

STATEMENT OF BASIS

FOR THE ISSUANCE OF A NPDES PERMIT

U.S. Environmental Protection Agency
Region 5, NPDES Programs Branch - WN-16J
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Public Notice Issued On: February 14, 2014

Comment Period Ends: March 17, 2014

Permit No.: WI-0049727-3 (REISSUANCE)

Application No.: WI-0049727 -3

Name and Address of Applicant:

Red Cliff Band of Lake Superior Chippewas
Red Cliff Department of Public Works
88385 Pike Rd./Hwy 13
Bayfield, Wisconsin 54814

**Name and Address of Facility
Where Discharge Occurs:**

Red Cliff Band WWTF
89160 Blueberry Rd.
Red Cliff, Wisconsin 54814
Red Cliff Indian Reservation
Bayfield County
(S.W. ¼ of the S.E. ¼ of Section 30, T51N, R3W)

Receiving Water: Lake Superior

DESCRIPTION OF APPLICANT'S FACILITY AND DISCHARGE

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

Treatment Facility Description:

The treatment facility has pre-treatment consisting of a bar grate, fine screen, and grit removal. The main treatment is by oxidation ditch with alum addition for phosphorus removal and two final clarifiers. Disinfection is by ultraviolet lights. Sludge is wasted to an aerobic digester and then transferred to a Reed Bed storage system.

The facility has a continuous discharge {Outfall 001 (N. ½ of the N.E. ¼ of Section 31, T51N, R3W) or (lat: 46-51-31 long: 90-46-54) } to Lake Superior. The outfall extends 350 feet from shore in 25 feet deep water. The Red Cliff Band WWTF is designed to treat an average influent flow of 220,000 gallons per day (gpd).

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>			
	Concentration (Specified Units)			
Parameter	Daily Minimum	Monthly Average	Weekly Average	Daily Maximum
Flow (MGD)	-	-	-	-
pH (SU)	6.0	-	-	8.5
Total Suspended Solids (TSS) (mg/L)	-	30	45	-
Biochemical Oxygen Demand (BOD ₅) (mg/L)	-	30	45	-
Phosphorus, Total (mg/L)	-	1.0	2.0	-
Nitrogen, ammonia (mg/L)	-	Report	-	Report
Mercury, Total (ng/L)	-	1.3	-	1.9
E. coli (#/100ml)	-	126	-	235
BOD percent removal (%)	-	≥85	-	-
TSS percent removal (%)	-	≥85	-	-
Outfall observation (yes/no)	-	-	-	-

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

$$(0.220 \text{ mgd} * \text{limit (mg/L)} * 8.34) = \text{Loading (lbs/d)}.$$

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 Red Cliff Band of Lake Superior Chippewas as neither has federally approved water quality standards applicable to the receiving water at the point of discharge.

ESA and NHPA Compliance

EPA has satisfied its requirements under the Endangered Species Act and the National Historical Preservation Act. Prior to the building of the existing facility, a finding of no significant environmental impact was made by USDA as part of the funding process for the building of the treatment facility. This finding included no impacts to endangered or threatened species or their critical habitat and no impacts to historical, archeological, or cultural resources. EPA reviewed for this permit U.S. Fish and Wildlife's website for additional endangered or threatened species. Since this is an existing facility with no new planned expansion or construction expected within the permit term, it is believed that the issuance 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 and will have no impact on 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 Wisconsin's water quality standards where they are applicable.

pH

The limits for pH are based on secondary treatment requirements pursuant to 40 CFR Part 133.

5-day Biochemical Oxygen Demand (BOD₅)

The limits for BOD₅ are based on secondary treatment requirements pursuant to 40 CFR Part 133. A 7-day average limit of 45 mg/L and a 30-day average limit of 30 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. Also, for the average during the discharge period, the effluent concentration for BOD₅ shall not exceed 15% of the arithmetic mean of the value for influent samples for BOD₅ collected during the related treatment period.

Total Suspended Solids (TSS)

The limits for TSS are based on secondary treatment requirements pursuant to 40 CFR Part 133. A 7-day average limit of 45 mg/L and a 30-day average limit of 30 mg/L are carried from the previous permit; these are the arithmetic mean of pollutant parameter values for samples collected in a period of 7 and 30 consecutive days, respectively. Also, for the average during the discharge period, the effluent concentration for TSS shall not exceed 15% of the arithmetic mean of the value for influent samples for TSS collected during the related treatment period.

E. coli

The limits for E. coli are based on the EPA's water quality criteria. 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.

Mercury

The limit for mercury has been carried over from the previous permit. The mercury limit is consistent with the Great Lakes Initiative. To be consistent with 40 CFR § 122.45(d), a new daily maximum limit of 1.9 ng/L has been included calculated using the *Technical Support Document for Water Quality-Based Toxics Control* (1991). The use of the TSD shows that it is impracticable to set a weekly average limit for mercury. Based on sampling data, the limit is still needed as the permittee cannot consistently achieve the limit and therefore, the discharge still has a reasonable potential to cause a violation of the water quality standard. Our analysis is part of the administrative record. The permit also requires the development and implementation of a pollutant minimization program to assist the permittee in maintaining compliance with the limit.

