

Permit Fact Sheet for Modification

Refer to the Fact Sheet for WPDES Permit No. WI-0061051-10-0 for complete permit information

General Information

Permit Number:	WI-0061051-10-1	
Permittee Name:	Village of Maribel	
Address:	PO Box 203	
City/State/Zip:	Maribel WI 54227	
Discharge Location:	NW ¼ of the SE ¼ of Section 23, T 21 N R 22 E, in the Town of Cooperstown in Manitowoc County	
Receiving Water:	An unnamed tributary to Kriwanek Creek in the West Twin River Watershed	
Stream Flow (Q _{7,10}):	0 cfs	
Stream Classification:	Limited Aquatic Life	
Design Flows:	Daily Maximum	0.172 MGD
	Weekly Maximum	0.073 MGD
	Monthly Maximum	0.042 MGD
	Annual Average	0.028 MGD
Significant Industrial Loading?	None.	
Operator at Proper Grade?	Yes. This facility requires an operator certified at the Basic level in subclasses A3 – Recirculating Media Filters and SS – Sanitary Sewage Collection System. The operator-in-charge is fully certified.	
Approved Pretreatment Program?	N/A	

Facility Description

Wastewater is collected from throughout the Village by a conventional gravity sewer system. At the wastewater treatment facility raw wastewaters from two lift stations enters a wet well. The influent then enters the headworks building into a channel where the influent passes a static bar screen. Flow from the bar screen then enters a Palmer Bowlus flume where influent flow is measured continuously with an ultrasonic meter and samples are collected with a flow proportional composite sampler. Hawkins Aqua Hawk 15177A is added to the channel for phosphorus and copper removal prior to entering the settling/septic tanks using a temporary chemical feed system. The wastewater then enters two sets of two settling/septic tanks in series to provide primary sludge settling and storage. Wastewater then flows to a wetwell or “dosing chamber”. Centrifugal pumps then send wastewater to four sand filter cells for biological treatment. A perforated PVC underdrain system accepts the filters’ effluent and flows to a splitter box. The splitter box diverts some flow back to the dosing chamber and some to a Palmer Bowlus flume to measure the effluent flow rate continuously with an ultrasonic meter and samples are collected with a flow proportional composite sampler. Wastewater then is aerated via a cascade aeration system and is discharged via an outfall to the Kriwanek Creek tributary.

At County Highway R, the stream may be dry during non-wet weather periods. Once each year in rotating quarters Maribel is required to inspect the tributary at multiple places downstream of Outfall 002 and report whether there is flow or if the stream is disappearing to the groundwater.

Permit Modification Description

On February 13, 2026, the permittee submitted a request to the department to modify the WPDES permit. The permittee requested removing all phosphorus multi-discharger variance (MDV) requirements. The permittee has agreed to comply with the final total maximum daily load derived (TMDL) limitations for total suspended solids and total phosphorus based on the Northeast Lakeshore Basin TMDL. Therefore, the MDV is no longer necessary.

The department may modify a permit upon request by the permittee for one of the causes listed in s. NR 203.136, Wis. Adm. Code. The department determined cause exists under s. NR 203.136(1)(b) and (f), Wis. Adm. Code for modifying the permit. As stated in s. NR 203.135(5)(b), Wis. Adm. Code, only those conditions to be modified shall be reopened when a draft permit is prepared. All other aspects of the existing permit shall remain in effect for the duration of the existing permit.

Fact Sheet Organization

This fact sheet highlights changes in permit conditions that the Department proposes to make when modifying the WPDES permit. This fact sheet compares conditions in the previous permit to those in the modified permit. The permit remains in effect until the permit is modified. The tables that follow were taken from the permit and are numbered in this fact sheet as they are numbered in the permit. Shaded text and cells within tables indicate permit conditions that are new or different from those found in the previous 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	0.038 MGD (Avg. April 2017 to July 2022)	Influent - The permittee shall collect representative samples of the influent from the automatic sampling device drawing samples from the Parshall flume in the headworks building prior to chemical addition and the septic tanks. The permittee shall continuously measure the influent flow rate.
002	0.052 MGD (Avg. April 2017 to July 2022)	Effluent - The permittee shall collect representative samples of effluent from the automatic sampling device drawing samples from the Parshall flume in the effluent chamber. The permittee shall collect grab samples for dissolved oxygen and pH following the cascade aerators. The permittee shall continuously measure the effluent flow rate.
601	N/A	Upstream-Receiving Water: Sampling point for indicating the presence of stream flow in the waterway and sampling of surface water quality upstream of the point at which effluent is discharged through the outfall structure. The permittee shall collect representative samples at 601 only on occasions when contiguous stream flow is observed for the entire reach between sampling point 601 and the outfall structure.

