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
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Public Notice No.: 18-04-01-A

Public Notice Issued On: April 13, 2018

Comment Period Ends: May 14, 2018

Permit No.: MN-0022110-4 (REISSUANCE)

Application No.: MN-0022110-4

Name and Address of Applicant:

City of Waubun
P,O. Box 187
Waubun, Minnesota 56589

Name and Address of Facility Where Discharge Occurs:

Waubun Wastewater Treatment Facility
Highway 113, Popple Grove Township
Waubun, Minnesota
Mahnomen County
(S. ½ of the N.E. ¼ of Sec. 25 of T143N, R42W)

Receiving Water: County Ditch No. 3 to Spring Creek

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.

Major components of the existing facility include:
1 Primary Stabilization Pond (7.8 acres)
1 Secondary Stabilization Pond (2.9 acres)

The existing facility consists of one lift station, approximately 3,375 feet of six-inch force main, one pump station, and a two-cell stabilization pond system. The facility has a controlled discharge (SD001) to County Ditch No. 3 that leads to Spring Creek and is designed to treat an average influent flow of up to 40,000 gallons per day (gpd) with a 5-day Carbonaceous Biochemical Oxygen Demand (CBOD5) strength of 450 milligrams per liter (mg/l). The primary and secondary cells are clay lined and have surface areas of 7.8 and 2.9 acres, respectively at the 4-foot mean operating depth. The facility provides a total detention time of 335 days at design flow.

Proposed facility
Major components of the proposed facility include:
2 Primary Stabilization Pond (3.85 acres)
1 Secondary Stabilization Pond (3.86 acres)

The permittee is proposing construction to the existing facility this permit cycle. The plans and specifications indicate the two primaries and one secondary cells will be lined with a synthetic liner. The primary ponds will have surface areas of 3.85 acres each and the secondary pond will be 3.86 acres, all measured at the 4-foot mean operating depth. The new treatment system is designed to treat an average wet weather flow of 71,650 gpd. The facility will provide a total detention time of 210 days at design flow.

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

Limitations and Monitoring Requirements		
Parameter	**30-Day Average**	**7-Day Average**
$CBOD_5$	25 mg/L	40 mg/L
TSS	45 mg/L	65 mg/L
E. coli	126 E. coli/100ml	410 E. coli/100ml (daily maximum)
pH	6 S.U. (Minimum)	9 S.U.(Maximum)

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

Existing

2.9 acres x 0.5 feet/day (6 inches/day) x 325,900 gallons per acre-ft ≈ 0.47 million gallons/day

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

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

Proposed

3.86 acres x 0.5 feet/day (6 inches/day) x 325,900 gallons per acre-ft ≈ 0.63 million gallons/day

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

(0.63 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 nor 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. The permittee is in the process of expanding its existing facility within the existing footprint of the existing facility. Since the facility will be built on the existing site and due to the highly disturbed nature of the project location, the site does not have the critical habitat needed for the identified species. Therefore, it is believed that the reissuance of the permit and the continued operation of the facility and associated discharge will have no effect on endangered or threatened species or their critical habitat.

Also, due to the highly disturbed nature of the project location, it is highly unlikely that cultural resources and historical properties exist, and therefore the project, discharge and issuance of the permit will have no effect on cultural resources and historical properties.

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.

In this regard, the Minnesota Pollution Control Agency (MPCA) developed limits for this facility that would be protective of state water quality standards. Though the State's WQS are not applicable at the point of discharge, EPA believes the limits are appropriate and will use them to ensure compliance with the State's WQS at the reservation boundary. Also, permit writer's judgment is used to set the permit requirements. Information from MPCA on the development of the limits can be found in the administrative record.

