

Permit Fact Sheet

General Information

Permit Number:	WI-0030937-11-0	
Permittee Name:	Village of Gilman	
Address:	PO Box 156	
City/State/Zip:	Gilman WI 54433-0156	
Discharge Location:	South Gilman Drive, Gilman, Wisconsin (NW ¼ SW ¼ of Section 24; T31N-R4W)	
Receiving Water:	A wetland tributary to the Yellow River in the Upper Yellow River Watershed in the Lower Chippewa River Drainage Basin in Taylor County.	
StreamFlow (Q _{7,10}):	Estimated zero flow for the wetland tributary	
Stream Classification:	<p>Wetland tributary: Limited Aquatic Life (LAL) community (Table 8, Row 5, of s. NR 104.10(2), Wis. Adm. Code).</p> <p>Yellow River: Warm Water Sport Fish (WWSF) community.</p> <p>All surface waterbodies are considered non-public water supplies and within the ceded territory.</p>	
Wild Rice Impacts:	No impacts identified at this location. No wild rice waters inventoried near the outfall. (Evaluation complete March 2017)	
Discharge Type:	Existing continuous discharger	
Design Flow(s)	Annual Average	0.125 MGD
Significant Industrial Loading?	None	
Operator at Proper Grade?	Yes	
Approved Pretreatment Program?	N/A	

Facility Description

The Village of Gilman wastewater treatment facility serves a population of approximately 392 with no significant industrial contributors. The plant designed to treat 125,000 gallons per day, currently treats an average of 73,000 gallons per day (June 2019 – June 2024). Wastewater (influent) generated from homes and businesses flows through a bar screen that removes large solids prior to flowing into two settling/septic tanks where smaller solids are settled out. Wastewater exiting the septic tanks next travels to a dosing tank, and then to a filter bed that is divided into three zones. The filter bed is constructed of layers of fine and coarse sand where naturally occurring microorganisms living on the sand particles metabolize the remaining solids. After passing through the filter bed, some of the water is then sent back to the dosing tank for recirculation through the filters. The remaining portion is discharged to a wetland tributary of the Yellow River in Taylor County. The solids from the settling/septic tanks are pumped regularly to prevent the discharge of accumulated solids to the sand filters. These solids are considered septage and are regulated under NR 113, Wisconsin Administrative Code, for septage disposal.

Substantial Compliance Determination

Enforcement During Last Permit: There have been two minor effluent violations and a few missed samples. The facility has made the necessary corrections, and nothing further is required.

After a desk top review of all discharge monitoring reports, CMARS, CMOM, and a site visit on June 22, 2023, by Arthur Ryzak, WDNR, the Village of Gilman has been found to be in substantial compliance with their current permit.

Sample Point Designation		
Sample Point Number	Discharge Flow, Units, and Averaging Period	Sample Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)
701	INFLUENT An average of 0.06 MGD (June 2019 – June 2024)	Representative samples shall be collected immediately downstream of the dairy influent line in the wet well of the main lift station.
001	EFFLUENT An average of 0.073 MGD (June 2019 – June 2024)	Representative samples shall be collected from the effluent flume in the final manhole before discharge to the wetland.
901	SEPTAGE Flow is not a required parameter.	All septic tank solids shall be managed in compliance with Chapter NR 113, Wisconsin Administrative Code, regarding servicing or holding tanks.

1 Influent – Monitoring Requirements

Sample Point Number: 701- INFLUENT TO PLANT

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
BOD5, Total		mg/L	Weekly	24-Hr Flow Prop Comp	
Suspended Solids, Total		mg/L	Weekly	24-Hr Flow Prop Comp	

Changes from Previous Permit:

Influent limitations and monitoring requirements were re-evaluated for the proposed permit term and the following changes were made from the previous permit. See additional explanation of limits under “Explanation of Limits and Monitoring Requirements” below.

- The Flow Rate sample frequency was changed from “Continuous” to “Daily” to better represent practices at the facility.

Explanation of Limits and Monitoring Requirements

The parameters are standard for minor municipalities, as are monitoring and frequency requirements for municipal wastewater treatment plant. Tracking of BOD5, and Suspended Solids are required for percent removal requirements found in s. NR 210.05, Wis. Adm. Code.

2 Surface Water - Monitoring and Limitations

Sample Point Number: 001- EFFLUENT

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Total Daily	
BOD5, Total	Monthly Avg	20 mg/L	Weekly	Grab	
BOD5, Total	Weekly Avg	30 mg/L	Weekly	Grab	
Suspended Solids, Total	Monthly Avg	20 mg/L	Weekly	Grab	
Suspended Solids, Total	Weekly Avg	30 mg/L	Weekly	Grab	
Dissolved Oxygen	Daily Min	4.0 mg/L	Weekly	Grab	
pH Field	Daily Max	9.0 su	Weekly	Grab	
pH Field	Daily Min	6.0 su	Weekly	Grab	
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	24 mg/L	Weekly	Grab	Monthly average limit is effective April through May.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	15 mg/L	Weekly	Grab	Monthly average limit is effective June through September.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	34 mg/L	Weekly	Grab	Monthly average limit is effective October through March.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	59 mg/L	Weekly	Grab	Weekly average limit is effective April through May.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	37 mg/L	Weekly	Grab	Weekly average limit is effective June through September.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	84 mg/L	Weekly	Grab	Weekly average limit is effective October through March.

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Nitrogen, Ammonia (NH3-N) Total	Daily Max - Variable	mg/L	Weekly	Grab	Enter the daily ammonia result on the eDMR and compare to the Nitrogen, Ammonia Variable Limit column to determine compliance.
Nitrogen, Ammonia Variable Limit		mg/L	Weekly	See Table	Using the daily pH result look up the applicable ammonia limit in the Ammonia Limitation section and report the variable limit on the eDMR.
E. coli	Geometric Mean - Monthly	126 #/100 ml	Weekly	Grab	Monitoring and limit effective May through September annually per the Effluent Limitations for E. coli Schedule.
E. coli	% Exceedance	10 Percent	Monthly	Calculated	Monitoring and limit effective May through September annually per the Effluent Limitations for E. coli Schedule. See the E. coli Percent Limit section. Enter the result in the DMR on the last day of the month.
Phosphorus, Total	Monthly Avg	13 mg/L	Weekly	Grab	Interim limit in place until final limits effective per Water Quality Based Effluent Limits for Total Phosphorus schedule. See the Phosphorus Water Quality-Based Effluent Limitation(s) section for more information.
Chloride		mg/L	Monthly	Grab	Monthly monitoring is required during 2026.
PFOS		ng/L	1/ 2 Months	Grab	Monitoring only. See PFOS/PFOA Minimization Plan Determination of Need schedule.

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
PFOA		ng/L	1/ 2 Months	Grab	Monitoring only. See PFOS/PFOA Minimization Plan Determination of Need schedule.
Nitrogen, Total Kjeldahl		mg/L	See Listed Qtr(s)	Grab	See the Nitrogen Series Monitoring subsection for testing schedule.
Nitrogen, Nitrite + Nitrate Total		mg/L	See Listed Qtr(s)	Grab	See the Nitrogen Series Monitoring subsection for testing schedule.
Nitrogen, Total		mg/L	See Listed Qtr(s)	Calculated	Total Nitrogen = Total Nitrogen Kjeldahl (mg/L) + Nitrite + Nitrate Nitrogen (mg/L). See the Nitrogen Series Monitoring subsection for testing schedule.
Acute WET		TUa	See Listed Qtr(s)	24-Hr Flow Prop Comp	Two tests are required during the permit term. See the Whole Effluent Toxicity (WET) testing section for monitoring schedule.

Changes from Previous Permit

Effluent limitations and monitoring requirements were re-evaluated for the proposed permit term and the following changes were made from the previous permit. See additional explanation of limits under “Explanation of Limits and Monitoring Requirements” below.

- The **ammonia variable limits table** was updated from the previous permit term.
- An **E. coli** schedule to comply with the limits has been included. At the end of the schedule seasonal limits are required. Monitoring is not required until the limit becomes effective.
- **Phosphorus** monitoring and schedule to comply with water quality-based limits (WQBEL) have been included. An interim limit, effective until the schedule is complete is required.
- **PFOS + PFOA** monitoring once every two months and minimization schedule have been included.
- Annual **Total Nitrogen** (TKN, N02+N03 and Total N) monitoring in rotating quarters was added.
- Two **Acute WET** tests are required during the permit term.

Explanation of Limits and Monitoring Requirements

More information on categorical and water quality-based limits (WQBEL) is found in the “Water Quality-Based Effluent Limitations for the Village of Gilman, (WI-0030937)” memo dated August 14, 2024.

BOD₅ and Total Suspended Solids (TSS) - Categorical limits for BOD₅ and TSS are required per s. NR 210.05, Wis. Adm. Code and NR 104.02(3) Wis. Adm. Code

Dissolved Oxygen (DO) - Categorical limits for DO in a Limited Aquatic Life (marginal surface waters) are found in NR 104.02(3)(b) and 210.05(3) Wis. Adm. Code.

pH - Categorical limits for pH are required per ch. NR 210 (Subchapter II).

Ammonia – Using current acute and chronic ammonia toxicity criteria found in Tables 2C and 4B of NR 105 Wis. Adm. Code and limit calculating procedures (Subchapter IV of 106, Wis. Adm. Code) ammonia limitations were calculated for the facility. Daily maximum limits expressed as a variable limit based on effluent pH has been carried over from the last permit term. The limits listed in the table were re-evaluated and updated in accordance with s. NR 106.32(2), Wis. Adm. Code. Sample results for pH shall be used to calculate the daily variable limit. Total ammonia (NH₃-N) sampling shall occur on the same day pH levels are monitored. The applicable variable limit shall be recorded on the Electronic Discharge Monitoring Report (eDMR) in the Ammonia Variable Limit column. Report the effluent ammonia sample result in the ‘Nitrogen, Ammonia (NH₃-N) Total’ column. Compare the variable daily maximum ammonia limit to the reported ammonia result, record the number of exceedances in the box to the right of the ‘Limit in Effect’ ‘Daily Max’ row in the ‘Summary’ tables at the end of the eDMR.

