation and maintenance log described in Section 6.3.2 of the Permit. Actions to record include changes and improvements made to the function of selected ammonia control methods.

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5.2.3 Reporting and Evaluation of Ammonia BMP Management Plan Activities and Effectiveness

The Permittee shall submit annual written progress reports to EPA and the Tribe describing actions taken to implement the ammonia BMP management plan. Annual progress reports are due February 28 of each year, through the term of the Permit. The first report will be due February 28, 2025. Annual progress reports shall be submitted to the addresses in Section 7.6 of the Permit, include the Signatory Requirements of Section 9.7 of the Permit, and shall contain the following information, at a minimum:

1. A summary of the status and actions taken to implement the ammonia BMP management plan during the previous calendar year. Actions can include, but are not limited to, obtaining funding needed to implement measures in the Plan; soliciting proposals from contractors to implement actions in the Plan; progress in implementing selected ammonia control methods or optimizing their function; etc.
2. Documentation of ammonia BMP management plan progress, actions, and activities performed during the previous calendar year in accordance with the schedule provided in this section.
3. An evaluation of Total Ammonia Nitrogen effluent monthly monitoring data collected over the previous calendar year, as compared to Total Ammonia Nitrogen data collected over the calendar year prior (i.e., the calendar year preceding the one for which the annual progress report is being submitted). The Permittee shall identify any increases in ammonia discharge concentrations over this period by comparing data for specific months between the calendar years (e.g., January of the progress report calendar year to January of the previous calendar year) and explain likely causes of such increases. If BMPs are already being implemented in accordance with the facility's ammonia BMP management plan and in alignment with the schedule provided in this section, this evaluation shall include information on whether the plan/BMPs are effectively reducing ammonia discharges.
4. A summary of any modifications made to the plan in accordance with the "BMP Management Plan Modification" and "Modification for Ineffectiveness" paragraphs of this section (below), and the justification for such modifications.

5.2.4 BMP Management Plan Modification:

The Permittee must evaluate and amend (as needed) the BMP management plan whenever there is a change in the facility, or in the operation of the facility, that materially increases the generation of ammonia or its release or potential release to the receiving waters. The Permittee must also amend the plan when facility operations covered by the BMP management plan change. Any such changes to the BMP management plan must be consistent with the objectives and specific requirements listed above.

5.2.5 Modification for Ineffectiveness:

If at any time the BMP management plan proves to be ineffective in achieving the general objective of minimizing the generation of ammonia and its release and potential release to

the receiving waters and/or the specific requirements above, the BMP management plan must be re-evaluated and modified to incorporate revised BMP requirements.

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APPENDIX B. BMP REFERENCE INFORMATION

The following is provided as optional guidance for BMP requirements, obtained from EPA's Compliance Advisory Document #305F22002, dated March 2022 from the Office of Enforcement and Compliance Assurance for reducing significant non-compliance with National Pollutant Discharge Elimination System permits, titled: "Compliance Tips for Small Wastewater Treatment Lagoons with Clean Water Act Discharge Permits". This appendix does not dictate required courses of action. Each Permittee must determine and document what processes/procedures would be the most appropriate for addressing ammonia, specific to their facility.

Ammonia can be toxic to aquatic life in receiving waters, even at low levels. Ammonia in lagoons is removed in three processes: stripping of gaseous ammonia, uptake of ammonia into algae as a nutrient, and biological nitrification (microbes converting ammonia into nitrate). High effluent ammonia can also be caused by organic or hydraulic overloading, low oxygen concentration, short circuiting, and excess sludge accumulation.

- For most lagoon wastewater treatment systems, make sure that the primary treatment cell is effectively removing about 80% of the influent BOD. If BOD is being passed on to subsequent cells, the oxygen demand will lower the system's capacity to break down ammonia. This is especially true for multicell lagoon wastewater treatment systems with an aerated primary cell designed principally for BOD load reduction followed by another aerated cell designed for nitrification.
- Procedure to prevent short circuiting, which reduces retention time and limits the lagoon's ability to remove ammonia.
    - Troubleshooting:
        - Add small floating objects (e.g., oranges or tennis balls) at the influent discharge pipe, observe the path they take, and how long it takes the objects to move from influent to effluent. If they are floating along the dike wall and taking a shortcut through the cell, that is evidence of short circuiting.
        - Observe sewage sludge solids in the effluent (as detected through a microscope).
        - Identify sharp disparity between dissolved oxygen, pH, and/or temperature on opposite ends of the primary lagoon cell.
    - Recommended Potential Solutions:
        - Design lagoon so that the bottom is as flat as possible, and any corners are rounded to improve flow.