Sample Point Designation		
Sample Point Number	Discharge Flow, Units, and Averaging Period	Sample Point Location, Waste Type/sample Contents and Treatment Description (as applicable)
602	N/A	Midpoint-Receiving Water: The permittee shall collect representative samples of surface water quality at the midpoint between the outfall from the wastewater treatment facility and the point at which the stream normally becomes dry under non-wet weather conditions.
603	N/A	Terminus-Receiving Water: The permittee shall collect representative samples of surface water quality just prior to the furthest extent of stream flow normally observed under non-wet weather conditions.
604	N/A	CTH R - Receiving Water: Sampling point for indicating the presence of stream flow in the waterway and sampling of surface water quality where the stream bed crosses County Highway R. The permittee shall collect representative samples at 604 only on occasions when contiguous stream flow is observed for the entire reach between sampling points 603 and 604.
901	New Outfall	Septage – The permittee shall manage all primary solids that accumulates in the septic tanks prior the recirculating sand filters in compliance with ch. NR 113, Wis. Adm. Code.

1 Influent - Proposed Monitoring

Sample Point Number: 701- Influent

Monitoring Requirements					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
BOD ₅ , Total		mg/L	2/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total		mg/L	2/Week	24-Hr Flow Prop Comp	

Changes from Previous Permit:

No changes were made to Sampling Point 701 for this permit modification.

Explanation of Limits and Monitoring Requirements

Refer to the Fact Sheet for WPDES Permit No. WI-0061051-10-0 for the explanation of influent monitoring requirements.

2 Surface Water - Proposed Monitoring and Limitations

Sample Point Number: 002- Effluent

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
BOD ₅ , Total	Weekly Avg	30 mg/L	2/Week	24-Hr Flow Prop Comp	
BOD ₅ , Total	Monthly Avg	20 mg/L	2/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Weekly Avg	30 mg/L	2/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Monthly Avg	20 mg/L	2/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Weekly Avg	15.3 lbs/day	2/Week	Calculated	See the TMDL Limitations section in the permit.
Suspended Solids, Total	Monthly Avg	10.3 lbs/day	2/Week	Calculated	See the TMDL Limitations section in the permit.
Suspended Solids, Total		lbs/month	Monthly	Calculated	Calculate and report the total monthly mass of TSS discharged in lbs/month on the last day of the month on the eDMR.
Suspended Solids, Total		lbs/yr	Monthly	Calculated	Calculate and report the 12-month rolling sum of the total monthly mass of TSS on the last day of the month on the eDMR.
Dissolved Oxygen	Daily Min	4.0 mg/L	5/Week	Grab	
pH Field	Daily Min	6.0 su	5/Week	Grab	
pH Field	Daily Max	9.0 su	5/Week	Grab	
Copper, Total Recoverable	Daily Max	48 ug/L	Monthly	24-Hr Flow Prop Comp	
Copper, Total Recoverable	Weekly Avg	29 ug/L	Monthly	24-Hr Flow Prop Comp	
Copper, Total Recoverable	Monthly Avg	29 ug/L	Monthly	24-Hr Flow Prop Comp	

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Copper Variable Limit		lbs/day	Monthly	See Table	Look up the variable copper mass limit from the 'Variable Copper Mass Limitation' table of the permit. Report the variable limit in the 'Copper Variable Limit' column on the eDMR.
Copper, Total Recoverable	Weekly Avg - Variable	lbs/day	Monthly	Calculated	Report the copper mass result in the Copper, Total Recoverable mass column in lbs/day on the eDMR. Compare to the 'Variable Copper Mass Limitations' table in the permit to determine compliance.
Copper, Total Recoverable	Daily Max	0.069 lbs/day	Monthly	Calculated	
Hardness, Total as CaCO ₃		mg/L	Monthly	24-Hr Flow Prop Comp	Monitoring only and collect on the same day that copper sample is taken.
Nitrogen, Ammonia Variable Limit		mg/L	2/Week	See Table	Using the daily pH result look up the variable daily maximum ammonia limit in the 'Variable Daily Maximum Ammonia Limit' table of the permit. Enter the variable limit in the 'Ammonia Variable Limit' column on the eDMR.
Nitrogen, Ammonia (NH ₃ -N) Total	Daily Max - Variable	mg/L	2/Week	24-Hr Flow Prop Comp	Report the ammonia result on the eDMR. Compare to the 'Ammonia Variable Limit' above to determine compliance.
Nitrogen, Ammonia (NH ₃ -N) Total	Weekly Avg	7.3 mg/L	2/Week	24-Hr Flow Prop Comp	Limit in effect April and May annually.
Nitrogen, Ammonia (NH ₃ -N) Total	Monthly Avg	4.2 mg/L	2/Week	24-Hr Flow Prop Comp	Limit in effect April and May annually.
Nitrogen, Ammonia (NH ₃ -N) Total	Weekly Avg	5.1 mg/L	2/Week	24-Hr Flow Prop Comp	Limit in effect June through September annually.

