STATEMENT OF BASIS

FOR THE ISSUANCE OF
A NPDES PERMIT

U.S. Environmental Protection Agency
Region 5, NPDES Programs Branch - WN-15J
77 West Jackson Boulevard
Chicago, Illinois 60604
(312) 886-6106

Public Notice No.: 18-08-01-A

Public Notice Issued On: August 1, 2018

Comment Period Ends: August 30, 2018

Permit No.: MN-0024066-5 (REISSUANCE)

Application No.: MN-0024066-5

Name and Address of Applicant:

City of Mahnomen
P,O. Box 250
Mahnomen, Minnesota 56557

Name and Address of Facility Where Discharge Occurs:

Mahnomen WWTF
Pembina Township
Mahnomen, Minnesota
Mahnomen County
(N.E. ¼ of Sec. 14 of T144N, R42W)

Receiving Water: Wild Rice River

DESCRIPTION OF APPLICANT'S FACILITY AND DISCHARGE

The above facility is located within the exterior boundaries of the White Earth Indian Reservation. The EPA has retained the authority to issue NPDES permits to facilities with discharges to waters of the United States within the exterior boundaries of Indian Reservations. The EPA is issuing this NPDES permit under the authorities of the Clean Water Act.

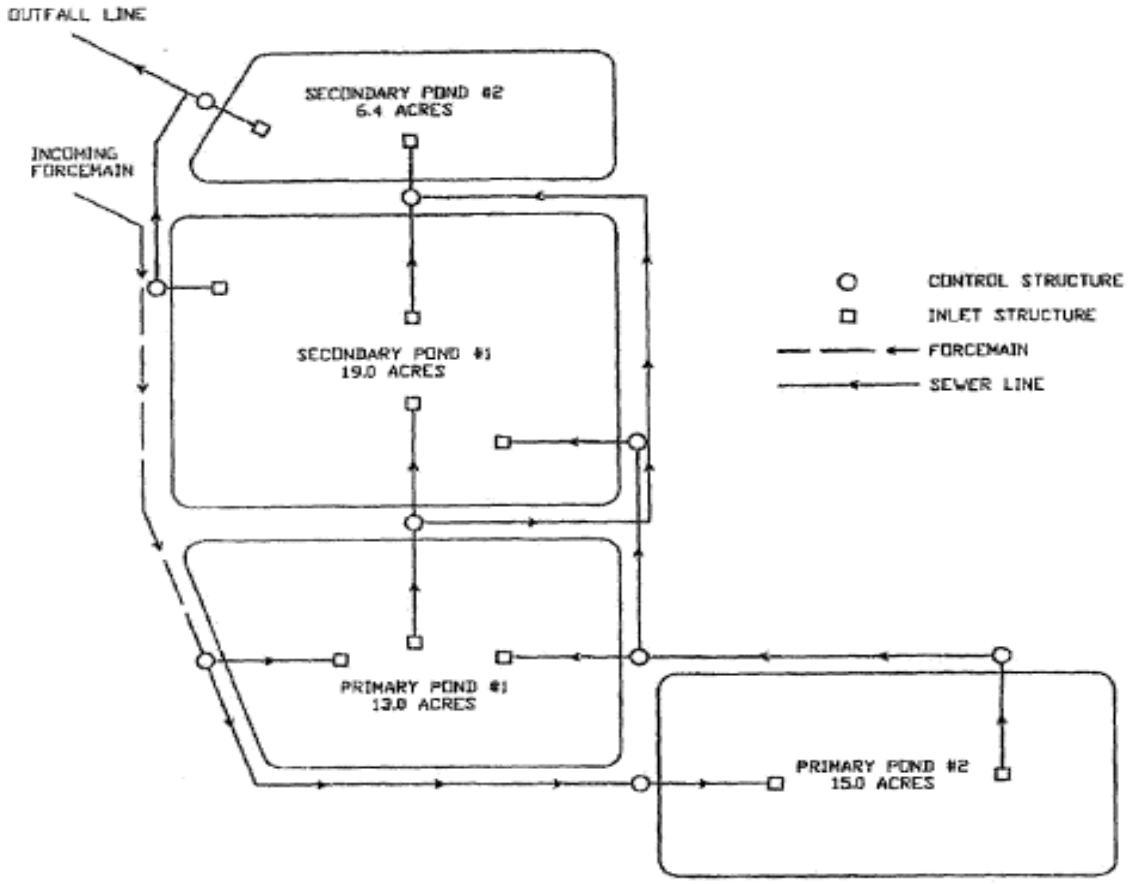
The application and plans indicate that the existing treatment system consists of one main lift station, approximately 6,900 feet of eight-inch force main, a four-cell stabilization pond, and about 2,800 feet of 15-inch outfall sewer.

