



Minnesota Pollution
Control Agency

National Pollutant Discharge Elimination System /State Disposal System (NPDES/SDS) Permit Program Fact Sheet

Permittee:

City of Winnebago

P.O. Box 35

Winnebago, MN 56098-0035

Facility Name:

Winnebago Wastewater Treatment Facility

862 First Avenue Northwest

Winnebago, MN 56098

Permit Number:

MN0025267

Current Permit Expiration: July 31, 2012

Public Comment Period Begins: September 4, 2012

Period Ends: October 4, 2012

Receiving Water: Blue Earth River (Class 2B, 3C, 4A, 4B, 5, 6 Water)

Proposed Action: Permit Reissuance

Permitting Contact:

Nancy Heskett

18 Wood Lake Drive Southeast

Rochester, Minnesota 55904

507-206-2605

Fax 507-280-5513

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Purpose and Participation

Applicable Statutes

This fact sheet has been prepared according to the Title 40 Federal Code of Regulations, 40 CFR § 124.8 and 40 CFR § 124.56 and Minn. R. 7001.0100, subp. 3, in regard to a draft National Pollutant Discharge Elimination System (NPDES) / State Disposal System (SDS) Permit to construct and/or operate wastewater treatment facilities and to discharge into waters of the state of Minnesota.

Purpose

This fact sheet outlines the principal issues related to the preparation of this draft permit and documents the decisions that were made in the determination of the effluent limitations and conditions of this permit.

Public Participation

You may submit written comments on the terms of the draft permit or on the Commissioner's preliminary determination. Your written comments must include the following:

1. A statement of your interest in the permit application or the draft permit.
2. A statement of the action you wish the Minnesota Pollution Control Agency (MPCA) to take, including specific references to sections of the draft permit that you believe should be changed.
3. The reasons supporting your position, stated with sufficient specificity as to allow the Commissioner to investigate the merits of your position.

You may also request that the MPCA Commissioner hold a public informational meeting. A public informational meeting is an informal meeting that the MPCA may hold to help clarify and resolve issues. In accordance with Minn. R. 7000.0650 and Minn. R. 7001.0110, your petition requesting a public informational meeting must identify the matter of concern and must include the following: items 1 through 3, identified above; a statement of the reasons the MPCA should hold the meeting; and the issues you would like the MPCA to address at the meeting.

In addition, you may submit a petition for a contested case hearing. A contested case hearing is a formal hearing before an administrative law judge. Your petition requesting a contested case hearing must include a statement of reasons or proposed findings supporting the MPCA decision to hold a contested case hearing pursuant to the criteria identified in Minn. R. 7000.1900, subp. 1 and a statement of the issues proposed to be addressed by a contested case hearing and the specific relief requested. To the extent known, your petition should include a proposed list of witnesses to be presented at the hearing, a proposed list of publications, references or studies to be introduced at the hearing, and an estimate of time required for you to present the matter at hearing.

You must submit all comments, requests, and petitions during the public comment period identified on page 1 of this notice. All written comments, requests, and petitions received during the public comment period will be considered in the final decisions regarding the permit. If the MPCA does not receive any written comments, requests, or petitions during the public comment period, the Commissioner or other MPCA staff, as authorized by the Commissioner, will make the final decision concerning the draft permit. During the public comment period, however, you may request that the draft permit be presented to the MPCA's Citizens' Board (Board) for final decision. You may participate in the activities of the Board, as provided in Minn. R. 7000.0650.

Comments, petitions, and/or requests must be submitted by the last day of the public comment period to:

Nancy Heskett
Minnesota Pollution Control Agency
18 Wood Lake Drive Southeast
Rochester, Minnesota 55904

The permit will be reissued if the MPCA determines that the proposed Permittee or Permittees will, with respect to the Facility or activity to be permitted, comply or undertake a schedule to achieve compliance with all applicable state and federal pollution control statutes and rules administered by the MPCA and the conditions of the permit and that all applicable requirements of Minn. Stat. ch. 116D and the rules promulgated thereunder have been fulfilled.

More detail on all requirements placed on the Facility may be found in the Permit document.