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	3.5 mg/L	2/Week	24-Hr Flow Prop Comp	Limit in effect June through September annually.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	8.8 mg/L	2/Week	24-Hr Flow Prop Comp	Limit in effect October through March annually.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	8.8 mg/L	2/Week	24-Hr Flow Prop Comp	This is an interim limit in effect October through March annually from permit reissuance through the end of the 'Ammonia WQBELs' schedule in section 5.4.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	4.9 mg/L	2/Week	24-Hr Flow Prop Comp	This final limit applies October through March and goes into effect pursuant to the 'Ammonia WQBELs' schedule in section 5.4 but no later than September 30, 2027.
Phosphorus, Total	Monthly Avg	1.9 mg/L	Weekly	24-Hr Flow Prop Comp	
Phosphorus, Total	Monthly Avg	0.37 lbs/day	Weekly	Calculated	See the TMDL Limitations section in the permit.
Phosphorus, Total		lbs/month	Monthly	Calculated	Calculate and report the total monthly mass of TP discharged in lbs/month on the last day of the month on the eDMR.
Phosphorus, Total		lbs/yr	Monthly	Calculated	Calculate and report the 12-month rolling sum of the total monthly mass of TP on the last day of the month on the eDMR.
Chronic WET	Monthly Avg	1.1 TUc	See Listed Qtr(s)	24-Hr Flow Prop Comp	See Whole Effluent Toxicity (WET) section of the permit for testing dates and WET requirements.
Nitrogen, Total Kjeldahl		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Annual in rotating quarters. See Nitrogen Series Monitoring section of the permit.

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Nitrogen, Nitrite + Nitrate Total		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Annual in rotating quarters. See Nitrogen Series Monitoring section of the permit.
Nitrogen, Total		mg/L	See Listed Qtr(s)	Calculated	Annual in rotating quarters. See Nitrogen Series Monitoring section of the permit. Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen.
Chloride		mg/L	Monthly	24-Hr Flow Prop Comp	Monitoring only in calendar year 2026.
Temperature Maximum		deg F	Monthly	Grab	Monitoring only in calendar year 2026.

Changes from Previous Permit

- TMDL derived TSS and total phosphorus mass effluent limitations and monitoring has been added to the permit. An additional reporting requirement for lbs/month will be used to calculate the facility’s 12-month rolling sum of total monthly discharge, which can be compared directly to the facility’s designated WLAs for total phosphorus and TSS. The department modified the note language for reporting monthly and annual total phosphorus loadings
- The department increased the daily maximum mass limit for total recoverable copper to 0.069 lbs/day.
- The department increased the sample frequency for total hardness from “Quarterly” to “Monthly”.
- The department increased the interim total phosphorus limit to 1.9 mg/L.
- The department increased the sample frequency for total phosphorus from “Monthly” to “Weekly”.
- The department has removed all Multi-Discharger Variance (MDV) requirements for phosphorus.

Explanation of Limits and Monitoring Requirements

More information and explanation about the proposed water quality-based effluent limits (WQBELs) for this permit modification are found in the “Water Quality-Based Effluent Limitations for Maribel Wastewater Treatment Facility - WPDES Permit No. (WI-0061051-10-1)” memo dated February 26, 2026.

Total Recoverable Copper Mass Limit: The daily maximum mass limit of 0.011 lbs/day was calculated using the annual average design flow, rather than the peak daily design flow as required per s. NR 106.07(2)(a), Wis. Adm. Code. This is consider an error and a cause for permit modification to correct technical mistakes in calculations when applying pertinent regulations to permit terms and conditions pursuant to s. NR 203.136(1)(m), Wis. Adm. Code. The daily maximum mass limit was recalculated as 0.069 lbs/day ($48 \mu\text{g/L}/1000 * 0.172 \text{ MGD} * 8.34$).

Total Hardness Sample Frequency: Since the permittee is required to test for total hardness every time a monthly copper sample is analyzed, the department increased the sample frequency from “Quarterly” to “Monthly” so that all total hardness samples are reported to the department.

TMDL derived TSS Mass Effluent Limitations: If the department determines a limitation is necessary, effluent limitation shall be also consistent with a total maximum daily load (TMDL) if a TMDL has been approved by the U.S. Environmental Protection Agency (USEPA) for the receiving waterbody consistent with s. NR 205.067(3)(a), Wis. Adm. Code. The discharge to the unnamed tributary to Kriwanek Creek which is within the Northeast Lakeshore Basin TMDL area. The Northeast Lakeshore Basin TMDL for total phosphorus and total suspended solids was approved by the USEPA on October 30, 2023. The department has determined that TSS effluent limitations are necessary. Therefore, the department must calculate TMDL derived TSS limits to be consistent with the Northeast Lakeshore Basin TMDL. The approved total suspended solids waste load allocation (WLA) for the permittee is 2,355 lbs/year which results in calculated total suspended solids mass limits of 15.3 lbs/day as a weekly average and 10.3 lbs/day as a monthly average. Since the TSS WLA is expressed as an annual load (lbs/yr), the permittee must also calculate and report the rolling 12-month sums of total monthly loads for TSS. Rolling 12-month sums can be compared directly to the annual wasteload allocation. Based on the effluent TSS data submitted on eDMRs from January 2021 to December 2025, the permittee can currently meet the TSS mass limits, and a compliance schedule is not needed.

TMDL derived Total Phosphorus Mass Effluent Limitations: Phosphorus requirements are based on the Phosphorus Rules as detailed in chs. 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, there are three types of limit calculations used to determine if a phosphorus limit is needed: a technology based effluent limit (TBEL), a WQBEL determined by stream criteria and an effluent limit based on a TMDL allocation.