The facility has a controlled discharge {Discharge 002 and 003} from each of the secondary cells that are connected to the same outfall to the Wild Rice River (S.E. ¼ of Section 10, T144N, R42W). Discharges 002 and 003 are where compliance is to be determined. The facility is designed to treat an average wet weather flow of up to 338,000 gallons per day (gpd) with a five-day biochemical oxygen demand (BOD_5) strength of 218 milligrams per liter (mg/L). There are two primary pond cells that have surface areas of 13 acres and 15 acres. There are also two

secondary pond cells with surface areas of 6.4 acres (Discharge 002) and 19 acres (Discharge 003), all measured at the three-foot depth level. The pond system has a total detention time of approximately 180 days at design flow. Wastewater is from domestic sources only including the Shooting Star Casino. The facility is rated as Class D under Minnesota regulations.

The main lift station is capable of discharging untreated wastewater from the sewerage system to the Wild Rice River. The lift station shall be controlled and locked at all times.

The facilities are further described in plans and specifications on file with the MPCA prepared by Larson-Peterson and Associates, Inc., Detroit Lakes, Minnesota.



The draft permit requires the applicant to meet the following effluent limitations:

Discharges 002 and 003

Effluent Characteristics	Discharge Limitations			
	Concentration (Specified Units)			
Parameter	Daily Minimum	Monthly Average	Weekly Average	Daily Maximum
Flow (MG)	-	Report calendar month total	-	-
Flow (mgd)	-	-	-	-
Dissolved Oxygen (mg/L)	Report	-	-	-
pH (SU)	6.0	-	-	9.0
Total Suspended Solids (TSS) (mg/L)	-	45	65	-
Carbonaceous Biochemical Oxygen Demand ($CBOD_5$) (mg/L)	-	25	40	-
E. coli (#/100ml) (April 1 – October 31)	-	126 (geometric mean)	-	235
Mercury, Dissolved (as Hg) (ng/L)	-	Report	-	Report
Mercury, Total (as Hg) (ng/L)	-	10.4	-	20.2
Total Suspended Solids (TSS) (mg/L) (Mercury)	-	Report	-	Report
Phosphorus, Total (mg/L)	-	Report	-	-
Phosphorus, Total (kg/year)	-	934 (rolling total)	-	-
Dissolved Solids, Total (mg/L)	-	Report	-	-
Sulfates, Total (mg/L)	-	Report	-	-
Ammonia Nitrogen, Total (as N) (mg/L)	-	Report	-	-
Nitrite Plus Nitrate, Total (as N) (mg/L)	-	Report	-	-
Nitrogen, Kjeldahl, Total	-	Report	-	-
Nitrogen, Total (as N) (mg/L)	-	Report	-	-
$CBOD_5$ percent removal (%)	$\geq$85	-	-	-
TSS percent removal (%)	$\geq$65	-	-	-
Outfall observation (yes/no)	-	-	-	-

Discharge is limited to a maximum 6 inches per day. Discharge flow was calculated as follows:

> 6.4 acres x 0.5 feet/day (6 inches/day) x 325,900 gallons per acre-ft ≈ 1.04 million gallons/day
>
> 19 acres x 0.5 feet/day (6 inches/day) x 325,900 gallons per acre-ft ≈ 3.1 million gallons/day

Loading limits in the permit were calculated using the following formula:

(mgd * limit (mg/L) * 3.785) = Loading (kg/d).

Section 401 Water Quality Certification

EPA is the appropriate authority for purposes of certifying the proposed discharge under Section 401 of the Clean Water Act. Section 401 certification is not needed from the state or the White Earth Band of Chippewa Indians as neither has federally approved water quality standards applicable to the receiving water at the point of discharge.

ESA and NHPA Compliance

EPA believes it has satisfied its requirements under the Endangered Species Act and the National Historical Preservation Act. There are two threatened species (Gray wolf and Northern long-eared bat) and one endangered species (Poweshiek skipperling) within the county. As this is an existing discharge, with no planned construction during the permit term, EPA believes that the issuance of the permit and the continued operation of the facility will have no effect on endangered or threatened species or their critical habitat and will have no impact to historical, archeological, or cultural resources.

Basis for Permit Requirements

The limits were developed to ensure compliance with 40 CFR Parts 131 and 133, EPA's water quality criteria and protection of Minnesota's water quality standards where they are applicable. The Minnesota Pollution Control Agency (MPCA) developed limits for this discharge for the issuance of its State Disposal System permit. EPA believes the state's permit is consistent with federal requirements and will be using the limits developed in the NPDES permit. Information related issuance of the state's permit can be found in the Administrative Record.