Variable Limits Table
Daily maximum ammonia limits based on Effluent pH

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
6.0 ≤ pH ≤ 6.1	83	7.0 < pH ≤ 7.1	51	8.0 < pH ≤ 8.1	11
6.1 < pH ≤ 6.2	82	7.1 < pH ≤ 7.2	46	8.1 < pH ≤ 8.2	8.8
6.2 < pH ≤ 6.3	80	7.2 < pH ≤ 7.3	40	8.2 < pH ≤ 8.3	7.3
6.3 < pH ≤ 6.4	78	7.3 < pH ≤ 7.4	35	8.3 < pH ≤ 8.4	6.0
6.4 < pH ≤ 6.5	75	7.4 < pH ≤ 7.5	31	8.4 < pH ≤ 8.5	5.0
6.5 < pH ≤ 6.6	72	7.5 < pH ≤ 7.6	26	8.5 < pH ≤ 8.6	4.1
6.6 < pH ≤ 6.7	69	7.6 < pH ≤ 7.7	22	8.6 < pH ≤ 8.7	3.4
6.7 < pH ≤ 6.8	65	7.7 < pH ≤ 7.8	19	8.7 < pH ≤ 8.8	2.8
6.8 < pH ≤ 6.9	60	7.8 < pH ≤ 7.9	16	8.8 < pH ≤ 8.9	2.4
6.9 < pH ≤ 7.0	56	7.9 < pH ≤ 8.0	13	8.9 < pH ≤ 9.0	2.0

The calculated Weekly Average limits and Monthly Average limits were also considered. There is not a reasonable potential for the Weekly or Monthly Average limits to be exceeded but based on anti-backsliding requirements (NR 207, Wis. Adm. Code) the limitations are retained.

Disinfection & E. coli: Revisions to bacteria surface water quality criteria to protect recreational uses and accompanying E. coli WPDES permit implementation procedures became effective May 1, 2020.

Section NR 102.04(5)(a), Wis. Adm. Code, states that all surface waters shall be suitable for recreational use and meet the E. coli criteria established to protect this use. Section NR 102.04(5)(b), Wis. Adm. Code, states that exceptions to the disinfection requirement can be made if the department determines, in accordance with the procedures specified in s. NR 210.06(3), Wis. Adm. Code, that disinfection is not required to meet water quality criteria. As part of the reissuance process, the requirements for disinfection were reviewed under s. NR 210.06(3), Wis. Adm. Code.

It was determined that the permittee is required to disinfect, during May – September. See WQBEL dated August 14, 2024, for further explanation.

Phosphorus - Phosphorus requirements are based on the Phosphorus Rules as detailed in NR 102 (water quality standards) and NR 217, Wis. Adm. Code (effluent standards and limitations for phosphorus). Chapter NR 217 of the Wis. Adm. Code addresses point source dischargers of phosphorus to surface waters. Currently in NR 217 Wis. Adm. Code there are three types of limit calculations used to determine if a phosphorus limit is needed: a technology based effluent

limit (TBEL), a water quality-based effluent limit (WQBEL) determined by stream criteria and a WQBEL based on a Total Daily Maximum Daily Load (TMDL) allocation.

In the case of the Village of Gilman:

- A TBEL of 1.0 mg/L is needed if a facility discharges more than the threshold of 150 pounds per month (s. NR 217.04(1)(a)1 Wis. Adm. Code). The limit memo state that the facility discharges less than the threshold; therefore, a TBEL is not applicable this permit term.
- Phosphorus criteria in s. NR 102.06, Wis. Adm. Code, do not apply to Limited Aquatic Life (LAL) community waters, but based on ss. 217.12 and 217.13, Wis. Adm. Code, WQBELs must be set to protect downstream waters. The Yellow River is a WWSF community downstream of Outfall 001. Based on the size and classification of the river, the categorical water quality criterion is 75 ug/L. This criterion and instream background phosphorus data are used to calculate the stream criteria-based WQBELs. The calculated WQBELs are **0.225 mg/L (monthly average), 0.075 mg/L (6-month average) and 0.078 lbs/day (6-month average)**. *(Please note: compliance with the 6-month average is measured each April and October.)*

Based on current effluent and operational data the facility will not be able to meet the limit. NR 217 Wis. Adm. Code provides for alternative means of achieving the equivalent reduction of discharged phosphorus including include pollutant trading and adaptive management. A schedule of up to 9 years to achieve stringent phosphorus limits is allowed. This permit includes an **interim limit of 13 mg/L monthly average** through the permit term and a schedule targeted at achieving the limits. The schedule contains dates for evaluations and plan submittals which occur during the term of this permit. It also contains informational implementation dates that do not take effect until the next permit reissuance.

- The facility does not lie within the boundaries of any approved total maximum daily load (TMDL) area, thus a phosphorus WQBEL based on a TMDL allocation is likewise not required during this permit term.

Chloride – Monthly monitoring during the 2026 calendar year will be used to determine if limits are needed for the next permit reissuance per data requirements of s. NR 106.85, Wis. Adm. Code.

PFOS and PFOA – NR 106 Subchapter VIII – Permit Requirements for PFOS and PFOA Dischargers became effective on August 1, 2022. At the first reissuance of a WPDES permit after August 1, 2022, the new rule requires WPDES permits for municipal dischargers with an average flow rate less than 1 MGD, to be evaluated on a case-by-case basis to determine if monitoring is required pursuant to s. NR 106.98(2)(c), Wis. Adm. Code. The department evaluated the need for PFOS and PFOA monitoring taking into consideration the presence of potential PFOS or PFOA industrial wastes, remediation sites and other potential sources of PFOS or PFOA. Based on information available at the time the proposed permit was drafted, it was identified that the POTW has an indirect discharger that may be a potential source of PFOS/PFOA and the source water has known levels of PFOS/PFOA.

Therefore, monitoring once every two months is included. A sample frequency of 1/2 months means one sample is taken during any two-month period. Examples of 1/2 month sample would be every other month (Jan, March, May, etc.) or back-to-back months with a break in between (February & March, May & June, Aug & Sept, etc.). DMR Short Forms will be generated for the following time periods: January-February, March-April, May-June, July-August, September-October, and November-December. At a minimum one sample result will be present on each form.

The initial determination of the need for sampling shall be conducted for up to two years in order to determine if the permitted discharge has the reasonable potential to cause or contribute to an exceedance of the PFOS or PFOA standards under s. NR 102.04(8)(d)1, Wis. Adm. Code.

Nitrogen Series - (nitrate +nitrite, total Kjeldahl nitrogen and total nitrogen) – In 2011, the Upper Mississippi River Basin Association (UMRBA) completed the report “Upper Mississippi River Nutrient Monitoring, Occurrence, and Local Impacts: A Clean Water Act Perspective”. Among the many recommendations of this report was that the states should expand their NPDES discharge monitoring requirements to include both phosphorus and nitrogen as they have important

impacts on the mainstem upper Mississippi River as well as in the Gulf of Mexico. Consequently, the department developed the “Guidance for Total Nitrogen Monitoring in WPDES Permits” document dated October 2019, where annual effluent monitoring for total nitrogen (total nitrogen = total Kjeldahl + (nitrite+nitrate)) is required for municipal and industrial facilities discharging to surface waters. Section 283.55(1)(e) Wis. Stats. allows the department to require the permittee to submit information necessary to identify the type and quantity of any pollutants discharged from the point source, and s. NR 200.065 (1)(h) Wis. Adm. Code allows for this monitoring to be collected during the permit term. The schedule for this facility is as follows:

- July – September 2025
- October – December 2026
- January – March 2027
- April – June 2028
- July – September 2029

Testing shall continue after the permit expiration date (until the permit is reissued) in accordance with the requirements for 2026. For example, the next test would be required July - September 2030.

Whole Effluent Toxicity - Whole effluent toxicity (WET) testing requirements are determined in accordance with ss. NR 106.08 and NR 106.09 Wis. Adm. Code, as revised August 2016. (See the current version of the Whole Effluent Toxicity Program Guidance Document and checklist and WET information, guidance and test methods at <http://dnr.wi.gov/topic/wastewater/wet.html>)

Based on historical WET test data and reasonable potential factor (RPF) calculations WET tests are required this permit term, but limits are not needed. A WET Checklist was prepared to determine the number of WET tests that are needed. As toxicity potential increases, more points accumulate, and more monitoring is required to assure toxicity is not occurring over the short (acute) and long (chronic) term. Based on the total points accumulated and Chapter 1.3 of the WET Guidance Document two Acute WET Tests are required this permit term during the following quarters:

- October – December 2026
- July – September 2028

Sampling Frequencies - The “Monitoring Frequencies for Individual Wastewater Permits” guidance document (April 12, 2021) recommends that standard monitoring frequencies be included in individual wastewater permits based on the size and type of the facility, in order to characterize effluent quality and variability, to detect events of noncompliance, and to ensure fairness and consistency in permits issued across the state. Guidance and requirements in administrative code were considered when determining the appropriate monitoring frequencies for pollutants that have final effluent limits in effect during this permit term. Previously permitted monitoring frequencies fall below the standard monitoring frequency outlined in guidance. Since data submitted during the previous permit term shows consistent compliance with permit limitations, and the set monitoring frequency is consistent with requirements of state code, the reduced monitoring frequency is continued in the proposed permit. If performance levels begin to vary during the permitted term, the department may re-evaluate current sampling frequencies and implement more frequent monitoring via permit modification or at permit reissuance.

3 Septage Management - Monitoring and Limitations

Septage management is required in accordance with ch. NR 113, Wisconsin Administrative Code. Records must be kept and made available to the Department on request. Required record keeping includes volumes of septage pumped, dates when the septage was removed, land application site DNR number and method used to satisfy pathogen and vector control, and/or the treatment plant where septage is disposed. Annual reporting is required when the permittee land applies the septage. Annual reporting is also required when the permittee disposes of septage at a designated treatment facility.

Sample Point Number: 901- SEPTAGE

Changes from Previous Permit:

Septage requirements in this permit section are the same as the previous permit.