Facility Description

Background Information

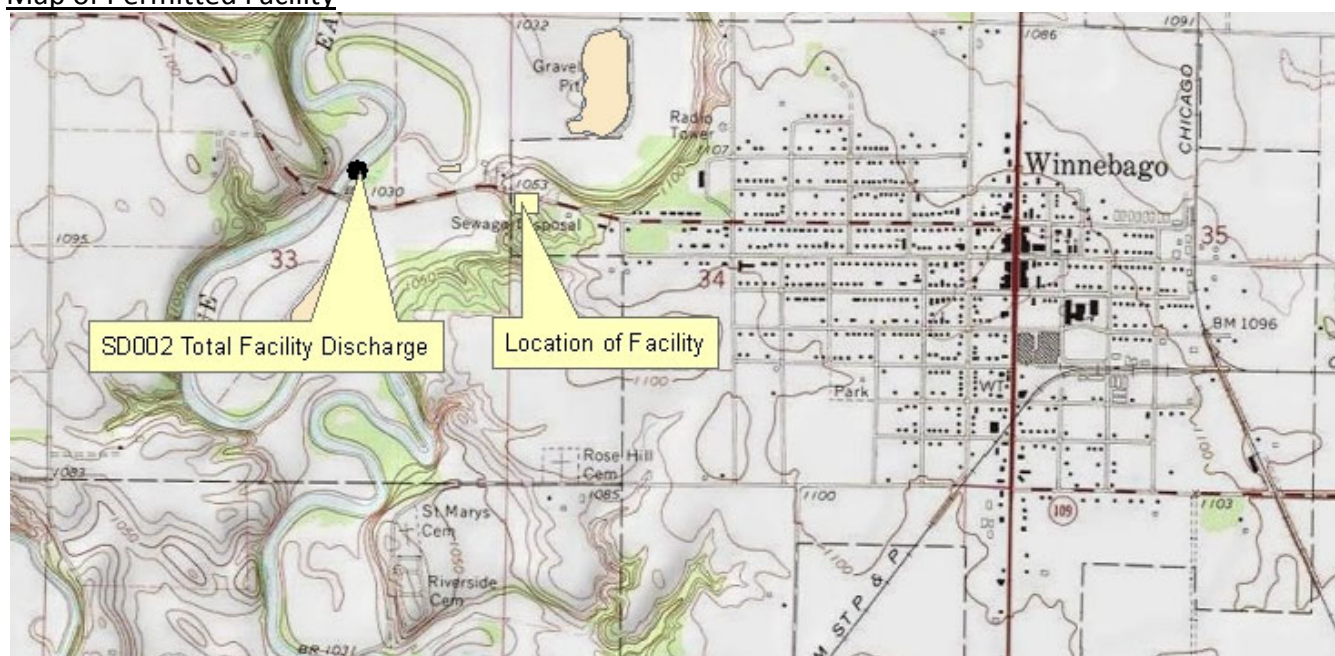
Facility Location

This Facility is an existing municipal wastewater treatment Facility that treats wastewater from the communities of Winnebago and Huntley. The Facility is located in the NW¼ of Section 34, Township 104 North, or approximately one-half mile west of the city of Winnebago on County Road 12.

Outfall Location

The continuous discharge outfall for this Facility (SD002 in the permit) is located in the NE¼ of Section 33, Township 104 North, or approximately one mile west of the city of Winnebago on County Road 12.

Map of Permitted Facility

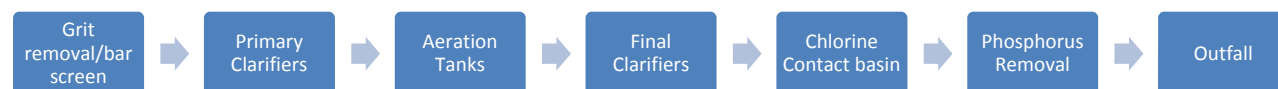


Current Information

Components and Treatment Technology

The existing treatment system consists of a grit chamber, a grinder, a Parshall flume, two primary clarifiers, an activated sludge-extended aeration tank, two final clarifiers, a chlorine contact tank, dechlorination equipment, chemical phosphorus removal, a sludge digester, and a sludge holding tank. The Facility has a continuous discharge (SD002) to the Blue Earth River (Class 2B, 3C, 4A, 4B, 5, 6 Water) and is designed to treat an average wet-weather flow of up to 1,700,000 gallons per day (gpd) with a five-day carbonaceous biochemical oxygen demand strength of 475 pounds per day. A manually-locked bypass is capable of discharging partially treated wastewater to the outfall sewer.

Flow Schematic



Changes to Facility or Operation

There were no significant changes to the Facility or its operation in the previous permit cycle. However, the Permittee plans to make upgrades to the Facility during this permit cycle. These upgrades include replacement of the mechanical bar screen with a grinder, replacement of clarifier drives and covers, new pumps, blowers and slide gates, and rehabilitation of the aeration basin channels. These upgrades will not cause an increase in design flow.