5-day Carbonaceous Biochemical Oxygen Demand ($CBOD_5$)

The limits for $CBOD_5$ are based on secondary treatment requirements pursuant to 40 CFR Part 133. A 7-day average limit of 40 mg/L and a 30-day average limit of 25 mg/L are carried from the previous permit. The permittee has been in substantial compliance with these limits. The 7-day average and the 30-day average are the arithmetic mean of pollutant parameter values for samples collected in a period of 7 and 30 consecutive days, respectively.

Total Suspended Solids (TSS)

The limits for TSS are based on equivalent to secondary treatment requirements pursuant to 40 CFR Part 133. A 7-day average limit of 65 mg/L and a 30-day average limit of 45 mg/L are carried from the previous permit. The permittee has been in substantial compliance with these limits. The 7-day average and the 30-day average are the arithmetic mean of pollutant parameter values for samples collected in a period of 7 and 30 consecutive days, respectively.

E. coli

The limits for E. coli are based on the EPA's water quality criteria in existence at the time the previous permit was drafted. The geometric mean of samples collected over a 30-day period shall not exceed 126 E. coli per 100 milliliters (ml). Any single sample shall not exceed 235 E. coli per 100 ml. New water quality criteria were published in 2012 (EPA's 2012 Recreational Water Quality Criteria). The criteria are similar with the geometric mean of samples collected over a 30-day period shall not exceed 126 E. coli per 100 milliliters (ml), however, the statistical

threshold value of 410 E. coli per 100 ml is set as the daily maximum. Since the permittee has been in substantial compliance with the existing permit limits, in accordance with 40 CFR 122.44(l) (anti-backsliding), the limits from the previous permit have been carried over into the draft permit.

Phosphorus

Phosphorus is a common constituent in many wastewater discharges and a pollutant that has the potential to negatively impact the quality of Minnesota's lakes, wetlands, rivers, and streams. Phosphorus promotes algae and aquatic plant growth often resulting in decreased water clarity and oxygen levels. In addition to creating general aesthetic problems, these conditions can also impact a water body's ability to support healthy fish and other aquatic species. Therefore, phosphorus discharges are being carefully evaluated throughout the state.

The eutrophication of Lake Winnipeg in Canada has resulted in an impaired condition sufficient to cause injury to health and property. Associated algal toxins may also preclude domestic and sanitary uses. Excessive phosphorus loading, from the Red River, in particular, has been identified as a primary cause. The Red River is the largest load source to Lake Winnipeg (68%), two-thirds of which is from the United States (Environment Canada 2011). Given the multitude of phosphorus sources, successful restoration efforts need to be conducted on an international scale including reductions in Minnesota.

Research has been completed to assist in the selection of a desired water quality condition. However, the final water quality target has not yet been identified and therefore the reductions necessary to fully restore Lake Winnipeg have not yet been determined. Nonetheless, preliminary research indicates that phosphorus reductions necessary to meet water quality goals exceed those which can be achieved through limits or management actions from any single source. Permitted point sources represent the largest controllable sources of phosphorus loading within the watershed, and therefore should be addressed.

Based on the discussion in the MPCA's Revised Approach for Implementing Total Phosphorus (TP) Effluent Limits in the Red River Basin, mid-sized facilities such as the Mahnomen WWTF will be assigned annual mass limits based on average wet weather design flow (AWWDF) and 2.0 milligrams per liter (mg/L) TP limits. Mass limits are expressed as a 12-month moving total. For the purposes of this approach, mid-sized facilities are defined as those with the potential to discharge in excess of 1,800 pounds of TP per year (816 kilograms per year (kg/year)) and also have an AWWDF of less than 1.0 million gallons per day (mgd). A 2.0 mg/L performance goal is generally achievable for Minnesota's mid-sized stabilization pond wastewater treatment facilities. The purpose of these mass cap effluent limits is to minimize further expansion of TP loads from this class of wastewater treatment facilities. Wastewater treatment facilities with maximum permitted flows (industrial) or average wet weather design flows (municipal) in excess of 1.0 mgd will be assigned 1.0 mg/L effluent limits which are expected to result in actual TP reductions in the watershed.

Ultimately, the purpose of assigning TP effluent limits to facilities in the Red River Basin is to mitigate TP load increases and realize actual load reductions from permitted wastewater dischargers in Minnesota. The revised approach will achieve both objectives. Additional TP reductions from permitted wastewater entities may be necessary following the completion of a water quality restoration study for Lake Winnipeg.