Antidegradation

Pursuant to 40 Code of Federal Regulations (CFR) Part 131, EPA reviewed the information provided by the applicant to determine whether or not the increased discharge is necessary to support important social and economic development in the area and that a possible lowering of water quality will still protect public health and the environment. Based on the information provided by the applicant EPA finds the following:

1. The proposed expansion is necessary to provide effective treatment and allow for future growth. Based on the data provided, there are no ways that the discharge can be avoided through the use of pollution prevention techniques and there are also no alternative or enhanced treatment options available to the applicant at a reasonable cost that would eliminate the need for the increased discharge or reduce its impacts.

2. The proposed expansion will help lessen existing impacts to County Ditch No. 3 and

Spring Creek caused by inadequate treatment (leaking cells) at the existing plant.

Given the above findings, EPA concludes that the requirements of 40 CFR 131.12 are satisfied. Additional information related to these findings can be found in the administrative record.

pH

The limits for pH are based on secondary treatment standards pursuant 40 CFR 133. Monitoring indicates the permittee is in substantial compliance with the limits.

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. The corresponding load limits have been increased based on the proposed flow from the planned expansion of the facility.

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. The corresponding load limits have been increased based on the proposed flow from the planned expansion of the facility.

E. coli

The limits for E. coli are based on the EPA's new water quality criteria published in 2012 (EPA's 2012 Recreational Water Quality Criteria). The geometric mean of samples collected over a 30-day period shall not exceed 126 E. coli per 100 milliliters (ml). The statistical threshold value of 410 E. coli per 100 ml is set as the daily maximum.

Phosphorus

Waubun WWTF does not have RP to cause or contribute to a River Eutrophication Standard (RES) impairment in the Wild Rice Watershed, under permitted effluent conditions. As such, existing monitoring are sufficient for the immediate receiving waters. An overview of all appropriate TP limits and respective time frames is summarized in Table 3 of the Wild Rice Watershed Phosphorus Memo which can be found in the administrative record.

The permit requires the permittee to prepare an Enhanced Phosphorus Management Plan (PMP) and submit it to the EPA within 180 days of permit issuance. While the PMP does not require specific reductions at this time, the EPA strongly encourages you to identify and eliminate/reduce sources of phosphorus to, and improve phosphorus management within, the wastewater treatment facility. Please review these permit requirements carefully.

Guidance for considering phosphorus in wastewater treatment systems and preparing a PMP can be found on the web at: https://www.pca.state.mn.us/water/phosphorus-management-plans or http://www.mntap.umn.edu/greenbusiness/water/phosphorus.htm.

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. 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. The changes and/or increases in total nitrogen monitoring in wastewater Permits as a result of the Statewide Nutrient Reduction Strategy is outlined in the Minnesota NPDES Wastewater Permit Nitrogen Monitoring Implementation Plan document located on the MPCA wastewater Permits webpage at: http://www.pca.state.mn.us/index.php/water/water-types-and-programs/wastewater/wastewater-permits/index.html.

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. The data will be used to determine if the discharge will cause or contribute to a violation of Minnesota's water quality standard for sulfates in wild rice waters. Sampling is required at a frequency of one time per half year for the five-year term of the permit. There is no sulfate limit in the permit. This monitoring has been added in accordance with Section 308 of the Clean Water Act.

Total Maximum Daily Load (TMDL) Study

To address water quality impairments, a TMDL study of the Lake Winnipeg watershed may be conducted. The study will determine the capacity to assimilate pollutant loads as the basis for recommendations of wasteload allocation for point sources and load allocation for nonpoint sources within the watershed. An appropriate balance of point and nonpoint source controls that attain water quality objectives will be selected with full stakeholder involvement. Based on the

results of the TMDL study, the permit may be reopened and effluent limitations for this facility may be re-examined. This permit will be modified or reissued as needed to incorporate effluent loading recommendations from the TMDL study.

Expanded Turbidity (Total Suspended Solids) Wasteload Allocation Justification for the Waubun WWTP NPDES - (Lower Wild Rice River TMDL)

The existing Waubun Wastewater Treatment Plant (WWTP) is a stabilization pond facility that has an average wet weather design flow (AWWDF) of 0.040 million gallons per day (mgd) and includes one discharge monitoring point (SD001) that discharges County Ditch No. 3 to Spring Creek. The secondary cell is 2.9 acres at the mean operating depth. The permitted total suspended solids (TSS) limits at are 45 mg/L and 80 kg/day as calendar month averages.