        - Install baffles, curtains, or other engineered barrier devices to redirect flow, enhance turbulence and mixing, and avoid short circuiting between inlet and outlet.
        - Adjust location of inlets and outlets to opposite corners of cell and/or introduce influent through a manifold to distribute flow more evenly. Note that completely relocating inlet and outlet structures for maximum retention time is usually not cost-effective when compared to adding baffles, curtains, or other devices to eliminate short circuiting.
- Removal of excess sludge. Excess sludge can feed ammonia back into a lagoon system.
    - Troubleshooting:
        - Measure sludge blanket depth in the lagoon system cells. Measurements should be taken from multiple points in a lagoon cell (suggested minimum of 12-24 sample points) and averaged to determine overall depth.
        - Measure BOD, TSS, and ammonia at the conveyance points between each cell in a lagoon system. If BOD, TSS, and ammonia are reduced after the primary cell, but rise again at the effluent, this can indicate settled sludge coming back into the water column and can cause spikes in BOD, TSS, ammonia, and phosphorus.
        - Determine if the TSS in the effluent is increasing every year.
        - Track the difference between the effluent BOD and TSS levels over time. Typically, BOD and TSS track closely. An increasing effluent TSS and a constant BOD can indicate sludge buildup.
        - Detect sludge solids in the effluent through a microscope.
        - Check for sludge accumulation in wastewater conveyances at the effluent and chlorine contact chamber.
    - Recommended Potential Solutions:
        - Remove sludge accumulation from conveyances, chlorine contact chambers, and influent/effluent structures.
        - Remove excess sludge from the bottom of a lagoon in compliance with the requirements in 40 CFR Part 503. The use or disposal of sewage sludge (including land application) is subject to Part 503 of the Clean Water Act (CWA), which has limits for heavy metals, pathogen reduction, vector attraction and nitrogen when land applying, and maximum moisture requirements for landfills. As a rule of thumb, a sludge depth should not exceed 25% of the lagoon operating depth. For example, in a standard 5-foot operating depth facultative lagoon, 18 inches of sludge would be considered excessive.
        - Contact the state/federal regulatory agency to find out if there are special requirements for sludge disposal. In many cases, de-sludging of facultative lagoons will need to take place once every 20 years.
        - Typically, sludge is removed from lagoons with sludge pumping equipment. The sludge is then often thickened and dewatered (a drying process) to make it lighter, as well as easier and less expensive to

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transport. Several dredging systems designed for use in wastewater treatment lagoons are commercially available.
        - Methods of sludge disposal, except landfilling, are subject to Part 503.

- For aerated lagoons, relying on biological nitrification for ammonia removal. Implement a procedure to troubleshoot aeration equipment and air delivery system to ensure that enough dissolved oxygen is maintained to satisfy nitrification oxygen demand (as well as carbonaceous biological oxygen demand where needed).
    - Troubleshooting:
        - Measure dissolved oxygen through an entire 24-hour day. When measuring dissolved oxygen, it is important to sample at different times of day and at night, if possible.
        - If possible, take dissolved oxygen measurements at locations throughout the lagoon system using a dissolved oxygen probe. If this is not possible, take dissolved oxygen measurements at the exit locations for each lagoon cell.
    - Recommended Potential Solutions:
        - For Aerated Only:
            - Add more aeration capacity (mechanical or diffused aeration) to the lagoon cell(s) or increase their run time with a goal of > 2 mg/L dissolved oxygen in each treatment cell.
            - Clean clogged air diffusers. If clogging is minor, try increasing the airflow output, or try turning off the affected section and increasing diffusion in the section that is not blocked. Draw down the pond to clean or repair the diffusers.
            - Add more mixing to the final cell in the lagoon system to discourage algae growth and improve effluent TSS.
            - Recirculate effluent to the headworks using portable pumps to provide more oxygen.

        - For facultative lagoons and aerated lagoons:
            - Address any excess sludge accumulation. Remove excess sludge from the bottom of the lagoon and at conveyances, chlorine contact chambers, and influent/effluent structures.
            - Address algae overgrowth. Stifle excess algae growth if you suspect it is causing low DO.
            - Address scum and trash accumulation. If you see excess surface scum or floating trash, inspect and repair screens and grates or install pretreatment.
            - Address overgrown vegetation. Remove duckweed, trees, and brush around the treatment cell.

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