Significant Industrial Users (SIUs)

This Facility receives process wastewater from two significant industrial users: Corn Plus and Continental Carbonic. The Facility has developed and maintains pretreatment agreements with these industries.

Recent Compliance History

An evaluation of the compliance history of the Facility was performed for the time period of the current permit issuance to present. The following table shows the violations reported and when they occurred. A Stipulation Agreement was executed on January 4, 2011, to address the violations.

Table 1. Reported Violations

Station:	Parameter:	Units:	Limit Type	Limit	Reported Value	Reporting Period:
SD002	CBOD ₅	kg/day	Maximum Calendar Week Average	257	904	January, 2010
SD002	CBOD ₅	mg/L	Maximum Calendar Week Average	40	957	January, 2010
SD002	CBOD ₅	mg/L	Calendar Month Average	25	160	January, 2010
SD002	CBOD ₅	mg/L	Maximum Calendar Week Average	40	59	February, 2010
SD002	CBOD ₅ , % Removal	%	Minimum Calendar Month Average	85	71	January, 2010
SD002	CBOD ₅ , % Removal	%	Minimum Calendar Month Average	85	82	March, 2010
SD002	TSS	kg/day	Maximum Calendar Week Average	193	237	March, 2010
SD002	TSS	kg/day	Maximum Calendar Week Average	193	346	September, 2010
SD002	TSS	mg/L	Maximum Calendar Week Average	45	47	January, 2010
SD002	TSS, % Removal	%	Minimum Calendar Month Average	85	81	June, 2009
SD002	TSS, % Removal	%	Minimum Calendar Month Average	85	72	March, 2010
SD002	TSS, % Removal	%	Minimum Calendar Month Average	85	83	March, 2010

Recent Monitoring History

The following table shows the average monthly reported values for the Facility from November 2009 through December 2010.

Table 2. Monthly Average Reported Values

Parameter Name	Limit and Units	Limit Type	Monthly Average
CBOD ₅ , % Removal	85%	Minimum Calendar Month Average	96.5
CBOD ₅	161 kg/day	Calendar Month Average	3.625
CBOD ₅	257 kg/day	Maximum Calendar Week Average	7.633
CBOD ₅	25 mg/L	Calendar Month Average	1.76
CBOD ₅	40 mg/L	Maximum Calendar Week Average	2.825
Chloride, Total	mg/L	Calendar Month Average	1,618.42
Chlorine, Total Residual	0.038 mg/L	Daily Maximum	0.037
Fecal Coliform	200 #100ml	Calendar Month Geometric Mean	13
Hardness, Calcium & Magnesium (as CaCO ₃)	mg/L	Calendar Month Average	1,010.67
Mercury, Dissolved (as Hg)	ng/L	Calendar Quarter Maximum	0.724
Mercury, Total (as Hg)	ng/L	Calendar Quarter Maximum	3.99
Nitrogen, Ammonia, Total (as N)	mg/L	Calendar Month Average	0.151
Oxygen, Dissolved	mg/L	Calendar Month Minimum	5.856
pH	9.0 SU	Calendar Month Maximum	7.825
pH	6.0 SU	Calendar Month Minimum	7.5
Phosphorus, Total (as P)	kg/day	Calendar Month Average	2.598
Phosphorus, Total (as P)	mg/L	Calendar Month Average	1.186
Solids, Total Dissolved (TDS)	mg/L	Calendar Month Average	4,044.83
TSS, % Removal	85%	Minimum Calendar Month Average	91.917
TSS	290 kg/day	Calendar Month Average	14.375
TSS	193 kg/day	Maximum Calendar Week Average	26.642
TSS	30 mg/L	Calendar Month Average	6.642
TSS	45 mg/L	Maximum Calendar Week Average	9.458
Specific Conductance	umh/cm	Calendar Month Average	6,178.08
Sulfate, Total (as SO ₄)	mg/L	Calendar Month Average	746.417

Receiving Water

Use Classification

This Facility discharges to the Blue Earth River. This river is classified as a 2B, 3C, 4A, 4B, 5, 6 Water. This classification indicates that the body of water is capable of sustaining aquatic life and recreation. Aquatic life and recreation include supporting or the ability to support fish, other aquatic life, bathing, boating, or other recreational purposes and for which water quality control is or may be necessary to protect aquatic or terrestrial life and its habitat or public health, safety, or welfare. More information on the classification of waters can be found in Minn. R. 7050.0140.