Explanation of Limits and Monitoring Requirements

Requirements for septage management are determined in accordance with ch. NR 113, Wis. Adm. Code.

4 Schedules

4.1 PFOS/PFOA Minimization Plan Determination of Need

Required Action	Due Date
<p>Report on Effluent Discharge: Submit a report on effluent PFOS and PFOA concentrations and include an analysis of trends in monthly and annual average PFOS and PFOA concentrations. This analysis should also include a comparison to the applicable narrative standard in s. NR 102.04(8)(d), Wis. Adm. Code.</p> <p>This report shall include all additional PFOS and PFOA data that may be collected including any influent, intake, in-plant, collection system sampling, and blank sample results.</p>	12/31/2025
<p>Report on Effluent Discharge and Evaluation of Need: Submit a final report on effluent PFOS and PFOA concentrations and include an analysis of trends in monthly and annual average PFOS and PFOA concentrations of data collected over the last 24 months. The report shall also provide a comparison on the likelihood of the facility needing to develop a PFOS/PFOA minimization plan.</p> <p>This report shall include all additional PFOS and PFOA data that may be collected including any influent, intake, in-plant, collection system sampling, and blank sample results.</p> <p>The permittee shall also submit a request to the department to evaluate the need for a PFOS/PFOA minimization plan.</p> <p>If the Department determines a PFOS/PFOA minimization plan is needed based on a reasonable potential evaluation, the permittee will be required to develop a minimization plan for Department approval no later than 90 days after written notification was sent from the Department. The Department will modify or revoke and reissue the permit to include PFOS/PFOA minimization plan reporting requirements along with a schedule of compliance to meet WQBELs. Effluent monitoring of PFOS and PFOA shall continue as specified in the permit until the modified permit is issued.</p> <p>If, however, the Department determines there is no reasonable potential for the facility to discharge PFOS or PFOA above the narrative standard in s. NR 102.04(8)(d), Wis. Adm. Code, no further action is required and effluent monitoring of PFOS and PFOA shall continue as specified in the permit.</p>	12/31/2026

4.2 Disinfection and Effluent Limitations for E. coli

Required Action	Due Date
<p>Progress Report: The permittee shall submit a progress report on development and submittal of a facility plan for upgrades to meet disinfection requirements and E. coli limits.</p>	09/30/2025
<p>Submit Facility Plan: The permittee shall submit a Facility Plan per s. NR 110.09, Wis. Adm. Code for meeting disinfection requirements and complying with E. coli surface water limitations. The permittee may submit an abbreviated facility plan if the Department determines that the modifications are minor.</p>	04/30/2026

Final Plans and Specifications: The permittee shall submit final construction plans to the Department for approval pursuant to ch. NR 108, Wis. Adm. Code, specifying treatment plant upgrades that must be constructed to meet disinfection requirements per s. NR 210.06(1), Wis. Adm Code, achieve compliance with final E. coli limitations, and a schedule for completing construction of the upgrades by the complete construction date specified below.	03/31/2027
Treatment Plant Upgrade to Meet Limitations: The permittee shall initiate bidding, procurement, and/or construction of the project. The permittee shall obtain approval of the final construction plans and schedule from the Department pursuant to s. 281.41, Stats., prior to initiating activities defined as construction under ch. NR 108, Wis. Adm. Code. Upon approval of the final construction plans and schedule by the Department pursuant to s. 281.41, Stats., the permittee shall construct the treatment plant upgrades in accordance with the approved plans and specifications.	09/30/2027
Construction Upgrade Progress Report: The permittee shall submit a progress report on construction upgrades.	09/30/2028
Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades.	03/31/2029
Achieve Compliance: The permittee shall achieve compliance with final E. coli limitations.	04/30/2029

4.3 Water Quality Based Effluent Limits (WQBELs) for Total Phosphorus

The permittee shall comply with the WQBELs for Phosphorus as specified. No later than 14 days following each compliance date, the permittee shall notify the Department in writing of its compliance or noncompliance. If a submittal is required, a timely submittal fulfills the notification requirement.

Required Action	Due Date
<p>Operational Evaluation Report: The permittee shall prepare and submit to the Department for approval an operational evaluation report. The report shall 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 treatment plant during the period prior to complying with final phosphorus WQBELs and, where possible, enable compliance with final phosphorus WQBELs by December 31, 2027. The report shall provide a plan and schedule for implementation of the measures, improvements, and modifications as soon as possible, but not later than December 31, 2027 and state whether the measures, improvements, and modifications will enable compliance with final phosphorus WQBELs. Regardless of whether they are expected to result in compliance, the permittee shall implement the measures, improvements, and modifications in accordance with the plan and schedule specified in the operational evaluation report.</p> <p>If the operational evaluation report concludes that the facility can achieve final phosphorus WQBELs using the existing treatment system with only source reduction measures, operational improvements, and minor facility modifications, the permittee shall comply with the final phosphorus WQBEL by December 31, 2027 and is not required to comply with the milestones identified below for years 3 through 9 of this compliance schedule ('Preliminary Compliance Alternatives Plan', 'Final Compliance Alternatives Plan', 'Final Plans and Specifications', 'Treatment Plant Upgrade to Meet WQBELs', 'Complete Construction', 'Achieve Compliance').</p> <p>STUDY OF FEASIBLE ALTERNATIVES - If the Operational Evaluation Report concludes that the permittee cannot achieve final phosphorus WQBELs with source reduction measures, operational improvements and other minor facility modifications, the permittee shall initiate a study of feasible alternatives for meeting final phosphorus WQBELs and comply with the remaining required actions of this schedule of compliance. If the Department disagrees with the conclusion of the report, and</p>	12/31/2025

determines that the permittee can achieve final phosphorus WQBELs using the existing treatment system with only source reduction measures, operational improvements, and minor facility modifications, the Department may reopen and modify the permit to include an implementation schedule for achieving the final phosphorus WQBELs sooner than December 31, 2033.	
Compliance Alternatives, Source Reduction, Improvements and Modifications Status: The permittee shall submit a 'Compliance Alternatives, Source Reduction, Operational Improvements and Minor Facility Modification' status report to the Department. The report shall provide an update on the permittee's: (1) progress implementing source reduction measures, operational improvements, and minor facility modifications to optimize reductions in phosphorus discharges and, to the extent that such measures, improvements, and modifications will not enable compliance with the WQBELs, (2) status evaluating feasible alternatives for meeting phosphorus WQBELs.	12/31/2026
Preliminary Compliance Alternatives Plan: The permittee shall submit a preliminary compliance alternatives plan to the Department. If the plan concludes upgrading of the permittee's wastewater treatment facility is necessary to achieve final phosphorus WQBELs, the submittal shall include a preliminary engineering design report. If the plan concludes Adaptive Management will be used, the submittal shall include a completed Watershed Adaptive Management Request Form 3200-139 without the Adaptive Management Plan. If water quality trading will be undertaken, the plan must state that trading will be pursued.	12/31/2027
Final Compliance Alternatives Plan: The permittee shall submit a final compliance alternatives plan to the Department. If the plan concludes upgrading of the permittee's wastewater treatment is necessary to meet final phosphorus WQBELs, the submittal shall include a final engineering design report addressing the treatment plant upgrades, and a facility plan if required pursuant to ch. NR 110, Wis. Adm. Code. If the plan concludes Adaptive Management will be implemented, the submittal shall include a completed Watershed Adaptive Management Request Form 3200-139 and an engineering report addressing any treatment system upgrades necessary to meet interim limits pursuant to s. NR 217.18, Wis. Adm. Code. If the plan concludes water quality trading will be used, the submittal shall identify potential trading partners. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	12/31/2028
Progress Report on Plans & Specifications: Submit progress report regarding the progress of preparing final plans and specifications. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	12/31/2029
Final Plans and Specifications: Unless the permit has been modified, revoked and reissued, or reissued to include Adaptive Management or Water Quality Trading measures or to include a revised schedule based on factors in s. NR 217.17, Wis. Adm. Code, the permittee shall submit final construction plans to the Department for approval pursuant to s. 281.41, Stats., specifying treatment plant upgrades that must be constructed to achieve compliance with final phosphorus WQBELs, and a schedule for completing construction of the upgrades by the complete construction date specified below. (Note: Permit modification, revocation and reissuance, and reissuance are subject to s. 283.53(2), Stats.) Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section	12/31/2030

of this permit.	
Treatment Plant Upgrade to Meet WQBELs: The permittee shall initiate construction of the upgrades. The permittee shall obtain approval of the final construction plans and schedule from the Department pursuant to s. 281.41, Stats. Upon approval of the final construction plans and schedule by the Department pursuant to s. 281.41, Stats., the permittee shall construct the treatment plant upgrades in accordance with the approved plans and specifications. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	03/31/2031
Construction Upgrade Progress Report #1: The permittee shall submit a progress report on construction upgrades. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	03/31/2032
Construction Upgrade Progress Report #2: The permittee shall submit a progress report on construction upgrades. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	12/31/2032
Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	06/30/2033
Achieve Compliance: The permittee shall achieve compliance with final phosphorus WQBELs. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	12/31/2033

Explanation of Schedules

Disinfection and Effluent Limitations for E. coli - A compliance schedule is included in the permit to provide time for the permittee to submit plans and specs and install disinfection treatment for meeting effluent E. coli water quality-based effluent limits and disinfection requirements pursuant s. NR 210.06, Wis. Adm. Code.

PFOS/PFOA Minimization Plan Determination of Need - As stated above, NR 106 Subchapter VIII – Permit Requirements for PFOS and PFOA Dischargers became effective on August 1, 2022. S. NR 106.98, Wis. Adm. Code, specifies steps to generate data in order to determine the need for reducing PFOS and PFOA in the discharge. Data generated per the effluent monitoring requirements will be used to determine the need for developing a PFOS/PFOA minimization plan. As part of the schedule, the permittee is required to submit two annual Reports on Effluent Discharge.

If the Department determines that a minimization plan is needed, the permit will be modified or revoked/reissued to include additional requirements.