- 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 data demonstrates that the annual monthly average phosphorus loading is less than 150 lbs/month. However, an interim limit of 1.0 mg/L went into effect per the MDV compliance schedules. The current monthly average interim limit of 1.0 mg/L is being relaxed to 1.9 mg/L, equivalent to the 4-day P99. This limit can be relaxed per antibacksliding requirements under s. NR 207.12(4), Wis. Adm. Code because the TMDL has become finalized, and Maribel will meet the TMDL limits via treatment. The limit of 1.9 mg/L is the current level achievable by the facility using the temporary chemical feed system. The facility is in the process of upgrading the wastewater treatment facility with a permanent chemical feed system.
- The final total phosphorus WQBELs were determined to be 0.48 mg/L as a monthly average, 0.16 mg/L as a six-month average, and 0.038 lbs/day as a six-month average. These limits have yet to take effect per the MDV in the previous permit. The department has determined to include the total phosphorus TMDL derived limitations in lieu of the WQBELs calculated under s. NR 217.13, Wis. Adm. Code pursuant to s. NR 217.16, Wis. Adm. Code.
- The discharge to an unnamed tributary to Kriwanek Creek which is within the Northeast Lakeshore Basin TMDL area. The Northeast Lakeshore Basin TMDL for total phosphorus and total suspended solids was approved by the USEPA on October 30, 2023. If the department determines a WQBEL is necessary, limitations shall be consistent with a TMDL if a TMDL has been approved by the USEPA for the receiving waterbody consistent with s. NR 205.067(3)(a), Wis. Adm. Code. The department has determined that total phosphorus WQBELs are necessary. Therefore, the department must also calculate TMDL derived total phosphorus limits to be consistent with the Northeast Lakeshore Basin TMDL. The approved total phosphorus WLA for the permittee is 71 lbs/year. Since the equivalent concentration is greater than 0.3 mg/L, the WLA should be expressed as a monthly average mass limit for total phosphorus and no six-month average limit is required. The department calculated a total phosphorus mass limit of 0.37 lbs/day as a monthly average. Since the total phosphorus WLA is expressed as an annual load (lbs/yr), the permittee must also calculate and report the rolling 12-month sums of total monthly loads for total phosphorus. Rolling 12-month sums can be compared directly to the annual wasteload allocation. Based on the effluent total phosphorus data submitted on eDMRs from October 2024 to December 2025 the permittee can currently meet the total phosphorus mass limit, and a compliance schedule is not needed.

The permittee has stated that they can comply with the final TMDL WLA-based effluent limit of 0.37 lbs/day as a monthly average. This limit will become effective upon the permit modification effective date. Therefore, the facility does not need the MDV and the department has removed all MDV requirements and schedules for phosphorus.

Phosphorus Sample Frequency: The sample frequency was increased for total phosphorus from “Monthly” to “Weekly” in order to better characterize effluent quality and variability, to detect events of noncompliance, and to ensure consistency in permits issued across the state.

Refer to the Fact Sheet for WPDES Permit No. WI-0061051-10-0 for the explanation of other limits and monitoring requirements.

Sample Point Number: 601- Upstream-Receiving Water; 602- Midpoint-Receiving Water; 603- Terminus-Receiving Water, and 604- CTH R – Receiving Water

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow River		Yes=1 No=0	See Listed Qtr(s)	Numeric Description	See sections 2.2.2.1 and 2.2.2.2 of the permit.
Chloride		mg/L	See Listed Qtr(s)	Grab	See section 2.2.2.2 of the permit.
Nitrogen, Total Kjeldahl		mg/L	See Listed Qtr(s)	Grab	See section 2.2.2.2. of the permit.
Nitrogen, Ammonia (NH3-N) Total		mg/L	See Listed Qtr(s)	Grab	See section 2.2.2.2 of the permit.
Nitrogen, Organic Total		mg/L	See Listed Qtr(s)	Calculated	See sections 2.2.2.2 and 2.2.2.3. of the permit.
Nitrogen, Nitrite + Nitrate Total		mg/L	See Listed Qtr(s)	Grab	See section 2.2.2.2 of the permit.
Nitrogen, Total		mg/L	See Listed Qtr(s)	Calculated	See sections 2.2.2.2 and 2.2.2.3 of the permit.
Waterway Inspection			See Listed Qtr(s)		See section 2.2.2.4 of the permit.

Changes from Previous Permit

- The department changed the waterway inspection language to match which is being conducted by the facility.

Explanation of Limits and Monitoring Requirements

Waterway Inspection: The department updated the language on the extent of the receiving water that is required to be inspected by permittee annually in rotating quarters. The department found it acceptable, due to the safety of the operator, for Maribel to complete the annual waterway inspections to I-43 within Village boundaries. After I-43, Maribel can view the stream flow from North Packer Drive. If no stream flow is observed from the roadway, the Maribel shall contact the

department, and the department can determine if a stream inspection of the remaining waterway is necessary. If so, the department would arrange to complete the remaining waterway inspection with Maribel.

3 Septage Management - Proposed Monitoring and Limitations

Sample Point Number: 901- Septage

Changes from Previous Permit:

No changes were made to Sampling Point 901 for this permit modification.