Impairments

This water is listed on the 303(d) list as impaired for turbidity. Total maximum daily load (TMDL) studies have been conducted and approved by the EPA and have resulted in waste load allocations (WLA) for the parameters of concern. Limits imposed on this Facility reflect the individual WLA.

The Lower Mississippi River Basin - Fecal Coliform TMDL was approved by the EPA on November 13, 2002. The statewide Mercury TMDL was approved by the EPA on March 27, 2007. Table 3 lists the current receiving water impairments.

Table 3. Receiving Water Impairments

AUID	River Name	Reach	Impairment	Approved TMDL
07020009-515	Blue Earth River	Elm Creek to Willow Creek	Mercury, Turbidity	Mercury
07020009-507	Blue Earth River	Willow Creek to Watonwan River	Mercury, Turbidity	Mercury
07020009-510	Blue Earth River	Watonwan River to Rapidan Dam	Mercury	Mercury
07020009-509	Blue Earth River	Rapidan Dam to Le Sueur River	Fecal Coliform, Mercury, Turbidity	Fecal Coliform, Mercury
07020009-501	Blue Earth River	Le Sueur River to Minnesota River	Fecal Coliform, Mercury, Turbidity	Fecal Coliform, Mercury

Existing Permit Effluent Limits

The effluent limits and monitoring requirements in the current permit are presented in Table 4. This table lists both water quality based and technology based effluent limits, and state discharge restrictions.

Technology Based Effluent Limits (TBELs)

The carbonaceous biochemical oxygen demand (CBOD₅), total suspended solids (TSS), pH, and percent removal limits are technology based limits developed for achieving secondary treatment standards. These limits are specified in 40 CFR §133.102 and Minn. R. 7050.0211 and Minn. R. 7053.0215.

Water Quality Based Effluent Limits (WQBELs)

Water quality based effluent limits in the existing permit have been developed for chlorine. The residual chlorine limit is the final acute value for chlorine found in Minn. R. 7050.0222. This limit is determined necessary to protect the use classification of the receiving water.

State Discharge Restrictions

The limit for fecal coliform has been developed to meet discharge restrictions specified under Minn. R. 7053.0255.

Table 4: Existing Limits and Monitoring Requirements

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency
CBOD ₅	161	kg/day	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	2 x Week
CBOD ₅	25	mg/L	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	2 x Week
CBOD ₅	257	kg/day	Maximum Calendar Week Average	Jan-Dec	24-Hour Flow Composite	2 x Week
CBOD ₅	40	mg/L	Maximum Calendar Week Average	Jan-Dec	24-Hour Flow Composite	2 x Week
CBOD ₅ % Removal	85	%	Minimum Calendar Month Average	Jan-Dec	Calculation	2 x Week
Chloride, Total	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Month
Total Residual Chlorine,	0.038	mg/L	Daily Maximum	Jan-Dec	Grab	1 x Day
Fecal Coliform	200	#100ml	Calendar Month Geometric Mean	Apr-Oct	Grab	2 x Week
Hardness (as CaCO ₃)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Calculation	1 x Month
Dissolved Mercury (as Hg)	Monitor Only	ng/L	Calendar Quarter Maximum	Jan-Dec	Grab	1 x Quarter
Total Mercury (as Hg)	Monitor Only	ng/L	Calendar Quarter Maximum	Jan-Dec	Grab	1 x Quarter
Ammonia, Total (as N)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	1 x Month
Dissolved Oxygen	Monitor Only	mg/L	Calendar Month Minimum	Jan-Dec	Grab	1 x Day
pH	9	SU	Calendar Month Maximum	Jan-Dec	Grab	1 x Day
pH	6	SU	Calendar Month Minimum	Jan-Dec	Grab	1 x Day
Total Phosphorus (as P)	Monitor Only	kg/day	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	1 x Week
Total Phosphorus (as P)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	1 x Week
Total Dissolved Solids (TDS)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Month
TSS	290	kg/day	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	2 x Week
TSS	30	mg/L	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	2 x Week

Table 4, Cont.

TSS	193	kg/day	Maximum Calendar Week Average	Jan-Dec	24-Hour Flow Composite	2 x Week
TSS	45	mg/L	Maximum Calendar Week Average	Jan-Dec	24-Hour Flow Composite	2 x Week
TSS % Removal	85	%	Minimum Calendar Month Average	Jan-Dec	Calculation	2 x Week
Specific Conductance	Monitor Only	umh/cm	Calendar Month Average	Jan-Dec	Grab	1 x Month
Total Sulfate (as SO ₄)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	Grab	1 x Month

Proposed Permit Effluent Limits

The effluent limits and monitoring requirements in the draft permit are presented in Table 5. This table lists both water quality based and technology based effluent limits, and state discharge restrictions.