The MPCA implemented a 934 kilogram per year (kg/yr) annual loading limit for total phosphorus for the Facility. MPCA staff reconsidered the Facility's total phosphorus limit and related permit conditions in relation to the Facility's loading and design flows.

As this new annual loading total phosphorus limit is greater than the Facility's current average phosphorus loading, it should require no upgrades to the Facility during the permit term. This was based on the Facility's current design flow of 0.338 million gallons per day.

Using an annual loading limit of 934 kg/yr helps reduce overall loading to the watershed and allows flexibility over the course of each year for the Facility to comply. With the proposed 934 kg/yr limit revised approach, the data suggests that the existing facility is capable of achieving the newly proposed effluent limit. EPA agrees with this revised approach in this case as we believe the limit will help protect downstream uses and decrease the load of phosphorus entering Lake Winnipeg.

The 934 kg/yr limit is a maximum limit for the entire facility, including both 002 and 003 discharges. The sum of both discharges is to be reported on the 002 eDMR.

Although the Facility is not required to prepare a Phosphorus Management Plan (PMP), elimination or reduction of phosphorus at the source will decrease the influent load to the wastewater treatment facility and has the potential to improve treatment efficiency and reduce treatment costs. EPA strongly encourages the Facility to identify and eliminate/reduce sources of phosphorus to, and optimize phosphorus management within, the wastewater treatment facility.

Mercury

This permit contains influent and effluent requirements for mercury monitoring and limits. These requirements were added in response to the EPA's approval of the Minnesota state-wide Mercury Total Maximum Daily Load (TMDL) plan. More information on the TMDL can be found on the MPCA internet site at http://www.pca.state.mn.us/wfhy9ef. Specific mercury monitoring requirements are found in Parts I.B, I.C and I.D of the permit. Those requirements may include sampling for TSS via a grab sample taken at the same time as the Total and Dissolved mercury grab samples are taken.

The permittee is required to submit an updated Mercury Pollutant Minimization Plan (MMP). This requirement complies with the EPA's approval of the Minnesota state-wide Mercury Total Maximum Daily Load (TMDL) plan. Guidance for completing the MMP is available on the MPCA internet site at http://www.pca.state.mn.us/gp0rb25.

Nitrogen

Nitrogen is a pollutant that can negatively impact the quality of Minnesota's water resources, including water used for drinking. Studies have shown that nitrogen in lakes and streams has a toxic effect on aquatic life such as fish. Like phosphorus, nitrogen is a nutrient that promotes algae and aquatic plant growth often resulting in decreased water clarity and oxygen levels. In September 2014, the MPCA completed the final draft of the Statewide Nutrient Reduction Strategy (http://www.pca.state.mn.us/zihy1146) which identifies goals and milestones for nitrogen reductions for both point and non-point nitrogen sources within Minnesota. To gain a better understanding of the current nitrogen concentrations and loadings received by and

discharged from the facility additional effluent nitrogen monitoring has been added to the Permit. This monitoring has been added in accordance with Section 308 of the Clean Water Act.

The draft Permit includes effluent monitoring for ammonia (as N), Nitrite plus Nitrate-Nitrogen, Total Kjeldahl Nitrogen and Total Nitrogen at a frequency of one time per half year for the five-year term of the Permit. There is no nitrogen limit in the Permit.

This additional monitoring will provide the data necessary to develop a better understanding of the total nitrogen concentrations and loadings that is currently being received and discharged from municipal and industrial wastewater treatment plants within Minnesota and Indian Country. Once a more extensive total nitrogen data set is established nitrogen reduction work can begin to achieve the necessary reductions to meet the goal of a 20% reduction in total nitrogen loads from point source dischargers by 2025 as outlined in the Statewide Nutrient Reduction Strategy. It is our hope that the Minnesota Tribes will participate in this reduction effort.

Total Sulfates

Monitoring is required to provide information related to sulfate levels being discharged from wastewater treatment ponds and the possible impacts to wild rice waters. Sampling is required at a frequency of two times per year during periods of discharge. There is no sulfate limit in the permit. This monitoring has been added in accordance with Section 308 of the Clean Water Act.

Oil and Grease and Total Dissolved Solids (TDS)

Additional monitoring as required for discharges with a design flow greater than 0.1 MGD. 40 CFR 122.21(j) requires data related to these parameters be submitted as part of the application process for permit renewals. Monitoring during the permit term will provide the data that will need to be submitted with the permit application.