Explanation of Limits and Monitoring Requirements

Refer to the Fact Sheet for WPDES Permit No. WI-0061051-10-0 for the explanation of septage management requirements.

4 Schedules

4.1 Phosphorus Payment per Pound to County

The permittee is required to make annual payments for phosphorus reductions to the participating county or counties in accordance with s. 283.16(8), Wis. Stats, and the following schedule. The price per pound will be set at the time of permit reissuance and will apply for the duration of the permit.

Required Action	Due Date
<p>Annual Verification of Payment #5: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties from January to April 2026 when the MDV was still effective. The amount due is equal to the following: [(lbs of phosphorus discharged minus the permittee’s target value) times (\$58.85 per pound)] or \$640,000, whichever is less.</p> <p>Note: The applicable Target Value is 0.2 mg/L as defined by s. 283.16(1)(h), Wis. Stats. The "per pound" value is \$50.00 adjusted for CPI.</p>	03/01/2027

4.2 Water Quality Based Effluent Limits (WQBELs) for Ammonia

The permittee shall comply with the WQBELs for Ammonia of 4.9 mg/L for October through March annually. No later than 14 days following each compliance date, the permittee shall notify the department in writing of its compliance or noncompliance with the required actions in the schedule.

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, operational improvements or other minor facility modifications that will optimize reductions in ammonia discharges from the treatment plant during the period prior to complying with final ammonia WQBELs and, where possible, enable compliance with final ammonia WQBELs by October 1, 2025. The report shall provide a plan and schedule for implementation of the improvements and modifications as soon as possible, but not later than October 1, 2025 and state whether the improvements and modifications will enable compliance with final ammonia 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 ammonia WQBELs using the existing treatment system with only operational improvements and minor facility modifications, the permittee shall comply with the final ammonia WQBELs by October 1, 2025 and is not required to comply with the milestones identified below for years 2 through 5 of this compliance schedule ("Facilities Plan", "Final Plans and Specifications", "Construction Upgrade Progress Report", "Complete Construction", "Achieve Compliance").</p> <p>If the Operational Evaluation Report concludes that the permittee cannot achieve final ammonia WQBELs with operational improvements and other minor facility modifications, the permittee shall initiate facility planning for meeting final ammonia WQBELs and comply with the remaining required actions of this schedule of compliance. If the Department disagrees with the conclusion of the report and determines that the permittee can achieve final ammonia WQBELs using the existing treatment system with only operational improvements and minor facility modifications, the Department may reopen and modify the permit to include an implementation schedule for achieving the final ammonia WQBELs sooner than September 1, 2027.</p>	09/30/2023

Required Action	Due Date
Facility Plan: The permittee shall submit a facilities plan to the Department for approval pursuant to ch. NR 110, Wis. Adm. Code. The facilities plan shall also include a status on the implementation of operational improvements or other minor facility modifications as specified in the operational evaluation report.	09/30/2024
Final Plans and Specifications: The permittee shall submit final construction plans and specifications to the Department for approval pursuant to s. 281.41, Stats., specifying the modifications or upgrades that must be constructed to achieve compliance with the final ammonia WQBELs, and a schedule for completing construction of the modifications or upgrades by the dates specified below. (Note: Permit modification, revocation and reissuance, and reissuance is subject to s. 283.53(2) Stats.).	09/30/2025
Construction Upgrade Progress Report: The permittee shall submit a progress report on construction upgrades.	09/30/2026
Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades.	08/31/2027
Achieve Compliance: The permittee shall achieve compliance with the final ammonia WQBELs of 4.9 mg/L for the months of October through March in addition to all other ammonia WQBELs in this permit.	09/30/2027

4.3 Annual Waterway Inspections

The permittee is required to perform annual receiving water inspections per Section 2.2.2.4 and the following schedule.

Required Action	Due Date
Annual Waterway Inspection Report #1: Submit an annual water inspection report per Section 2.2.2.4	07/21/2023
Annual Waterway Inspection Report #2: Submit an annual water inspection report per Section 2.2.2.4	10/21/2024
Annual Waterway Inspection Report #3: Submit an annual water inspection report per Section 2.2.2.4	01/21/2026
Annual Waterway Inspection Report #4: Submit an annual water inspection report per Section 2.2.2.4	04/21/2026
Annual Waterway Inspection Report #5: Submit an annual water inspection report per Section 2.2.2.4	07/21/2027
Annual Waterway Inspection Reports After Permit Expiration: In the event that this permit is not reissued by the date the permit expires, the permittee shall continue to submit annual waterway reports per Section 2.2.2.4.	