Water Quality Based Effluent Limits (WQBELs) for Total Phosphorus - Currently the facility can't meet the final water quality based effluent limit for phosphorus (0.225 mg/L (monthly average), 0.075 mg/L (6-month average) and 0.078 lbs/day (6-month average)); therefore, an interim limit (13 mg/L) and a schedule have been included in this permit issuance. The schedule lays out a plan and timeline for the facility to investigate their ability to meet the limit and alternatives that are most feasible so that they will be able to meet the limit by the end of the schedule. The schedule extends beyond the permit term as allowed by NR 217.17(2) Wis. Adm. Code. A schedule that allows up to 9 years before the final limit is effective was chosen, because the facility discharges less than 150 lbs of phosphorus per month, they have never had a limit before, there is limited phosphorus data, construction of filtration or a similar phosphorus removal process would be needed to meet the limit, and an extensive financing plan will be needed for a facility upgrade.

Attachments:

Water Flow Schematic created September 2013

“Water Quality-Based Effluent Limitations for the Village of Gilman, (WI-0030937)” memo dated August 14, 2024

Expiration Date:

December 31, 2029

Justification Of Any Waivers From Permit Application Requirements

A decision has been made not to require effluent monitoring for metals in the application because:

1. The low design flow (0.125 MGD) and actual flows (an average of 0.073 MGD);
2. The facility produces solids that are classified as septage and managed in accordance with ch. NR 113, Wis. Adm. Code.
3. The wastewater is primarily domestic with little industrial contributors to the collection system.

Prepared By: Sheri A. Snowbank Wastewater Specialist

Date: August 22, 2024

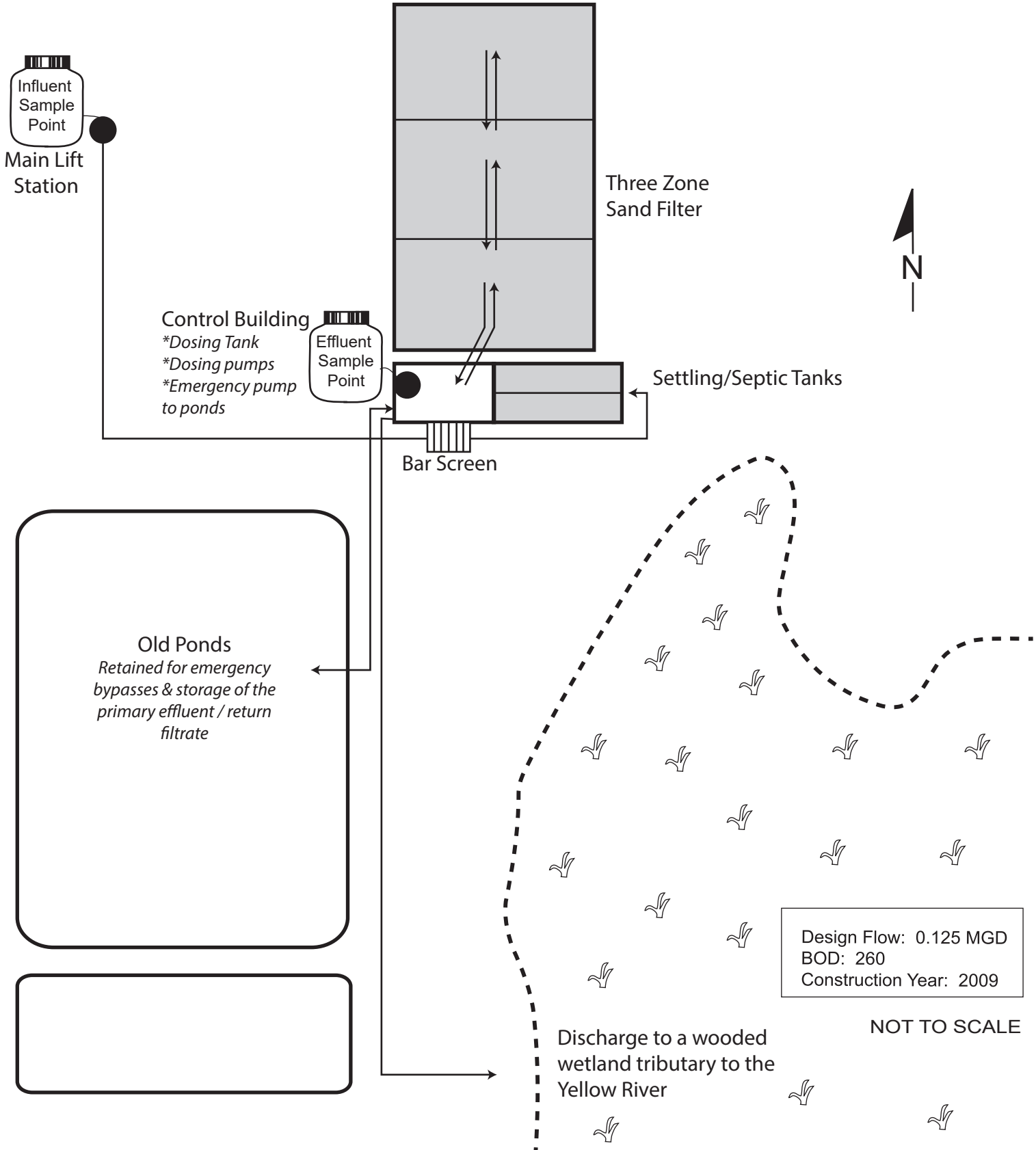
Date updated based on Factcheck comments: No comments received September 23, 2024

Date updated based on public notice comments:

Notice of reissuance was published in The Star News, PO Box 180, Medford, WI 54451-0180.

VILLAGE OF GILMAN Wastewater Treatment Facility

The Village of Gilman wastewater treatment facility is a recirculating sand filter consisting of bar screen, settling tanks, dosing chamber and a three zone sand filter. Effluent is discharged to a wooded wetland tributary to the Yellow River in Taylor County. The flow diagram below shows the treatment units and sampling locations.



CORRESPONDENCE/MEMORANDUM

DATE: August 14, 2024

TO: Sheri Snowbank – NOR/Spooner Service Center

FROM: Michael Polkinghorn – NOR/Rhineland Service Center



SUBJECT: Water Quality-Based Effluent Limitations for the Village of Gilman
WPDES Permit No. WI-0030937-11-0

This is in response to your request for an evaluation of the need for water quality-based effluent limitations (WQBELs) using chapters NR 102, 104, 105, 106, 207, 210, 212, and 217 of the Wisconsin Administrative Code (where applicable), for the discharge from the Village of Gilman in Taylor County. This municipal wastewater treatment facility discharges to a wetland tributary to the Yellow River, located in the Upper Yellow River Watershed in the Lower Chippewa River Basin. The evaluation of the permit recommendations is discussed in more detail in the attached report.

Based on our review, the following recommendations are made on a chemical-specific basis at Outfall 001:

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Flow Rate						1
BOD ₅			30 mg/L	20 mg/L		1
TSS			30 mg/L	20 mg/L		1
pH	9.0 s.u.	6.0 s.u.				1
Dissolved Oxygen		4.0 mg/L				1
<i>E. coli</i> May – September				126 #/100 mL geometric mean		2
Ammonia Nitrogen April – May June – September October – March	Variable Variable Variable		59 mg/L 37 mg/L 84 mg/L	24 mg/L 15 mg/L 34 mg/L		3, 4
Phosphorus Interim Final				13 mg/L 0.225 mg/L	0.075 mg/L 0.078 lbs/day	5
PFOS and PFOA						6
Chloride						7
TKN, Nitrate+Nitrite, and Total Nitrogen						8
Acute WET						9

Footnotes:

1. No changes from the current permit.
2. Additional final limit: No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 count/100 mL. The reissued permit will include a compliance schedule to meet these limits.
3. The variable daily maximum ammonia nitrogen limit table corresponding to various effluent pH

values may be included in the permit in place of the single limit. These limits apply year-round.

Daily Maximum Ammonia Nitrogen Limits

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
6.0 ≤ pH ≤ 6.1	83	7.0 < pH ≤ 7.1	51	8.0 < pH ≤ 8.1	11
6.1 < pH ≤ 6.2	82	7.1 < pH ≤ 7.2	46	8.1 < pH ≤ 8.2	8.8
6.2 < pH ≤ 6.3	80	7.2 < pH ≤ 7.3	40	8.2 < pH ≤ 8.3	7.3
6.3 < pH ≤ 6.4	78	7.3 < pH ≤ 7.4	35	8.3 < pH ≤ 8.4	6.0
6.4 < pH ≤ 6.5	75	7.4 < pH ≤ 7.5	31	8.4 < pH ≤ 8.5	5.0
6.5 < pH ≤ 6.6	72	7.5 < pH ≤ 7.6	26	8.5 < pH ≤ 8.6	4.1
6.6 < pH ≤ 6.7	69	7.6 < pH ≤ 7.7	22	8.6 < pH ≤ 8.7	3.4
6.7 < pH ≤ 6.8	65	7.7 < pH ≤ 7.8	19	8.7 < pH ≤ 8.8	2.8
6.8 < pH ≤ 6.9	60	7.8 < pH ≤ 7.9	16	8.8 < pH ≤ 8.9	2.4
6.9 < pH ≤ 7.0	56	7.9 < pH ≤ 8.0	13	8.9 < pH ≤ 9.0	2.0

4. Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Codes, are included in bold.
5. The interim limit for the phosphorus compliance schedule is based on the daily maximum sample of effluent phosphorus data. The phosphorus WQBELs are based on the water quality protection of the Yellow River.
6. Once every two months monitoring is required in accordance with s. NR 106.98(2), Wis. Adm. Code.
7. Monitoring at a frequency to ensure that 11 samples are available at the next permit issuance.
8. As recommended in the Department's October 1, 2019 Guidance for Total Nitrogen Monitoring in Wastewater Permits, annual total nitrogen monitoring is recommended for all minor municipal permittees. Total nitrogen is the sum of nitrate (NO₃), nitrite (NO₂), and total Kjeldahl nitrogen (TKN) (all expressed as N).
9. Two acute whole effluent toxicity (WET) tests are recommended during the reissued permit term. According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), a synthetic (standard) laboratory water may be used as the dilution water and primary control in acute WET tests. Sampling WET concurrently with any chemical-specific toxic substances is recommended. Tests should be done in rotating quarters, to collect seasonal information about this discharge and should continue after the permit expiration date (until the permit is reissued).