Technology Based Effluent Limits

Limits for CBOD₅, TSS, pH and percent removal continue to be technology based limits, as specified by 40 CFR §133.102 and Minn. R. 7053.0215.

Water Quality Based Limits

The limits for phosphorus, total chloride and total residual chlorine (TRC) are water quality based limits. The TRC limit is the final acute value for chlorine found in Minn. R. 7050.0222. This limit is determined to be necessary to protect the use classification of the receiving water.

State Discharge Restrictions

The limit for fecal coliform was developed to meet the requirements specified under Minn. R. 7053.0255.

Table 5. Proposed effluent limits and monitoring requirements

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency
Bicarbonates	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	24-Hour Flow Composite	1 x Month
CBOD ₅	161	kg/day	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	2 x Week
CBOD ₅	25	mg/L	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	2 x Week
CBOD ₅	257	kg/day	Maximum Calendar Week Average	Jan-Dec	24-Hour Flow Composite	2 x Week

Table 5, cont.

CBOD ₅	40	mg/L	Maximum Calendar Week Average	Jan-Dec	24-Hour Flow Composite	2 x Week
CBOD ₅ Percent Removal	85	%	Minimum Calendar Month Average	Jan-Dec	Calculation	2 x Week
Calcium, Total (as Ca)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	24-Hour Flow Composite	1 x Month
Chloride, Total	1720	mg/L	Daily Maximum	Jan-Dec	24-Hour Flow Composite	2 x Week
Total Residual Chlorine	0.038	mg/L	Daily Maximum	Jan-Dec	Grab	1 x Day
Fecal Coliform	200	#100ml	Calendar Month Geometric Mean	Apr-Oct	Grab	2 x Week
Flow	Monitor Only	mgd	Calendar Month Average	Jan-Dec	Measurement Continuous	1 x Day
Flow	Monitor Only	mgd	Calendar Month Maximum	Jan-Dec	Measurement Continuous	1 x Day
Flow	Monitor Only	MG	Calendar Month Total	Jan-Dec	Measurement Continuous	1 x Day
Hardness, (as CaCO ₃)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	24-Hour Flow Composite	1 x Month
Magnesium, Total (as Mg)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	24-Hour Flow Composite	1 x Month
Mercury, Dissolved (as Hg)	Monitor Only	ng/L	Calendar Month Maximum	May, Sep	Grab	1 x Month
Mercury, Total (as Hg)	Monitor Only	ng/L	Calendar Month Maximum	May, Sep	Grab	1 x Month
Nitrite Plus Nitrate, Total (as N)	Monitor Only	mg/L	Calendar Month Average	Apr, Sep	24-Hour Flow Composite	1 x Month
Ammonia, Total (as N)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	1 x Month
Nitrogen, Kjeldahl, Total	Monitor Only	mg/L	Calendar Month Average	Apr, Sep	24-Hour Flow Composite	1 x Month
Oxygen, Dissolved	Monitor Only	mg/L	Calendar Month Minimum	Jan-Dec	Grab	1 x Day
pH	9	SU	Calendar Month Maximum	Jan-Dec	Grab	1 x Day
pH	6	SU	Calendar Month Minimum	Jan-Dec	Grab	1 x Day
Phosphorus, Total (as P)	Monitor Only	mg/L	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	2 x Week
Phosphorus, Total (as P)	Monitor Only	kg/mo	Calendar Month Total	Jan-Dec	24-Hour Flow Composite	2 x Week

Table 5, cont.

Phosphorus, Total (as P)	1879	kg/yr	Calendar Year To Date Total	Jan-Dec	Calculation	2 x Week
Potassium, Total (as K)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	24-Hour Flow Composite	1 x Month
Sodium, Total (as Na)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	24-Hour Flow Composite	1 x Month
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	24-Hour Flow Composite	1 x Month
Solids, Total Suspended (TSS)	193	kg/day	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	2 x Week
TSS	30	mg/L	Calendar Month Average	Jan-Dec	24-Hour Flow Composite	2 x Week
TSS	290	kg/day	Maximum Calendar Week Average	Jan-Dec	24-Hour Flow Composite	2 x Week
TSS	45	mg/L	Maximum Calendar Week Average	Jan-Dec	24-Hour Flow Composite	2 x Week
TSS Percent Removal	85	%	Minimum Calendar Month Average	Jan-Dec	Calculation	2 x Week
TSS, grab (Mercury)	Monitor Only	mg/L	Calendar Month Maximum	May, Sep	Grab	1 x Month
Specific Conductance	Monitor Only	umh/cm	Calendar Month Maximum	Jan-Dec	Measurement	1 x Month
Sulfate, Total (as SO ₄)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	24-Hour Flow Composite	1 x Month