The city of Waubun has proposed to upgrade the WWTP, increasing the sizes of the ponds and the AWWDF. The primary ponds will be 3.85 acres each and the secondary pond will be 3.86 acres, each measured at the four-foot mean operating depth. The AWWDF will be 0.071650 mgd.

The Lower Wild Rice River Turbidity TMDL (https://www.pca.state.mn.us/water/tmdl/lower-wild-rice-river-turbidity-tmdl-project), which EPA approved on July 17, 2009, contains a 0.09 tons/day wasteload allocation (WLA) for the existing Waubun WWTP that is roughly equivalent to the existing permitted effluent limit of 80 kg/day (difference due to possible rounding errors). The WLA was calculated for the stabilization pond facility using the existing AWWDF of 0.040 mgd and the existing discharge limit of 45 mg/L. The WLA for the proposed WWTP should be calculated using the proposed AWWDF of 0.071650 mgd and the proposed discharge limit of 45 mg/L.

An analysis of the effects of expanded wasteload allocations, prepared by Tetratech for the Zumbro River Turbidity TMDL (Cleland 2011), demonstrates that current discharges can be expanded and new NPDES discharges can be added while maintaining water quality standards; provided the permitted NPDES effluent concentrations remain at or below the in-stream concentration targets.

This NPDES Permit authorizes the expansion of the WLA for the Waubun WWTP. Expansion of the WLA will not contribute to the TSS impairment in the Wild Rice River because the NPDES Permit's 45 mg/L TSS proposed discharge limit will ensure that the discharge does not have reasonable potential to cause or contribute to an exceedance of the state's 65 mg/L TSS water quality standard.

3.86 acres X 45 mg/L x 0.1629 X 3.78 = 107 kg/day [final discharge limit]

The existing limit and WLA in the TMDL for the WWTP is 80 kg/day. Using the calculation listed above, the proposed WLA is 107 kg/day. This is an increase of 26.6 kg/day. The change in the maximum permitted daily flow from 0.472 mgd (0.877 cubic feet per second [cfs]) to 0.629 mgd (1.169 cfs) shows an increase in flow of 0.157 mgd, which is an increase of 0.292 cfs to the Wild Rice River.

	Approved Wasteload Allocation	Flow Increase	TSS Load Increase	Modified Wasteload Allocation
Waubun WWTP's WLA Expansion	80.4 kg/day 0.09 tons/day	0.292 cfs	26.6 kg/day 0.03 tons/day	107 kg/day 0.118 tons/day
Wild Rice River Loading Capacity Expansion		0.292 cfs	26.6 kg/day 0.03 tons/day	

The MPCA proposed and public noticed this increase of the WLA in the TMDL with its public notice of the State Disposal System (SDS) permit (MNT022110) for this facility on May 11, 2017. The SDS permit has been subsequently reissued with the increased WLA for TSS. EPA has subsequently agreed with the increased wasteload for TSS and the new value is included in the permit.

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 development and implementation of an enhanced phosphorus management 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) (Part III of the permit) if sludge is used or disposed within the Reservation. Part III was developed using the Part 503 Implementation Guidance for sludge and 40 CFR Parts 122, 501, and 503. 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 requires status updates regarding the expansion/construction of the WWTF.
- 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'.
- The daily maximum limit for E. coli has been revised to be consistent with EPA's 2012 water quality criteria. (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)
- Development and implementation of an Enhanced Phosphorus Management Plan. (Part I.F.6)
- The 'Sludge Disposal Requirements' language has been updated. (Part I.F.8)
- A construction schedule has been added. (Part I.F.9)
- Part III related to land application of sewage sludge has been added. (Part III)

The permit is based on an application dated November 8, 2016 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 April 2018
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