Please consult the attached report for details regarding the above recommendations. If there are any questions or comments, please contact Michael Polkinghorn at (715) 360-3379 or Michael.Polkinghorn@wisconsin.gov and Diane Figiel at Diane.Figiel@wisconsin.gov.

Attachments (3) – Narrative, discharge area map, & thermal table

PREPARED BY: Michael A. Polkinghorn – Water Resources Engineer

E-cc: Arthur Ryzak, Wastewater Engineer – NOR/Ladysmith Service Center
 Michelle BalkLudwig, Regional Wastewater Supervisor – NOR/Spooner Service Center
 Diane Figiel, Water Resources Engineer – WY/3
 Jon Kleist, Regional Stream Biologist – NOR/Park Falls Service Center
 Nathaniel Willis, Wastewater Engineer – WY/3

**Water Quality-Based Effluent Limitations for
Village of Gilman**

WPDES Permit No. WI-0030937-11-0

Prepared by: Michael A. Polkinghorn

PART 1 – BACKGROUND INFORMATION

Facility Description

The Village of Gilman owns and operates a domestic wastewater treatment facility. Wastewater (influent) generated from homes and businesses flows through a bar screen that removes large solids prior to flowing into two settling/septic tanks where smaller solids are settled out. The wastewater then travels to a dosing tank where water is mixed with treated wastewater (effluent). It is evenly distributed over a filter bed that is divided into three zones. The filter bed is constructed of layers of fine and coarse sand where naturally occurring microorganisms living on the sand particles clean the influent. The water from the filters is sent back to the dosing tank and filtered again. Effluent is discharged on a continuous basis to a wetland tributary to the Yellow River.

Attachment #2 is a discharge area map of Outfall 001.

Existing Permit Limitations

The current permit, expired on 03/31/2024, includes the following effluent limitations and monitoring requirements.

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Footnotes
Flow Rate					1
BOD ₅			30 mg/L	20 mg/L	2, 3
TSS			30 mg/L	20 mg/L	2, 3
pH	9.0 s.u.	6.0 s.u.			2, 3
Dissolved Oxygen		4.0 mg/L			2, 3
Ammonia Nitrogen					
April – May	Variable		59 mg/L	24 mg/L	4, 5
June – September	Variable		37 mg/L	15 mg/L	
October – March	Variable		84 mg/L	34 mg/L	
Phosphorus					1
Chloride					1

Footnotes:

1. Monitoring only.
2. These limits are based on the Limited Aquatic Life (LAL) community of the immediate receiving water as described in s. NR 104.02(3)(b), Wis. Adm. Code.

3. These limits are not being evaluated as part of this review. **Because the water quality criteria (WQC) and receiving water characteristics have not changed, limits for these parameters do not need to be re-evaluated at this time.**
4. The variable daily maximum ammonia nitrogen limit table corresponding to various effluent pH values may be included in the permit in place of the single limit.

Maximum Effluent Ammonia Concentration Limits based on Effluent pH			
Effluent pH (std. units)	Daily Maximum Limit	Effluent pH (std. units)	Daily Maximum Limit
pH ≤ 7.7*	No Limit	8.3 < pH ≤ 8.4	12 mg/L
7.7 < pH ≤ 7.8	37 mg/L	8.4 < pH ≤ 8.5	9.9 mg/L
7.8 < pH ≤ 7.9	31 mg/L	8.5 < pH ≤ 8.6	8.2 mg/L
7.9 < pH ≤ 8.0	26 mg/L	8.6 < pH ≤ 8.7	6.8 mg/L
8.0 < pH ≤ 8.1*	21 mg/L	8.7 < pH ≤ 8.8	5.7 mg/L
8.1 < pH ≤ 8.2	18 mg/L	8.8 < pH ≤ 8.9	4.8 mg/L
8.2 < pH ≤ 8.3	15 mg/L	8.9 < pH ≤ 9.0	4.1 mg/L
* Summer (May through October) – a maximum 20 mg/L limit. (Report > 21 mg/L as the daily maximum variable limit when pH is ≤ 8.0 s.u.). Winter (November through April) – a maximum 40 mg/L limit (Report > 37 mg/L as the daily maximum variable limit when pH is ≤ 7.7 s.u.). See NR 106.33(2) Wis. Adm. Code.			

5. Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Codes, are included in bold.

Receiving Water Information

- Name: Wetland tributary to Yellow River
- Waterbody Identification Code (WBIC): NA for wetland tributary and 2154500 for Yellow River.
- Classification used in accordance with chs. NR 102 and 104, Wis. Adm. Code:
 - o Wetland tributary (segment 1): LAL community as described on Table 8, Row 5, of s. NR 104.10(2), Wis. Adm. Code, from Outfall 001 to Yellow River. This surface waterbody is recommended to remain as an LAL community in a future revision to ch. NR 104, Wis. Adm. Code.
 - o Yellow River (segment 2): Warm Water Sport Fish (WWSF) community. A connection exists with the wetland tributary and is approx. 0.25 mi downstream of Outfall 001.
 - o All surface waterbodies are considered non-public water supplies.
 - o Information about the site visit for determining the biological potential of the prior stated surface waterbodies is discussed in greater detail in the Receiving Water Classification Memorandum (May 2024) and is available in the permit file for the Village of Gilman.
- Low Flows used in accordance with chs. NR 106 and 217, Wis. Adm. Code:
 - o The 7-Q₁₀ and 7-Q₂ values for the wetland tributary are estimated to be zero.
 - o The following 7-Q₁₀ and 7-Q₂ values for the Yellow River are from USGS (Station LC23 or SW ¼, NW ¼, Section 24, T31N – R4W) at Outfall 001, approx. 0.8 mi SW of Gilman WI:

Attachment #1

7-Q₁₀ = 2.2 cubic feet per second (cfs)

7-Q₂ = 4.8 cfs

Drainage Area = 187 mi²

- % of low flow used to calculate limits in accordance with s. NR 106.06(4)(c)5., Wis. Adm. Code: Not applicable where the receiving water low flows are zero. 25% for Yellow River.
- Multiple dischargers: The Cadott wastewater treatment facility discharges to the Yellow River approx. 27 mi downstream of Outfall 001. They are not in the immediate vicinity and the mixing zones do not overlap. Therefore, the other dischargers do not impact this evaluation.
- Impaired water status: There are no known impairments to the wetland tributary. The Yellow River is on the Clean Water Act Section 303(d) list for a total phosphorus impairment (stream mi 0 – 45.42).

Effluent Information

- Design flow rate(s):
Annual average = 0.125 million gallons per day (MGD)
For reference, the actual average flow from April 2019 – June 2024 was 0.074 MGD.
- Acute dilution factor used in accordance with s. NR 106.06(3)(c), Wis. Adm. Code: Not applicable – this facility does not have an approved Zone of Initial Dilution (ZID).
- Water source: Domestic wastewater with 1 industrial contributor (Gilman Cheese). Water supply from the Village of Gilman municipal supply.
- Additives: None.
- Effluent characterization: This facility is categorized as a minor municipality and received instructions in the application notification letter that exempt it from standard monitoring requirements. The current permit required monitoring for chloride and phosphorus.

Chloride Effluent Data

Statistics	Conc. (mg/L)
1-day P ₉₉	282
4-day P ₉₉	226
30-day P ₉₉	195
Mean	178
Std	37.08
Sample size	52
Range	109 - 270

The following table presents the average concentrations and loadings at Outfall 001 from April 2019 – June 2024 for all parameters with limits in the current permit to meet the requirements of s. NR 201.03(6), Wis. Adm. Code:

Parameter Averages with Limits

	Average Measurement*
BOD ₅	4 mg/L
TSS	2 mg/L
pH field	7.6 s.u.
Dissolved Oxygen	7.1 mg/L

Ammonia Nitrogen	3.1 mg/L
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*Any results below the level of detection (LOD) were included as zeroes in calculation of average.

PART 2 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR TOXIC SUBSTANCES – EXCEPT AMMONIA NITROGEN

Permit limits for toxic substances are required whenever any of the following occur:

1. The maximum effluent concentration exceeds the calculated limit (s. NR 106.05(3), Wis. Adm. Code)
2. If 11 or more detected results are available in the effluent, the upper 99th percentile (or P₉₉) value exceeds the comparable calculated limit (s. NR 106.05(4), Wis. Adm. Code)
3. If fewer than 11 detected results are available, the mean effluent concentration exceeds 1/5 of the calculated limit (s. NR 106.05(6), Wis. Adm. Code)

Acute Limits based on 1-Q₁₀

Daily maximum effluent limitations for toxic substances are based on the acute toxicity criteria (ATC), listed in ch. NR 105, Wis. Adm. Code. Previously daily maximum limits for toxic substances were calculated as two times the ATC. However, changes to ch. NR 106, Wis. Code, (September 1, 2016) require the Department to calculate acute limitations using the same mass balance equation as used for other limits along with the 1-Q₁₀ receiving water low flow to determine if more restrictive effluent limitations are needed to protect the receiving stream from discharges which may cause or contribute to an exceedance of the acute water quality standards. The mass balance equation is provided below.

$$\text{Limitation} = \frac{(\text{WQC}) (Q_s + (1-f) Q_e) - (Q_s - f Q_e) (C_s)}{Q_e}$$

Where:

WQC = Acute toxicity criterion or secondary acute value according to ch. NR 105, Wis. Adm. Code.

Q_s = average minimum 1-day flow which occurs once in 10 years (1-day Q₁₀)
if the 1-day Q₁₀ flow data is not available = 80% of the average minimum 7-day flow which occurs once in 10 years (7-day Q₁₀).

Q_e = Effluent flow (in units of volume per unit time) as specified in s. NR 106.06(4)(d), Wis. Adm. Code.

f = Fraction of the effluent flow that is withdrawn from the receiving water, and

C_s = Background concentration of the substance (in units of mass per unit volume) as specified in s. NR 106.06(4)(e), Wis. Adm. Code.