Reasonable Potential Determinations - Federal regulations require the MPCA to evaluate the discharge to determine whether the discharge has the reasonable potential to cause or contribute to a violation of water quality standards. The MPCA must use acceptable technical procedures accounting for variability (coefficient of variation, or CV), when determining whether the effluent causes, has the reasonable potential to cause, or contributes to an excursion of an applicable water quality standard. Projected effluent quality (PEQ) derived from effluent monitoring data is compared to Preliminary Effluent Limits (PELs) determined from mass balance inputs. Both determinations account for effluent variability. Where PEQ exceeds the PEL, there is reasonable potential to cause or contribute to a water quality standards excursion. When Reasonable Potential (RP) is indicated, the permit must contain a water quality-based effluent limit (WQBEL) for that pollutant.

The priority pollutant scan information of the effluent was evaluated using reasonable potential procedures. All of the organic priority pollutants were below the level of detection. Since these pollutants were at low enough levels not to be detected, reasonable potential to cause or contribute to a water quality standards excursion is not indicated. From the priority pollutant scan list, reasonable potential evaluations were done on Arsenic, copper, chromium, lead, nickel, selenium, and zinc.

Total lead, total chromium, total copper, total dissolved solids (TDS), total sulfate (Class 2 and Class 4), specific conductivity, total nickel, total selenium, total arsenic, and hardness (as CaCO₃) indicated no reasonable potential to cause or contribute to an excursion above the applicable water quality standard.

Reasonable potential to cause or contribute to an excursion above the applicable water quality standard was found for the class 2 chloride water quality standard (WQS) and the mercury WQS. As discussed below, in regards to the reasonable potential for mercury, Environmental Analysis and Outcomes (EAO) staff believes the reasonable potential was caused by an outlier data point.

Class 2 chloride WQS- Reasonable potential to cause or contribute to the excursion above a water quality standard has been indicated for chloride in regards to the class 2B WQS. The EAO staff recommends the final acute value WQS of 1720 mg/l as an end of pipe limit.

Mercury- Monitoring results of the effluent include 20 data points at a calculated coefficient of variation (CV) of 0.5035. PEQ is derived as an upper bound value from the highest value measured (13.5 nanograms per liter (ng/l), and the determined variability (CV = 0.5035) and number of data points (20). The preliminary effluent limit (PEL) calculation assumes that the background mercury concentration is at the water quality standard (6.9 ng/l) when the listed stream impairment is for fish consumption advice, and no local river water column analytical data exist. To assure that the discharge does not cause or contribute to a water quality standards excursion for mercury impaired waters, the numeric water quality standard (6.9) is applied at the point of discharge for the mass balance equation for the subsequent preliminary effluent limit calculations.

Since PEQ exceeds the PEL in this case, reasonable potential to cause or contribute to an excursion above water quality standards is indicated. However, the reasonable potential was based off of a maximum data point of 13.5 ng/l. The EAO staff reviewed that data point to determine if it was an outlier. The data point is much higher than the other data. The next highest data point is 8.8 ng/l. This data value has occurred twice in the data set. EAO staff could not find any evidence that there was an analytical error at the lab. However, the EAO staff does not have total suspended solids (TSS) information associated with this particular mercury sample. Nevertheless, in reviewing the data set, 13.5 ng/l is quite a bit higher than the other mercury concentrations in the data set. The EAO staff believes the 13.5 ng/l mercury data point is an outlier and as such is not recommending a water quality-based effluent limit (WQBEL) for mercury.

Acute Whole Effluent Toxicity (WET) need for permit limits - Minn. R. 7053.0215, subp. 1 “Minimum secondary treatment for municipal point source and other point source dischargers of sewage”, specifies that the discharge shall not be acutely toxic or exceed the final acute value, unless the effluent satisfies acute whole effluent toxicity test conditions (i.e., less than 50 percent mortality for a sensitive organism). A discharge that exceeds mortality requirements of the rule requires a permit limit.