4.4 Facility Upgrade

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
Facility Plan: The permittee shall submit a facility plan to the department for approval pursuant to ch. NR 110, Wis. Adm. Code.	06/30/2026
Final Plans and Specifications: The permittee shall submit final construction plans and specifications to the department for approval pursuant to s. 281.41, Stats., specifying the wastewater treatment facility upgrades that must be constructed to achieve compliance with the WPDES permit, and a schedule for completing construction of the upgrades by the dates specified below.	09/30/2026
Financial Assistance Application: Provide confirmation that a Financial Assistance Application and Principal Forgiveness (PF) request, as authorized by s. 281.58, Wis. Stats., and Ch. NR 162, Wis. Adm. Code, was submitted online to the Department's Clean Water Fund Program by September 30, 2026.	09/30/2026
Initiate Construction: 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.	03/31/2027
Construction Upgrade Progress Report: The permittee shall submit a progress report on construction upgrades via email.	12/31/2027
Complete Construction: The permittee shall complete construction of system upgrades and notify the department of completion via email.	12/31/2028

Explanation of Schedules

Phosphorus Schedule - Continued Optimization: The department has removed this compliance schedule with this permit modification. The permittee has demonstrated that the wastewater treatment facility has been optimized to meet the final total phosphorus TMDL WLA-based effluent limit of 0.37 lbs/day as a monthly average. The permittee shall continue to optimize the temporary chemical feed system to the greatest extent possible until the new permanent chemical feed system is installed as part of the wastewater treatment facility upgrades project.

Phosphorus Payment per Pound to County: Subsection 283.16(6)(b), Wis. Stats., requires permittees that have received approval for the MDV to implement a watershed project that is designed to reduce non-point sources of phosphorus within the watershed in which the permittee is located. The permittee had previously selected the "Payment to Counties" watershed option described in s. 283.16(8), Wis. Stats. Under this option the permittee shall make annual payment(s) to participating county(s) when the MDV was still effective from January to April 2026. This schedule serves as a reminder to the permittee to submit Form 3200-151 to the department indicating the total amount remitted to the participating county(s).

Facility Upgrades: The permittee is currently under secondary enforcement and working on facility planning to bring the wastewater treatment facility back into compliance with ammonia nitrogen, total phosphorus, and total recoverable copper effluent limits. This schedule serves a reminder to complete the compliance actions by the due dates. This schedule will allow the permittee time to prepare a facility plan, final plans and specifications, bid/prepare for construction, and to install and initiate the wastewater treatment upgrades.

Refer to the Fact Sheet for WPDES Permit No. WI-0061051-10-0 for the explanation of other schedule items.

5 Standard Requirements

The Standard Requirements section contains conditions and requirements that are, for the most part, applicable to all municipal permittees consistent with ss. NR 205.07(1) and NR 205.07(2), Wis. Adm. Code. Other standard requirements may be added as reminders.

Changes from Previous Permit:

- The department has removed the groundwater standard requirements as groundwater monitoring is no longer required under the permit.

6 Summary of Reports Due

A summary of reports due has been added for informational purposes for the permittee to keep track of the due dates of reports and schedule items.

Other Comments/Changes from Previous Permit

- The department has removed the groundwater monitoring requirements for sampling the background well and private wells in proximity of the effluent outfall and flow direction of the creek that receives the effluent discharge. The department determined there is no obvious correlations between the effluent concentrations and the groundwater sampling results and, therefore, found that groundwater is no longer required. However, the permittee shall continue to conduct annual waterway inspections. Annual inspections of the waterway are required to determine the extent of surface water flow in the stream bed, locations of excessive seepage which may be indicative of karst features (fractures or sink holes), and to track any changes relative to these factors. This information may be used in future determinations of the need for effluent limits and/or continued monitoring, or future actions by the permittee to ensure that groundwater quality standards are not exceeded.

Attachments:

“Water Quality-Based Effluent Limitations for Maribel Wastewater Treatment Facility -WPDES Permit No. (WI-0061051-10-1)” memo dated February 26, 2026.

Prepared By:

Trevor Moen
Wastewater Engineer
Bureau of Water Quality

Date: 03/06/2026

Post Public Notice Revision Date:

DATE: 02/26/2026

TO: Trevor Moen – NER

FROM: Nicole Krueger – SER *Nicole Krueger*

SUBJECT: Water Quality-Based Effluent Limitations for the Maribel Wastewater Treatment Facility
WPDES Permit No. WI-0061051-10-1

This is in response to your request for an evaluation of the need for total phosphorus, total suspended solids (TSS), and copper mass limitations for Maribel Wastewater Treatment Facility. The wastewater treatment plant discharges effluent at an annual average design flow rate of 0.028 MGD to an unnamed tributary to Kriwanek Creek in the West Twin River Watershed in the Lakeshore Basin. This discharge is included in the Northeast Lakeshore Basin TMDL as approved by EPA. Recommendations are made in accordance with chapters NR 102, 104, 105, 106, 207, 212, and 217 of the Wisconsin Administrative Code, where applicable.

PART 1 – BACKGROUND

Receiving Water Information

- Name: Unnamed tributary to Kriwanek Creek
- Classification: Warmwater Sportfish
- Low Flow: $7-Q_{10} = 0$ cfs (cubic feet per second)

Effluent Information

- Design Flows:
 - Annual average = 0.028 MGD
 - Peak daily = 0.172 MGD
- Effluent characterization: This facility is categorized as a minor municipality
- Monitoring data: Data submitted by the facility to the department from 01/01/2021 – 12/31/2025 was used in this evaluation
- Total Phosphorus Wasteload Allocation: 71 lbs/year (see Appendix K of the TMDL document)
- Total Suspended Solids Wasteload Allocation: 2,355 lbs/year (see Appendix L of the TMDL document)

PART 2 – TMDL LIMITS

The current permit, effective since December 2022, has an MDV interim phosphorus limit of 1.0 mg/L and TSS limits of 30 mg/L as a weekly average and 20 mg/L as a monthly average. The following review is based on the Northeast Lakeshore Basin Total Maximum Daily Load (TMDL) which was developed by the Department and approved by the US EPA in October 2023.