If the receiving water is effluent dominated under low stream flow conditions, the 1-Q₁₀ method of limit calculation produces the most stringent daily maximum limitations and should be used while making reasonable potential determinations. This is the case for Village of Gilman and the limits are set based on the 1-Q₁₀ low flow.

The following tables list the calculated WQBELs for this discharge along with the results of effluent sampling. All concentrations are expressed in terms of micrograms per liter (µg/L), except for hardness and chloride (mg/L).

Daily Maximum Limits based on Acute Toxicity Criteria (ATC)

RECEIVING WATER FLOW = 0 cfs, (1-Q₁₀ (estimated as 80% of 7-Q₁₀)), as specified in s. NR 106.06(3)(bm), Wis. Adm. Code.

SUBSTANCE	ATC	MAX. EFFL. LIMIT*	1-day P ₉₉	1-day MAX. CONC.
Chloride (mg/L)	757	757	282	270

* Per the changes to s. NR 106.07(3), Wis. Adm. Code, effective 09/01/2016 consideration of ambient concentrations and 1-Q₁₀ flow rates yields a more restrictive limit than the 2 × ATC method of limit calculation.

Weekly Average Limits based on Chronic Toxicity Criteria (CTC)

RECEIVING WATER FLOW = 0 cfs (¼ of the 7-Q₁₀), as specified in s. NR 106.06(4)(c), Wis. Adm. Code

SUBSTANCE	CTC	WEEKLY AVE. LIMIT	4-day P ₉₉
Chloride (mg/L)	395	395	226

Monthly Average Limits based on Wildlife Criteria (WC)

The effluent characterization did not include any effluent sampling results for substances for which WC exist.

Monthly Average Limits based on Human Threshold Criteria (HTC)

The effluent characterization did not include any effluent sampling results for substances for which HTC exist.

Monthly Average Limits based on Human Cancer Criteria (HCC)

The effluent characterization did not include any effluent sampling results for substances for which HCC exist.

Conclusions and Recommendations

Based on a comparison of the effluent data and calculated effluent limitations, **effluent limitations are not recommended for any toxic substances.** Monitoring recommendations are made in the paragraphs below:

Chloride – Considering available effluent data from the current permit term (February 2022 – January 2023), the 1-day and 4-day P₉₉ chloride concentrations are 282 and 226 mg/L respectively. These effluent concentrations are below the calculated chloride WQBELs; therefore, **effluent limits are not recommended during the reissued permit term. Chloride monitoring is recommended to ensure that 11 sample results are available at the next permit issuance to meet the data requirements of s. NR 106.85, Wis. Adm. Code.**

Mercury – The permit application did not require monitoring for mercury because Village of Gilman is categorized as a minor facility as defined in s. NR 200.02(8), Wis. Adm. Code. In accordance with s. NR 106.145(3)(a)3., Wis. Adm. Code, a minor municipal discharger shall monitor, and report results of influent and effluent mercury monitoring once every three months if, “there are two or more exceedances in the last five years of the high-quality sludge mercury concentration of 17 mg/kg specified in s. NR

204.07(5).” However, sludge sampling is not available because the Village of Gilman is a recirculating sand filter and generates solids which are hauled away as septage. It is not expected that there are exceedances of the high-quality mercury concentration based on similar municipal treatment plants and the lack of industries. **Therefore, mercury monitoring is not recommended during the reissued permit term.**

PFOS and PFOA – The need for PFOS and PFOA monitoring is evaluated in accordance with s. NR 106.98(2), Wis. Adm. Code. Available well monitoring sample data from the Gilman Waterworks (PWS ID: 86101246) is provided in the table below:

Sample Date	Sample ID	PFOS (ng/L)	PFOA (ng/L)
05/15/2023	CB05009-01	3.2	0.87
05/14/2024	CC05194-03	1.2	0.69
Average =		2.2	0.78

The limited data above shows the municipal water supply is above 1/5th of the applicable PFOS criteria. Based on the known levels of PFOS/PFOA in the source water and the industrial contributor to the facility, **PFOS and PFOA monitoring is recommended during the reissued permit term at a once every two months frequency.**

PART 3 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR AMMONIA NITROGEN

The State of Wisconsin promulgated revised water quality standards for ammonia nitrogen in ch. NR 105, Wis. Adm. Code, effective March 1, 2004 which includes criteria based on both acute and chronic toxicity to aquatic life. The current permit has daily maximum, weekly average and monthly average limits year-round. Upon initial review of these existing limits in comparison with the recent receiving water reclassification, only the daily maximum ammonia nitrogen limits will be reevaluated at this time due to updates to s. NR 106.33(2), and ch. NR 106, Wis. Adm. Code.

Where there are existing ammonia nitrogen limits in the permit, the limits must be retained regardless of reasonable potential, consistent with s. NR 106.33(1)(b), Wis. Adm. Code. If a permittee is subject to an ammonia limitation in an existing permit, the limitation shall be included in any reissued permit. Ammonia limitations shall be included in the permit if the permitted facility will be providing treatment for ammonia discharges. **Therefore, the existing weekly and monthly average limits are required to continue during the reissued permit term.**

Daily Maximum Limits based on Acute Toxicity Criteria (ATC)

Daily maximum limitations are based on acute toxicity criteria in ch. NR 105, Wis. Adm. Code, which are a function of the effluent pH and the receiving water classification. The ATC for ammonia is calculated using the following equation:

$$\text{ATC in mg/L} = [A \div (1 + 10^{(7.204 - \text{pH})})] + [B \div (1 + 10^{(\text{pH} - 7.204)})]$$

Where:

A = 0.633 and B = 90.0 for an LAL community, and

pH (s.u.) = that characteristic of the effluent.

The effluent pH data was examined as part of this evaluation. A total of 274 sample results were reported from April 2019 – June 2024. The maximum reported value was 9.87 s.u. (Standard pH Units). The effluent pH was 8.32 s.u. or less 99% of the time. The 1-day P₉₉, calculated in accordance with s. NR 106.05(5), Wis. Adm. Code, is 8.42 s.u. The mean plus the standard deviation multiplied by a factor of 2.33, an estimate of the upper ninety ninth percentile for a normally distributed dataset, is 8.39 s.u. Therefore, a value of 8.42 s.u. is believed to represent the maximum reasonably expected pH, and therefore most appropriate for determining daily maximum limitations for ammonia nitrogen. Substituting a value of 8.42 s.u. into the equation above yields an ATC = 5.77 mg/L.

Daily Maximum Ammonia Nitrogen Effluent Limitations Calculation Method

In accordance with s. NR 106.32(2), Wis. Adm. Code daily maximum ammonia limitations are either set equal to two times the nitrogen limits or based on the 1-Q₁₀ method if it is determined that the previous method of acute ammonia limit calculation (2×ATC) is not sufficiently protective of the fish and aquatic life. The more restrictive calculated limits shall apply.

The calculated daily maximum ammonia nitrogen effluent limits using the mass balance approach with the 1-Q₁₀ (estimated as 80 % of 7-Q₁₀) and the 2×ATC approach are shown below.

Daily Maximum Ammonia Nitrogen Determination

Method	Ammonia Nitrogen Limit (mg/L)
2×ATC	12
1-Q ₁₀	5.8

The Village of Gilman has the variable daily maximum ammonia nitrogen limits table based on effluent pH in the current permit. Those ammonia nitrogen limits are based on the protection of an LAL community using the 2 times the ATC method of calculation. As determined in Part 2 of this evaluation and in the table above, **the 1-Q₁₀ low flow method of calculation yields the most stringent daily maximum limits for toxic substances including ammonia nitrogen.** In addition, section NR 106.33(2), Wis. Adm. Code, was updated effective September 1, 2016. As a result, seasonal 20 and 40 mg/L thresholds for including ammonia limits in municipal discharge permits are no longer applicable under current rules. **As such, the table has been expanded from the table in the current permit to included ammonia nitrogen limits throughout the pH range.** Therefore, the daily maximum limits are updated due to these changes and are included in the table below:

Daily Maximum Ammonia Nitrogen Limits – LAL Community

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
6.0 ≤ pH ≤ 6.1	83	7.0 < pH ≤ 7.1	51	8.0 < pH ≤ 8.1	11
6.1 < pH ≤ 6.2	82	7.1 < pH ≤ 7.2	46	8.1 < pH ≤ 8.2	8.8
6.2 < pH ≤ 6.3	80	7.2 < pH ≤ 7.3	40	8.2 < pH ≤ 8.3	7.3
6.3 < pH ≤ 6.4	78	7.3 < pH ≤ 7.4	35	8.3 < pH ≤ 8.4	6.0
6.4 < pH ≤ 6.5	75	7.4 < pH ≤ 7.5	31	8.4 < pH ≤ 8.5	5.0
6.5 < pH ≤ 6.6	72	7.5 < pH ≤ 7.6	26	8.5 < pH ≤ 8.6	4.1
6.6 < pH ≤ 6.7	69	7.6 < pH ≤ 7.7	22	8.6 < pH ≤ 8.7	3.4

Attachment #1

6.7 < pH ≤ 6.8	65	7.7 < pH ≤ 7.8	19	8.7 < pH ≤ 8.8	2.8
6.8 < pH ≤ 6.9	60	7.8 < pH ≤ 7.9	16	8.8 < pH ≤ 8.9	2.4
6.9 < pH ≤ 7.0	56	7.9 < pH ≤ 8.0	13	8.9 < pH ≤ 9.0	2.0

Effluent Data

Reasonable potential does not need to be demonstrated as year round daily maximum, weekly average and monthly average limits are effective in the current permit. Effluent ammonia nitrogen data from the current permit term during April 2019 – June 2024 is shown in the table below for informational purposes:

Ammonia Nitrogen Effluent Data

Statistics (mg/L)	April – May	July – September	October – March
1-day P ₉₉	9.4	16.7	28.1
4-day P ₉₉	5.2	9.3	15.3
30-day P ₉₉	2.9	4.2	7.4
Mean*	2.0	2.2	4.1
Std	1.9	3.8	6.1
Sample size	52	91	130
Range	<0.1 - 7.8	<0.1 - 30	<0.1 - 33.1

*Values lower than the level of detection were substituted with a zero

PART 4 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR BACTERIA

Section NR 102.04(5), Wis. Adm. Code, states that all surface waters shall be suitable for supporting recreational use and shall meet *E. coli* criteria during the recreation season. Section NR 102.04(5)(b), Wis. Adm. Code, allows the Department to make exceptions when it determines, in accordance with s. NR 210.06(3), Wis. Adm. Code, that wastewater disinfection is not required to meet *E. coli* limits and protect the recreational use. Section NR 210.06(3), Wis. Adm. Code, tasks the Department with determining the need for disinfection using a site-specific analysis based on potential risk to human or animal health. It sets out the factors that must be considered in determining the necessity to disinfect municipal wastewater or to change the length of the disinfection season.