The Facility has acute Whole Effluent Toxicity (WET) monitoring as a requirement in its previous permit cycle. A total of eight acute test batteries were performed. The Facility has acute WET testing because the ratio of the 7Q10 low flow of the receiving water compared to the Facility’s (average dry weather flow (used for publicly owned treatment works)/ maximum daily flow (used for all others)) is greater than 20:1. In the previous permit cycle three acute toxicity tests were found to be above the monitoring threshold value of 0.9999 TUa (Toxicity Unit, acute). Because there were one or more exceedances of the 0.9999 TUa, reasonable potential to exceed the WET threshold value was found. Because reasonable potential has been shown, an acute WET limit of 0.9999 TUa has been established.

Phosphorus - Currently, the Facility has an average wet weather design flow (AWWDF) of 1.7 million gallons per day (mgd). Over the past three years the Facility discharged at an average total phosphorus (TP) concentration of 1.54 mg/L. At full AWWDF this equates to a maximum potential load of 3,622 kg/yr. The Facility discharges to the Blue Earth River upstream of a reach of the Lower Minnesota River impaired for low dissolved oxygen due to excess TP. As such, the Facility has a wasteload allocation in Appendix B of the Minnesota River Basin General Phosphorus Permit (Basin Permit). Excess TP loading has been offset through pollutant trading contracts because the Facility did not have the capacity to remove phosphorus.

Total phosphorus limits for NPDES Permittees are defined in Minn. R. 7053.0255. Facilities that are expanding beyond a defined de minimus threshold (1,800 lbs/yr TP) or who discharge directly to or affect a lake are typically given a 1.0 mg/L TP concentration limit. In some cases, this limit may be more restrictive. The Facility is not expanding and does not affect a downstream lake, as defined by State Rule. Therefore, a 1.0 mg/L concentration limit is not justified at this time. However, other downstream impairments, as described below, will require a more restrictive TP mass limit.

Effluent from the Facility is also discharged upstream of Lake Pepin, a reservoir on the Mississippi River. In 2002, Lake Pepin was placed on the federal Clean Water Act Section 303(d) list of impaired waters due to excess nutrients. A TMDL study is currently being developed and a significant portion of the modeling analysis has been completed. Phosphorus is the primary nutrient responsible for excess algal growth in Lake Pepin. Federal law [40 CFR § 122.44(d)] restricts mass increases upstream of impaired waters and states that all NPDES dischargers that have the reasonable potential (RP) to cause or contribute to downstream impaired waters are required to have a water quality based effluent limit (WQBEL). When determining reasonable potential, the Code of Federal Regulations also states that the MPCA shall use procedures which account for existing controls on point and nonpoint sources of pollution. Permittees are found to have RP for TP if: 1) they discharge upstream of a nutrient impaired waterbody, 2) they discharge at TP concentrations greater than the ambient target, and 3) there is no geographical barrier capable of trapping a significant mass of nutrients between the outfall and the impairment. For all reasons listed above, The Facility is found to have RP for TP upstream of Lake Pepin. Therefore, The Facility is required to have a TP WQBEL. It is recommended that the Facility receive a 1879 kg/yr TP WQBEL which was derived from a draft TMDL wasteload allocation (WLA) as described below. Draft WLAs in combination with other point and nonpoint reductions are sufficient to meet draft criteria in Lake Pepin designed to support the designated uses of this water resource.

A computer reservoir model for Lake Pepin was developed by MPCA modeling consultant, LimnoTech, to evaluate site specific eutrophication criteria (criteria) and the reductions necessary to achieve these criteria (LTI 2008). Using the best available science, draft criteria for Lake Pepin were determined to be 100 µg/L for TP and 32 µg/L for chlorophyll-a (Heiskary and Wasley 2008). Within the model, all major sources of TP upstream of Lake Pepin were considered, and 21 separate scenarios were developed. Scenario 17 achieved compliance with the draft criteria and predicted the following TP reductions from tributaries would be necessary: 50 percent from the Minnesota River and Cannon River and 20 percent from the Mississippi River upstream of Lock and Dam 1 and the St. Croix River. Again, per Code of Federal Regulations, it was assumed that reductions would be from both point and nonpoint sources. During the modeling process MPCA staff simultaneously developed draft WLAs, compatible with scenario 17 reductions for all NPDES dischargers within the contributing watershed.