TMDL - Phosphorus

Total phosphorus (TP) effluent limits in lbs/day are calculated as recommended in the *TMDL Development and Implementation Guidance: Integrating the WPDES and Impaired Waters Programs* (April 2020) and are based on the annual phosphorus wasteload allocation (WLA) given in pounds per year. This WLA found in Appendix K of the *Total Maximum Daily Loads for*

Total Phosphorus and Total Suspended Solids in the Northeast Lakeshore Region report are expressed as maximum annual loads (lbs/year).

For the reasons explained in the April 30, 2012 paper entitled *Justification for Use of Monthly, Growing Season and Annual Average Periods for Expression of WPDES Permit Limits for Phosphorus Discharges in Wisconsin*, WDNR has determined that the phosphorus WQBELs set equal to WLAs would not be consistent with the assumptions and requirements of the TMDL. Therefore, limits given to facilities included in the Northeast Lakeshore Basin TMDL are given monthly average mass limits and, if the equivalent effluent concentration is less than or equal to 0.3 mg/L, six-month average mass limits are also included. The following equation shows the calculation of equivalent effluent concentration:

$$\begin{aligned}\text{TP Equivalent Effluent Concentration} &= \text{WLA} \div (\text{365 days/yr} * \text{Flow Rate} * \text{Conversion Factor}) \\ &= 71 \text{ lbs/yr} \div (\text{365 days/yr} * \text{0.028 MGD} * \text{8.34}) \\ &= 0.83 \text{ mg/L}\end{aligned}$$

Since this value is greater than 0.3 mg/L, the WLA should be expressed as a monthly average mass limit for total phosphorus and no six-month average limit is required.

$$\begin{aligned}\text{Monthly Average Permit Limit} &= \text{WLA} \div \text{365 days/yr} * \text{multiplier} \\ &= (71 \text{ lbs/yr} \div \text{365 days/yr}) * \text{1.9} \\ &= 0.37 \text{ lbs/day}\end{aligned}$$

The multiplier used in the monthly average calculation was determined according to the implementation guidance. A coefficient of variation was calculated, based on phosphorus mass monitoring data, to be 0.8. This is the standard deviation divided by the mean of mass data. However, it is believed that the optimization of the wastewater treatment system to achieve the WLA-derived permit limits will reduce effluent variability. Thus, the maximum anticipated coefficient of variation expected by the facility is 0.6. This value, along with monitoring frequency, is used to select the multiplier. The current permit specifies phosphorus monitoring as monthly; however, a monitoring frequency of weekly will be required in the modified permit. If a different monitoring frequency is used, the stated limits should be reevaluated.

A monthly average mass effluent limit is recommended for this discharge. The limits are equivalent to a concentration of 1.6 mg/L at the facility design flow of 0.028 MGD.

The TMDL establishes TP wasteload allocations to reduce the loading in the entire watershed including WLAs to meet water quality standards for tributaries in the Northeast Lakeshore Basin. Therefore, WLA-based WQBELs are protective of immediate receiving waters and TP WQBELs derived according to s. NR 217.13, Wis. Adm. Code are not required.

Since wasteload allocations are expressed as annual loads (lbs/yr), permits with TMDL-derived monthly average permit limits should require the permittee to calculate and report rolling 12-month sums of total monthly loads for TP. Rolling 12-month sums can be compared directly to the annual wasteload allocation.

Effluent Data – Phosphorus

The following table lists the statistics for effluent phosphorus levels from 10/16/2024 – 12/25/2025. Data before October 2024 was excluded because the MDV interim limit of 1.0 mg/L as a monthly average became effective on 10/01/2024.

Effluent Phosphorus Data

	Concentration (mg/L)	Mass (lbs/day)
1-day P ₉₉	2.64	0.81
4-day P ₉₉	1.90	0.51
30-day P ₉₉	1.50	0.36
Mean	1.31	0.29
Std	0.44	0.15
Sample Size	30	30
Range	0.55 - 2.3	0.099 - 0.79

Maribel can meet the monthly average TMDL limit most of the time with a temporary treatment system which will be upgraded to a permanent system. The current monthly average interim limit of 1.0 mg/L is recommended to become relaxed to 1.9 mg/L, equivalent to the 4-day P₉₉. This limit can be relaxed per antibacksliding requirements under s. NR 207.12(4), Wis. Adm. Code because the TMDL has become finalized and Maribel will meet the limit through treatment.

Because Maribel will be able to meet the TMDL limit through treatment, they will no longer be eligible for the MDV and requirements for the MDV may be removed.