The Village of Gilman had previously been exempted from disinfection based on the LAL or LFF community classification of the receiving water. Section NR 210.06(3)(g), Wis. Adm. Code, states that disinfection decisions may be made based on the hydrologic classifications listed in s. NR 104.02(1), Wis. Adm. Code (**not** on the water quality classifications - i.e., LFF, LAL - that are defined in s. NR 104.02(3), Wis. Adm. Code). The hydrologic classification for the wetland tributary is listed in ch. NR 104, Wis. Adm. Code, as a diffused surface water. Discharges to diffuse surface waters that have very little to no flow most often result in effluent-dominated situations. The risk of illness is related to the concentration of *E. coli* and therefore dilution is an important consideration when considering risk to human health. Since little to no dilution is present in these situations, disinfection should not be exempted based solely on this hydrological classification.

The Department has considered the information required by s. NR 210.06(3), Wis. Adm. Code, and has determined that the discharge cannot meet bacteria limits without disinfection. Section NR 210.06(2)(a)1,

Wis. Adm. Code, includes two limits which must be included in permits for facilities which are required to disinfect:

1. The geometric mean of *E. coli* bacteria in effluent samples collected in any calendar month may not exceed 126 counts/100 mL.
2. No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 counts/100 mL.

These limits are required during May through September. The reissued permit will include a compliance schedule to meet these limits.

PART 5 – PHOSPHORUS

Technology-Based Effluent Limit

Subchapter II of Chapter NR 217, Wis. Adm. Code, requires municipal wastewater treatment facilities that discharge greater than 150 pounds of total phosphorus per month to comply with a monthly average limit of 1.0 mg/L, or an approved alternative concentration limit.

Because the Village of Gilman does not currently have an existing technology-based limit, the need for this limit in the reissued permit is evaluated. The data demonstrates that the annual monthly average phosphorus loading is less than 150 lbs/month, which is the threshold for municipalities in accordance with s. NR 217.04(1)(a)1, Wis. Adm. Code. **Therefore, a technology-based limit is not recommended during the reissued permit term.** In addition, the need for a WQBEL for phosphorus must be considered.

Annual Average Mass Total Phosphorus Loading

Month	Monthly Avg. mg/L	Total Flow MG/month	Total Phosphorus lb./mo.
Feb 2022	10.7	0.7	66
March 2022	10.2	1.6	132
April 2022	4.2	3.3	114
May 2022	4.2	2.9	104
July 2022	7.4	1.2	73
Aug 2022	9.3	1.5	114
Sept 2022	8.8	1.7	125
Oct 2022	8.6	1.7	125
Nov 2022	7.3	2.0	122
Dec 2022	7.3	1.8	110
Jan 2023	6.0	2.0	103
Average =			108

Total P (lbs/month) = Monthly average (mg/L) × total flow (MG/month) × 8.34 (lbs/gallon)
Where total flow is the sum of the actual flow (MGD) for that month

Water Quality-Based Effluent Limits (WQBEL)

Revisions to administrative rules regulating phosphorus took effect on December 1, 2010. These rule revisions include additions to s. NR 102.06, Wis. Adm. Code, which establish phosphorus standards for surface waters. Subchapter III of NR 217, Wis. Adm. Code, establishes procedures for determining WQBELs for phosphorus, based on the applicable standards in ch. NR 102, Wis. Adm. Code.

Phosphorus criteria in s. NR 102.06, Wis. Adm. Code, do not apply to LAL community waters as described in s. NR 102.06(6)(d), Wis. Adm. Code. These waters were not included in the USGS/WDNR stream and river studies and, therefore, the Department lacked the technical basis to determine and propose applicable criteria. At some time in the future, the Department may adopt phosphorus criteria based on new studies focusing on limited aquatic life waters. *The Guidance for Implementing Wisconsin’s Phosphorus Water Quality Standards for Point Source Discharges (2020)* suggests that during the interim, WQBELs should be based on the criteria and flow conditions for the next stream segment downstream (or downstream lake or reservoir, if appropriate), because ss. 217.12 and 217.13, Wis. Adm. Code, state that the Department must set WQBELs to protect downstream waters. The Yellow River is a WWSF community and is approx. 0.25 mi downstream of Outfall 001. Because a surface water connection exists with the wetland tributary, the point of phosphorus standards application will be implemented at the Yellow River.

Section NR 102.06(3)(a), Wis. Adm. Code, specifically names river segments for which a phosphorus criterion of 0.100 mg/L applies. For other stream segments that are not specified in s. NR 102.06(3)(a), Wis. Adm. Code, s. NR 102.06(3)(b), Wis. Adm. Code, specifies a phosphorus criterion of 0.075 mg/L. The phosphorus criterion of 0.075 mg/L applies for the Yellow River.

The conservation of mass equation is described in s. NR 217.13(2)(a), Wis. Adm. Code, for phosphorus WQBELs and includes variables of water quality criterion (WQC), receiving water flow rate (Qs), effluent flow rate (Qe), and upstream phosphorus concentrations (Cs) provided below.

$$\text{Limitation} = [(WQC)(Qs+(1-f) Qe) - (Qs-f Qe) (Cs)]/Qe$$

Where:

WQC = 0.075 mg/L for the Yellow River.

Qs = 100% of the 7-Q₂ of 4.8 cfs.

Cs = background concentration of phosphorus in the receiving water pursuant to s. NR 217.13(2)(d), Wis. Adm. Code

Qe = effluent flow rate = 0.125 MGD = 0.193 cfs.

f = the fraction of effluent withdrawn from the receiving water = 0.

The impaired water listing of the Yellow River points towards the notion that effluent phosphorus limits equal to the water quality criterion are needed to prevent the discharge from contributing to further impairment of the receiving water. *The Guidance for Implementing Wisconsin’s Phosphorus Water Quality Standards for Point Source Discharges (2020)* suggests setting effluent limits equal to the criterion in the absence of an EPA approved total maximum daily load for discharges of phosphorus to phosphorus impaired waters.

Effluent Data

The following table summarizes effluent total phosphorus monitoring data from February 2022 – January 2023.

Total Phosphorus Effluent Data	
Statistics	Conc. (mg/L)
1-day P ₉₉	14.5

Attachment #1

4-day P ₉₉	10.7
30-day P ₉₉	8.64
Mean	7.61
Std	2.31
Sample size	49
Range	3 - 12.8

Reasonable Potential Determination

This discharge has reasonable potential to cause or contribute to an exceedance of the water quality criterion because the 30-day P₉₉ of reported effluent total phosphorus data is greater than the calculated WQBEL. **Therefore, a WQBEL is recommended during the reissued permit term.**

Limit Expression

According to s. NR 217.14(2), Wis. Adm. Code, because the calculated WQBEL is less than or equal to 0.3 mg/L, **the effluent limit of 0.075 may be expressed as a 6-month average.** If a concentration limitation expressed as a 6-month average is included in the permit, **a monthly average concentration limitation of 0.23 mg/L, equal to three times the WQBEL calculated under s. NR 217.13, Wis. Adm. Code shall also be included in the permit.** The 6-month average should be averaged during the months of May – October and November – April.

Mass Limits

A mass limit is also required, pursuant to s. NR 217.14(1)(a), Wis. Adm. Code, because the Yellow River has a phosphorus impairment approx. 0.25 mi downstream of Outfall 001. **This final mass limit shall be 0.075 mg/L × 8.34 × 0.125 MGD = 0.078 lbs/day expressed as a 6-month average.**

Interim Limit

An interim limit is required per s. NR 217.17, Wis. Adm. Code, when a compliance schedule is needed in the permit to meet the WQBEL. The interim limit should reflect a concentration that the facility is able to meet without investing in additional “temporary” treatment, but also should prevent backsliding from current conditions. **Therefore, it is recommended that the interim limit be set equal to 13 mg/L for permit reissuance along with requirements for optimization of phosphorus removal.** This value is equal to the daily maximum sample of effluent phosphorus data and is chosen over other values due to concerns of high effluent variability from a small dataset of a facility with no phosphorus treatment.

PART 6 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR THERMAL

Surface water quality standards for temperature took effect on October 1, 2010. These regulations are detailed in Chapters NR 102 (Subchapter II – Water Quality Standards for Temperature) and NR 106 (Subchapter V – Effluent Limitations for Temperature) of the Wisconsin Administrative Code. The daily maximum effluent temperature limitation shall be 86 °F for discharges to surface waters classified as LAL according to s. NR 104.02(3)(b)1, Wis. Adm. Code, except for those classified as wastewater effluent channels and wetlands regulated under ch. NR 103 and described in s. NR 106.55(2), Wis. Adm. Code, which has a daily maximum effluent temperature limitation of 120 °F. The 86 °F limit applies because the hydrologic classification is not listed as wetland or wastewater effluent channel in ch. NR 104, Wis. Adm. Code.

Attachment #1

Downstream impacts are considered for the Yellow River. In accordance with s. NR 106.53(2)(b), Wis. Adm. Code, the highest daily maximum flow rate for a calendar month is used to determine the acute (daily maximum) effluent limitation. In accordance with s. NR 106.53(2)(c), Wis. Adm. Code, the highest 7-day rolling average flow rate for a calendar month is used to determine the sub-lethal (weekly average) effluent limitation. These values were based off actual flow reported from April 2019 – June 2024.