Phosphorus

The permit contains a monthly average limit for total phosphorus of 1.0 mg/l, which is a technology standard carried over from the previous permit, and a weekly average limit of 2.0 mg/l pursuant to 40 CFR § 122.45(d). In order to be protective of downstream Wisconsin water quality standards for Lake Superior found at N.R. 102.06, water quality based limits are to be developed using procedures found at N.R.217.13(4) which requires effluent limits consistent with

nearshore or whole lake model results approved by the WDNR. At this time, models are still being developed for Lake Superior. N.R 217.13(4) allows in the interim the use of limits based on best readily available phosphorus removal technology commonly used in Wisconsin. Over the previous permit term, the best that this facility has been consistently able to achieve on average is 0.7 mg/L with many months over 1.0 mg/L. To determine if the facility is using its phosphorus removal technology optimally, the draft permit also requires the permittee to submit an operational evaluation report that will include an evaluation of collected effluent data, possible source reduction measures, operational improvements or other minor facility modifications that will optimize reductions in phosphorus discharges from the wastewater treatment plant.

Ammonia

As there are no federally-approved water quality standards that apply at the discharge, we need to ensure that the state's water quality standards are protected at the downstream reservation boundary. We calculated ammonia limits using Wisconsin procedures. Our analysis is part of the administrative record. Based on the analysis and past sampling data, we determined that no limits are needed. During the previous permit term, the average ammonia concentration was 2.2 mg/L, well below the summer monthly average calculated limit of 16.5 mg/L.

Temperature

In order to be protective of downstream Wisconsin temperature water quality standards for Lake Superior found at N.R. 106, the state developed procedures for calculating effluent limits for temperature. These can be found at N.R. 106.55(7)(b). Using the formula found in this section, the state did a reasonable potential analysis for POTWs discharging to Lake Superior. They assumed a maximum effluent temperature of 100 °F and back calculated the effluent flow needed that would violate the water quality standard. The state determined that an effluent flow of at least 10 mgd would be needed before there would be a reasonable potential to violate the standard. The design effluent flow for this facility is 0.220 mgd, well below the flow needed for reasonable potential. Therefore, no temperature limits or monitoring is included in the draft permit.

Wet Testing

The previous permit required two acute whole effluent toxicity (WET) tests to be conducted during the permit term, however, only one test was completed. No acute toxicity was found in that test. Based on the results of the one test, EPA does believe the discharge has a reasonable potential to cause or contribute to a violation of Wisconsin's WET water quality standards. However, since both tests were not completed, two additional acute tests are required in this draft permit. EPA will use the results to determine if the discharge has a reasonable potential to cause or contribute to a violation of Wisconsin's WET water quality standards for next permit.

Priority Pollutant Monitoring

A onetime monitoring of the priority pollutants listed in 40 CFR Part 122, Appendix D, during the permit term is included to provide data for future permits to ensure the facility is discharging within Wisconsin's established WQS where they are applicable. The data will be submitted with the next permit application.

Additional Monitoring

Additional monitoring for Total Kjeldahl Nitrogen (TKN), Oil and Grease, Nitrate plus Nitrite

Nitrogen and Total Dissolved Solids (TDS) is required for discharges with a design flow greater than 0.1 MGD. This monitoring is an application requirement of 40 CFR § 122.21(j) and the data will be submitted with the next 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 the development and 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 and other items.
- Additional monitoring as required for discharges with a design flow greater than 0.1 MGD. This monitoring is an application requirement of 40 CFR 122.21(j).
- A onetime priority pollutant scan is required. This information will be used for future permit cycles.
- The development and implementation of a pollutant minimization program for mercury that will help the permittee in maintaining compliance with the mercury effluent limit.

- The permit requires the submittal of a phosphorus operational evaluation report to help optimize phosphorus removal.
- 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. Compliance with NR 204, Wisconsin Administrative Code, if land applied outside the boundaries of the Reservation. It is expected, however, that sludge will not be used or disposed of during this permit term.
- The permittee uses Reed Beds to further treat its sludge. The permit contains conditions to minimize the spread of Phragmites (*Phragmites australis*). The permit also requires the permittee to look at other sludge treatment options and alternatives to using *Phragmites australis* in the reed beds.

Significant Changes From The Last Permit

Following are the significant changes in the draft permit:

- A daily maximum limit for E. coli, a daily maximum limit for mercury and a weekly average limit for phosphorus has been added to be consistent with 40 CFR § 122.45(d).
- Load limits for phosphorus and mercury have been included.
- During discharge, the permit requires weekly observations of the outfall to look for unusual characteristics of the discharge.
- Requirements related to Asset Management have been added (Part I.C.3).
- The Industrial Waste Pretreatment Program language has been updated (Part I.C.5).
- The Sludge Disposal Requirements language has been updated (Part I.C.6).
- The permit also requires the permittee to look at other sludge treatment options and alternatives to using *Phragmites australis* in the reed beds (Part I.C.6).
- A phosphorus operational evaluation report requirement has been added (Part I.C.8).
- The “Standard Conditions” have been revised (Part II).
- The “Sewage Sludge Requirements” have been revised (Part III).

The permit is based on an application dated April 15, 2013 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.

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