A categorical approach was used to develop individual WLAs for the draft Lake Pepin TMDL. The Facility fits into Municipal Major (MM) category defined by municipal facilities with AWWDFs between 1 and 20 mgd. Individual MM WLAs are calculated as follows:

General Formula:

$$\text{MM WLA} = (\text{AWWDF} \times 0.8 \text{ mg/L TP} \times 3.785 \text{ L/gal} \times 365 \text{ days/yr})$$

City of Winnebago WWTP draft WLA:

$$1879 \text{ kg/yr TP} = (1.7 \text{ mgd} \times 0.8 \text{ mg/L} \times 3.785 \text{ L/gal} \times 365 \text{ days/yr})$$

Summary

Given that the Facility is not expanding and does not affect a downstream lake, as defined by Minn. R. 7053.0255, it is not required by State Rules to receive a 1.0 mg/L TP limit. Nonetheless, it was determined that The Facility has RP to cause or contribute to the excess nutrient impairment in Lake Pepin and is therefore required to have a WQBEL. The recommended TP WQBEL (1879 kg/yr) is derived from the WLA for the draft Lake Pepin excess nutrient TMDL study. This mass limit was developed using the best available science and is equivalent to a WQBEL because it is designed such that Lake Pepin will achieve water quality standards. It should be noted that The Facility can currently meet the recommended WQBEL, but as actual flow increases TP removal will be necessary to remain in compliance. Also, more restrictive TP limits may be necessary following the completion of the Lake Pepin TMDL study and the adoption of numeric river nutrient criteria during the next triennial rulemaking session.

Additional Requirements

Mercury Minimization Plan

The Permittee is required to submit a Mercury Minimization Plan (MMP). The MMP requirements include educating users with regard to proper mercury disposal in order to prevent its introduction into the waste stream.

Salty Discharges

In recent years, the MPCA staff became aware of issues associated with “salty discharges” from industrial discharges, as well as some discharges from water treatment plants. As a result of increased concern regarding salty discharges, the MPCA staff determined that there is a need to obtain more information from dischargers. All industrial and municipal facilities with continuous, periodic/seasonal, or intermittent waste flows, where the receiving water stream flow to effluent design flow dilution ratio under low flow conditions is less than 5:1, will be required to monitor effluent for the parameters of Chloride, Ca and Mg Hardness as CaCO₃, Specific Conductance, Total Dissolved Salts (AKA solids), Sulfates as SO₄, Bicarbonates, Sodium, Calcium, Magnesium, Potassium, and Total Salinity at 25 degrees Celsius. These parameters have been added to the draft permit and are required to be sampled on a monthly basis. If monitoring results indicate a reasonable potential for any of the parameters, the Permittee will be required to submit an application for a permit modification and a compliance schedule (if appropriate) will be added to the permit to ensure progress toward meeting the standards. Permittees may request a reduction in monitoring after two years of data, if the monitoring does not indicate a reasonable potential to exceed a limit.

Total Facility Requirements

All NPDES/SDS Permits issued in the state of Minnesota contain certain conditions that remain the same regardless of the size, location, or type of discharge. The standard conditions satisfy the requirements outlined in 40 CFR § 122.41, Minn. R. 7001.0150, and Minn. R. 7001.1090. These conditions are listed in the Total Facility Requirements chapter of the NPDES/SDS Permit. These requirements cover a wide range of areas, including recordkeeping, sampling, equipment calibration, equipment maintenance, reporting, facility upsets, bypass, solids handling, changes in operation, facility inspections, and permit modification and reissuance.

Nondegradation and Anti-Backsliding

In accordance with MPCA rules regarding nondegradation for all waters that are not Outstanding Resource Value Waters, nondegradation review is required for any new or expanded significant discharge (Minn. R. 7050.0185). A significant discharge is, 1) a new discharge (not in existence before January 1, 1988) that is greater than 200,000 gpd to any water other than a Class 7 water, or 2) an expanded discharge that expands by greater than 200,000 gpd that discharges to any water other than a Class 7 water, or 3) a new or expanded discharge containing any toxic pollutant at a mass loading rate likely to increase the concentration of the toxicant in the receiving water by greater than one percent over the baseline quality. The flow rate used to determine significance is the design AWW flow. The January 1, 1988, design AWW flow for this facility is 1,700,000 gpd.

This Permit also complies with Minn. R. 7053.0275, regarding anti-backsliding. Any point source discharger of sewage, industrial, or other wastes for which an NPDES Permit has been issued by the MPCA, that contains effluent limits more stringent than those that would be established by parts [7053.0215](#) to [7053.0265](#), shall continue to meet the effluent limits established by the permit, unless the permittee establishes that less stringent effluent limits are allowable pursuant to federal law, under section 402(o) of the Clean Water Act, United States Code, title 33, section 1342.