The heat loss equation as described by s. NR 106.55(5), Wis. Adm. Code, is used for discharges to storm sewer/storm water conveyance channels where the default cooling rate is estimated as 1 °F per 400 ft and is used to estimate the given cooling over the 0.25 mi between Outfall 001 and the Yellow River. This is considered conservative for open-channel flow especially during the winter months where the heat loss is expected to be more significant than estimated.

The following daily maximum limits are representative of the thermal water quality protection of the wetland tributary (LAL community) and the weekly average limits are representative of the protection of the Yellow River (WWSF community). Temperature effluent data from July 2012 – June 2013 are used for comparison to the calculated limits. The complete temperature limit calculation is included as attachment #3. The cooling adjusted limits and available monitoring are shown in the table below:

Monthly Temperature Effluent Data & Limits

Month	Representative Highest Monthly Effluent Temperature		Calculated Effluent Limit	
	Weekly Maximum	Daily Maximum	Weekly Average Effluent Limitation	Daily Maximum Effluent Limitation
	(°F)	(°F)	(°F)	(°F)
JAN	41	42	103	86
FEB	38	39	112	86
MAR	39	39	79	86
APR	42	50	67	86
MAY	54	54	80	86
JUN	61	62	103	86
JUL	76	76	108	86
AUG	78	78	NA*	86
SEP	74	74	NA*	86
OCT	60	64	95	86
NOV	52	53	87	86
DEC	48	49	92	86

* NA denotes “not applicable” when the calculated weekly average limit is greater than or equal to 120 °F.

Reasonable Potential

Permit limits for temperature are recommended based on the procedures in s. NR 106.56, Wis. Adm. Code.

- An acute limit for temperature is recommended for each month in which the representative daily maximum effluent temperature for that month exceeds the acute WQBEL. The representative daily maximum effluent temperature is the greater of the following:

Attachment #1

- (a) The highest recorded representative daily maximum effluent temperature
- (b) The projected 99th percentile of all representative daily maximum effluent temperatures
- A sub-lethal limitation for temperature is recommended for each month in which the representative weekly average effluent temperature for that month exceeds the weekly average WQBEL. The representative weekly average effluent temperature is the greater of the following:
 - (a) The highest weekly average effluent temperature for the month.
 - (b) The projected 99th percentile of all representative weekly average effluent temperatures for the month

Based on the available effluent data compared with the calculated limits, **temperature limits and monitoring are not recommended during the reissued permit term.**

PART 7 – WHOLE EFFLUENT TOXICITY (WET)

WET testing is used to measure, predict, and control the discharge of toxic materials that may be harmful to aquatic life. In WET tests, organisms are exposed to a series of effluent concentrations for a given time and effects are recorded. Decisions below related to the selection of representative data and the need for WET limits were made according to ss. NR 106.08 and 106.09, Wis. Adm. Code. WET monitoring frequency and toxicity reduction evaluation (TRE) recommendations were made using the best professional judgment of staff familiar with the discharge after consideration of the guidance in the *Whole Effluent Toxicity (WET) Program Guidance Document (2022)*.

- Acute tests predict the concentration that causes lethality of aquatic organisms during a 48 to 96-hour exposure. To assure that a discharge is not acutely toxic to organisms in the receiving water, WET tests must produce a statistically valid LC₅₀ (Lethal Concentration to 50% of the test organisms) greater than 100% effluent, according to s. NR 106.09(2)(b), Wis. Adm Code.
- Chronic tests predict the concentration that interferes with the growth or reproduction of test organisms during a seven-day exposure. To assure that a discharge is not chronically toxic to organisms in the receiving water, WET tests must produce a statistically valid IC₂₅ (Inhibition Concentration) greater than the instream waste concentration (IWC), according to s. NR 106.09(3)(b), Wis. Adm Code. The IWC is an estimate of the proportion of effluent to total volume of water (receiving water + effluent). The IWC of 26% shown in the WET Checklist summary below was calculated according to the following equation, as specified in s. NR 106.03(6), Wis. Adm Code:

$$IWC \text{ (as \%)} = Q_e \div \{(1 - f) Q_e + Q_s\} \times 100$$

Where:

- Q_e = annual average flow = 0.125 MGD = 0.193 cfs
- f = fraction of the Q_e withdrawn from the receiving water = 0
- Q_s = ¼ of the 7-Q₁₀ = 2.2 cfs ÷ 4 = 0.55 cfs

- According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), a synthetic (standard) laboratory water may be used as the dilution water and primary control in acute WET tests, unless the use of different dilution water is approved by the Department prior to use. The primary control water must be specified in the WPDES permit.

Attachment #1

- According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), receiving water must be used as the dilution water and primary control in chronic WET tests, unless the use of different dilution water is approved by the Department prior to use. The dilution water used in WET tests conducted on Outfall 001 shall be a grab sample collected from the receiving water location, upstream and out of the influence of the mixing zone and any other known discharge. The specific receiving water location must be specified in the WPDES permit.

The WET checklist was developed to help DNR staff make recommendations regarding WET limits, monitoring, and other related permit conditions. The checklist indicates whether acute and chronic WET limits are needed, based on requirements specified in s. NR 106.08, Wis. Adm. Code. The checklist steps the user through a series of questions, assesses points based on the potential for effluent toxicity, and suggests monitoring frequencies based on points accumulated during the checklist analysis. As toxicity potential increases, more points accumulate, and more monitoring is recommended to ensure that toxicity is not occurring. A summary of the WET checklist analysis completed for this permittee is shown in the table below. Staff recommendations based on best professional judgment are provided below the summary table. For guidance related to reasonable potential and the WET checklist, see Chapter 1.3 of the WET Guidance Document: <https://dnr.wisconsin.gov/topic/Wastewater/WET.html>.

WET Checklist Summary

	Acute	Chronic
AMZ/IWC	Not applicable. 0 Points	IWC = 26%. 0 Points
Historical Data	No historic acute tests. 5 Points	No historic chronic tests. 5 Points
Effluent Variability	Little variability, no violations or upsets, consistent WWTF operations. 0 Points	Same as acute. 0 Points
Receiving Water Classification	Less than 4 mi to non-variance waterbody. 5 Points	Same as acute. 5 Points
Chemical-Specific Data	Reasonable potential for ammonia nitrogen limits based on ATC; Chloride detected. No additional compounds of concern. 6 Points	No reasonable potential for limits based on CTC; Ammonia nitrogen limit carried over from the current permit. Chloride detected. No additional compounds of concern. 2 Points
Additives	None used. 0 Points	None used. 0 Points
Discharge Category	1 industrial contributor. 5 Points	Same as acute. 5 Points
Wastewater Treatment	Secondary or better. 0 Points	Same as acute. 0 Points
Downstream Impacts	No impacts known. 0 Points	Same as acute. 0 Points
Total Checklist Points:	21 Points	17 Points
Recommended Monitoring Frequency (from Checklist):	2 acute tests recommended.	No chronic tests recommended.
Limit Required?	No.	No.
TRE Recommended?	No.	No.

Attachment #1

	Acute	Chronic
(from Checklist)		

- After consideration of the guidance provided in the Department's WET Program Guidance Document (2022) and other information described above **2x acute WET tests are recommended in the reissued permit.** Tests should be done in rotating quarters to collect seasonal information about this discharge. WET testing should continue after the permit expiration date (until the permit is reissued).

Attachment #2
Discharge Area Maps



Figure 1. Location of Gilman WWTP relative to Yellow River and village of Gilman



Figure 2. Approximate location of outfall and stream channel from Gilman WWTP to Yellow River

Temperature Limits for Receiving Waters with Unidirectional Flow

(calculation using default ambient temperature data)

Facility:	Village of Gilman	7-Q₁₀:	2.2 cfs	Temp Dates		Flow Dates	
Outfall(s):	001	Dilution:	25%	Start:	07/01/12	04/01/19	
Date Prepared:	7/30/2024	f:	0	End:	06/26/13	06/30/24	
Design Flow (Q_e):	0.125 MGD	Stream type:	Small warm water sport or forage fish co				
Storm Sewer Dist.	1320 ft	Q_s:Q_e ratio:	2.8 :1	Calculation Needed?	YES		

Month	Water Quality Criteria			Receiving Water Flow Rate (Q _s) (cfs)	Representative Highest Effluent Flow Rate (Q _e)		f	Representative Highest Monthly Effluent Temperature		Calculated Effluent Limit		Adjusted Thermal Limits	
	T _a (default) (°F)	Sub-Lethal WQC (°F)	Acute WQC (°F)		7-day Rolling Average (Q _{esl}) (MGD)	Daily Maximum Flow Rate (Q _{ea}) (MGD)		Weekly Average (°F)	Daily Maximum (°F)	Weekly Average Effluent Limitation (°F)	Daily Maximum Effluent Limitation (°F)	Weekly Average (°F)	Daily Maximum (°F)
JAN	33	49	76	2.2	0.112	0.126	0	41	42	100	120	103	120
FEB	34	50	76	2.2	0.097	0.119	0	38	39	109	120	112	120
MAR	38	52	77	2.2	0.212	0.242	0	39	39	76	120	79	120
APR	48	55	79	2.2	0.275	0.279	0	42	50	64	118	67	120
MAY	58	65	82	2.2	0.212	0.238	0	54	54	77	118	80	120
JUN	66	76	84	2.2	0.150	0.244	0	61	62	100	110	103	114
JUL	69	81	85	2.2	0.180	0.234	0	76	76	105	109	108	113
AUG	67	81	84	2.2	0.078	0.101	0	78	78	NA	120	NA	120
SEP	60	73	82	2.2	0.099	0.139	0	74	74	NA	120	NA	120
OCT	50	61	80	2.2	0.127	0.174	0	60	64	92	120	95	120
NOV	40	49	77	2.2	0.092	0.148	0	52	53	84	120	87	120
DEC	35	49	76	2.2	0.124	0.216	0	48	49	89	120	92	120

Attachment #3