Asset Management – Operation & Maintenance Plan

Regulations regarding proper operation and maintenance are found at 40 CFR § 122.41(e). These regulations require, "that the permittee shall at all times operate and maintain 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 the permit." The treatment plant and the collection system are included in the definition of "facilities and systems of treatment and control" and are therefore subject to the proper operation and maintenance requirements of 40 CFR § 122.41(e).

Similarly, a permittee has a "duty to mitigate" pursuant to 40 CFR §122.41(d), which requires the permittee to "take all reasonable steps to minimize or prevent any discharge in violation of the permit which has a reasonable likelihood of adversely affecting human health or the environment."

The draft permit requirements are the first steps of an asset management program which contains goals of effective performance, adequate funding, adequate operator staffing and training. Asset management is a planning process that ensures that you get the most value from each of your assets and have the financial resources to rehabilitate and replace them when necessary, and typically includes five core elements which identify: 1) the current state of the asset; 2) the desired level of service (e.g., per the permit, or for the customer); 3) the most critical asset(s) to sustain performance; 4) the best life cycle cost; and 5) the long term funding strategy to sustain

service and performance.

EPA believes that requiring a certified wastewater operator and adequate staffing is also essential to ensure that the treatment facilities will be properly operated and maintained. Mapping the collection system with the service area will help the operator better identify the assets that he/she is responsible for and consider the resources needed to properly operate and maintain them. This will help in the development of a budget and a user rate structure that is necessary to sustain the operation. The development and implementation of a proactive preventive maintenance program is one reasonable step that the permittee can take to demonstrate that it is at all times, operating and maintaining all the equipment necessary to meet the effluent limitations of the permit.

Special Conditions

- The permit requires electronic reporting.
- Dikes must be maintained and vegetation cut.
- The permit requires the continued implementation of an Operation & Maintenance Plan. The plan covers the use of a certified operator to oversee the facility, having adequate staff to help ensure compliance with the permit, mapping the treatment system, developing a preventive maintenance program, reporting and other items.
- The permit requires the submittal of a mercury minimization plan.
- The permit contains Industrial Waste Pretreatment Program requirements in accordance with 40 CFR Parts 122 and 403.
- Compliance with 40 CFR Part 503 (sludge use and disposal regulations) if sludge is used or disposed within the Reservation. EPA is to be contacted prior to sewage sludge being removed from the pond system.
- The permit requires that if sewage sludge is to be land applied, the permittee must submit the following information to EPA prior to application:

    i. certification that the application contractor has received all necessary information to comply with applicable provisions of 40 CFR Part 503;

    ii. site location by latitude and longitude, and code number to identify field or field portion.

        1) Plat map showing location of the site relative to local landmarks.
        2) Proximity to surface waters of the United States.
        3) Potential presence of endangered species.
        4) Soil fertility test with fertilizer recommendations.
        5) Previous crop and future crop with yield goal.
        6) Participation Agreement signed by the landowner or operator, if different, of the site to receive sludge.
        7) Determination whether the site has previously been used for sewage applications.
        8) If previously used, determination of cumulative pollutant loading rate since July 19, 1993;

    iii. certification that the local township supervisor has been notified that a site has been identified and is intended for use;

iv. certification that the County Health Department has been notified that hauling is scheduled to take place; and

v. certification that notice has been provided to landowners and occupants adjacent to, or abutting the proposed land application site. Such notice shall be accomplished by one of the following: written notice through the regular mail; public notice in the local newspaper; public reading of notice at open public meeting

- The permit contains a reopener clause to include additional requirements resulting from TMDL studies.

Significant Changes From The Last Permit

Following are the significant changes in the draft permit:

- Added 'Summary of Regular Reporting'.
- Added effluent table for discharges from the 6.4 acre pond (002) and the 19 acre pond (003). These are compliance will be determined. (Part I.B and Part I.C)
- New limits for mercury and phosphorus have been added with corresponding monitoring. (Part I.B and Part I.C)
- The permit requires monitoring of the influent and effluent for various nitrogen compounds. (Part I.B, Part I.C and Part I.D)
- The Reporting requirement has been changed to require electronic submittal of DMRs. (Part I.F.2)
- Additional requirements related to Asset Management have been added. (Part I.F.5)
- Submittal of an Mercury Minimization Plan. (Part I.F.6)
- The 'Sludge Disposal Requirements' language has been updated. (Part I.F.8)
- Removal of the requirement to implement a phosphorus management plan.

The permit is based on an application dated August 24, 2017 and additional supporting documents found in the administrative record.

The permit will be effective for approximately five years from the date of reissuance as allowed by 40 CFR § 122.46.

Written By: John Colletti July 2018
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