TMDL – TSS

Total Suspended Solids (TSS) effluent limits in lbs/day are calculated as recommended in the *TMDL Development and Implementation Guidance: Integrating the WPDES and Impaired Waters Programs* (April 2020). This WLAs found in Appendix I of the *Total Maximum Daily Loads for Total Phosphorus and Total Suspended Solids in the Northeast Lakeshore Region* report are expressed as maximum annual loads (lbs/year).

Revisions to chs. NR 106 and 205, Wis. Adm. Code align Wisconsin water quality-based effluent limits with 40 CFR 122.45(d), which requires WPDES permits to contain the following concentration limits, whenever practicable and necessary to protect water quality:

- Weekly average and monthly average limitations for continuous discharges subject to ch. NR 210.
- Daily maximum and monthly average limitations for all other discharges.

Maribel is a municipal treatment facility and is therefore subject to weekly average and monthly average TSS limits derived from TSS annual WLAs.

$$\begin{aligned} \text{TSS Monthly Average Permit Limit} &= \text{WLA} \div 365 \text{ days/yr} * \text{multiplier} \\ &= (2,355 \text{ lbs/yr} \div 365 \text{ days/yr}) * 1.59 \\ &= 10.3 \text{ lbs/day} \end{aligned}$$

$$\begin{aligned} \text{TSS Weekly Average Permit Limit} &= \text{WLA} \div 365 \text{ days/yr} * \text{multiplier} \\ &= (2,355 \text{ lbs/yr} \div 365 \text{ days/yr}) * 2.37 \\ &= 15.3 \text{ lbs/day} \end{aligned}$$

The multiplier used in the weekly average and monthly average calculation was determined according to implementation guidance. A coefficient of variation was calculated, based on TSS mass monitoring data, to be 1.2. This is the standard deviation divided by the mean of mass data. However, it is believed that the optimization of the wastewater treatment system to achieve the WLA-derived permit limits will reduce effluent variability. Thus, the maximum anticipated

coefficient of variation expected by the facility is 0.6. This value, along with monitoring frequency, is used to select the multiplier. The current permit specifies TSS monitoring as 2/week; if a different monitoring frequency is used, the stated limits should be reevaluated.

Weekly average and monthly average mass effluent limits are recommended for this discharge. The limits are equivalent to concentrations of 65 mg/L and 44 mg/L, respectively, at the facility design flow of 0.028 MGD.

Since wasteload allocations are expressed as annual loads (lbs/yr), permits with TMDL-derived monthly average permit limits should require the permittee to calculate and report rolling 12-month sums of total monthly loads for TSS. Rolling 12-month sums can be compared directly to the annual wasteload allocation.

Effluent Data – TSS

The following table summarizes effluent total suspended solids monitoring data from 01/06/2021 – 12/29/2025.

Total Suspended Solids Effluent Data

	TSS mg/L	TSS lbs/day
1-day P ₉₉	22.9	5.04
4-day P ₉₉	12.5	2.73
30-day P ₉₉	6.02	1.43
Mean*	3.39	0.90
Std	5.22	1.05
Sample size	366	280
Range	<2 - 48.8	0 - 10.8

*Results below the level of detection (LOD) were included as zeroes in calculation of average.

Maribel can currently meet the TSS mass limits, and a compliance schedule is not needed.

PART 4 – COPPER LIMITS

The current permit has the following copper limits:

Effluent Copper Limits

	Daily Maximum	Weekly Average	Monthly Average
Wet weather	48 µg/L 0.011 lbs/day	29 µg/L 0.0068 lbs/day 0.026 lbs/day	29 µg/L

The daily maximum mass limit of 0.011 lbs/day was calculated using the annual average design flow, rather than the peak daily design flow as required per s. NR 106.07(2)(a), Wis. Adm. Code. There have been repeated exceedances of this mass limit since it became effective in 2017. **The daily maximum mass limit is recalculated as 0.069 lbs/day** (48 µg/L * 0.172 MGD * 8.34/1000).

The less stringent daily maximum mass limit may be made effective in the modified permit because it meets antibacksliding provisions, specifically s. NR 207.12(3)(b)3., Wis. Adm. Code,

which states that “A less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonable available remedy.” Antidegradation does not apply since Maribel has been unable to meet the current limit consistently and relaxing the effective limit will not result in an increased discharge as defined in ch. NR 207, Wis. Adm. Code.

PART 5 – FINAL LIMITS RECOMMENDATIONS

Based on our review, the following recommendations are made on a chemical-specific basis at Outfall 002 for the parameters evaluated in this addendum:

Parameter	Daily Maximum	Weekly Average	Monthly Average
TSS TMDL		30 mg/L 15.3 lbs/day	20 mg/L 10.3 lbs/day
Copper Wet weather	48 µg/L 0.069 lbs/day	29 µg/L 0.0068 lbs/day 0.026 lbs/day	29 µg/L
Phosphorus TMDL			1.9 mg/L 0.37 lbs/day

If there are any questions or comments, please contact Nicole Krueger at Nicole.Krueger@wisconsin.gov or Diane Figiel at Diane.Figiel@wisconsin.gov.

PREPARED BY: Nicole Krueger, Water Resources Engineer – SER