Village of Wheeler Public Noticed Permit Fact Sheet

General Information

Permit Number	WI-0060852-11-0
Permittee	Village of Wheeler, 105 W. Tower Road Village Hall PO Box 16, Wheeler, WI 54772
Permitted Facility	Wheeler Wastewater Treatment Facility, 2009 Highway 170, Wheeler, WI 54772
Permit Term	January 01, 2027 to December 31, 2031
Discharge Location	SW1/4 SW1/4, Section 25, T30N R12W, Village of Wheeler, Dunn County, WI; located on the south bank of the South Fork of the Hay River in Dunn County, Wisconsin
Receiving Water	South Fork of the Hay River in South Fork Hay River Watershed of Lower Chippewa River Basin in Dunn County
Stream Flow ($Q_{7,10}$)	31.3 cfs
Stream Classification	Warmwater Sport Fish, Non-public Water Supply
Discharge Type	Existing, continuous
Annual Average Design Flow	0.05 MGD
Industrial or Commercial Contributors	None
Plant Classification	A4 - Ponds, Lagoons and Natural Systems; P - Total Phosphorus; D - Disinfection; SS - Sanitary Sewage Collection System
Approved Pretreatment Program?	N/A

Facility Description

The Wheeler Wastewater Treatment Facility treats domestic wastewater from the Village of Wheeler. The facility has an annual average design flow of 0.050 million gallons per day (MGD); the annual average effluent flow for 2025 was 0.010 MGD. Treatment consists of two aerated lagoons & two settling ponds, followed by seasonal ultraviolet (UV) light disinfection prior to discharge to the Hay River. Phosphorus treatment is via addition of alum to the second aerated lagoon. The facility moved from a fill and draw discharge to a continuous discharge last permit term. No other major operational changes occurred during the last permit term.

Substantial Compliance Determination

Enforcement During Last Permit: The facility received NONs on 4/17/2019 and 1/13/2020 for failure to sample the effluent for Ammonia. Most effluent samples have been taken on time since then. There was a period between June and August of 2022 where the facility did not have an operator taking influent flow readings or samples. Facility was not discharging effluent during this time. New operator started and records have been kept since then. After a desktop review of all discharge monitoring reports, CMARs, land application reports, compliance schedule items, and a site visit on 05/22/2026, the permittee has been found to be in substantial compliance with their current permit.

Compliance determination entered by Logan Rubeck on 6/16/2026

Sample Point Descriptions

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: 0.013 MGD (2025)	Representative influent samples shall be collected at the wet well of the influent lift station.
001	Effluent: 0.010 MGD (2025)	Representative effluent samples shall be collected at the effluent structure after disinfection, prior to discharge to the Hay River.
002	Lagoon Sludge: Sludge has not been removed from lagoons since 1994	Representative composite lagoon sludge samples shall be collected between 01/01/2027 and 06/30/2027 and monitored for the parameters as listed in the table below and described in Section 3.2.1.1. If the permittee plans to remove sludge, they shall monitor sludge for Lists 1, 2, 3 & 4 and PFAS prior to land application. The Department shall be notified at least 30 days in advance of sludge removal so that appropriate monitoring forms can be provided. Approval of land application sites must be completed prior to sludge removal.

Permit Requirements

1 Influent – Monitoring Requirements

1.1 Sample Point Number: 701- WET WELL LIFT STATION

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 evaluated for this permit term and the following changes were made from the previous permit: 1) the flow monitoring frequency has been changed from continuous to daily for eDMR reporting purposes.

Explanation of Limits and Monitoring Requirements

Monitoring of influent flow, BOD5 and total suspended solids is required by s. NR 210.04(2), Wis. Adm. Code, to assess wastewater strengths and volumes and to demonstrate the percent removal requirements in s. NR 210.05, Wis. Adm. Code, and in the Standard Requirements section of the permit.

2 Surface Water - Monitoring and Limitations

2.1 Sample Point Number: 001- EFFLUENT TO HAY RIVER

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
BOD5, Total	Weekly Avg	45 mg/L	Weekly	Grab/24-Hr Flow Prop Comp*	
BOD5, Total	Monthly Avg	30 mg/L	Weekly	Grab/24-Hr Flow Prop Comp*	
Suspended Solids, Total	Weekly Avg	45 mg/L	Weekly	Grab/24-Hr Flow Prop Comp*	
Suspended Solids, Total	Monthly Avg	30 mg/L	Weekly	Grab/24-Hr Flow Prop Comp*	
pH Field	Daily Min	6.0 su	5/Week	Grab	
pH Field	Daily Max	9.0 su	5/Week	Grab	
Nitrogen, Ammonia Variable Limit		mg/L	Weekly	See Table	Look up the variable ammonia limit from the 'Variable Ammonia Limitation' table and report the variable limit in the Ammonia Variable Limit column on the eDMR.
Nitrogen, Ammonia (NH3-N) Total	Daily Max - Variable	mg/L	Weekly	Grab/24-Hr Flow Prop Comp*	Report the daily maximum Ammonia result in the Nitrogen, Ammonia (NH_3-N) Total column of the eDMR. See Ammonia Limitation Section in permit.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	108 mg/L	Weekly	Grab/24-Hr Flow Prop Comp*	
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	108 mg/L	Weekly	Grab/24-Hr Flow Prop Comp*	

Copper, Total Recoverable	Daily Max	43 ug/L	Monthly	Grab/24-Hr Flow Prop Comp*	Monitoring required at permit effective date. Limits effective 01/01/2030 per the associated compliance schedule. Copper samples shall be collected at the same time as hardness samples, and at the same time as the two acute WET tests required during the permit term.
Copper, Total Recoverable	Daily Max	0.25 lbs/day	Monthly	Calculated	
Copper, Total Recoverable	Weekly Avg	43 ug/L	Monthly	Grab/24-Hr Flow Prop Comp*	
Copper, Total Recoverable	Monthly Avg	43 ug/L	Monthly	Grab/24-Hr Flow Prop Comp*	
Hardness, Total as CaCO3		mg/L	Monthly	Grab/24-Hr Flow Prop Comp*	Hardness samples shall be collected at the same time as copper samples.
Chloride		mg/L	Monthly	24-Hr Flow Prop Comp	Monthly chloride monitoring required in 2030 only.
Fecal Coliform	Geometric Mean - Monthly	400 #/100 ml	Weekly	Grab	Interim limit effective May through September annually until the final E. coli limit goes into effect per the Effluent Limitations for E. coli Schedule.
E. coli		#/100 ml	Weekly	Grab	Monitoring only May through September annually until the final limit goes into effect per the Effluent Limitations for E. coli Schedule.
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	Limit effective May through September annually, per the Effluent Limitations for E. coli Schedule. See the E. coli Percent Limit section in the permit. Enter the result in the DMR on the last day of the month.

Phosphorus, Total		mg/L	Weekly	Grab/24-Hr Flow Prop Comp*	
Phosphorus, Total	Monthly Avg	0.79 lbs/day	Weekly	Calculated	See TMDL phosphorus section in permit
Phosphorus, Total		lbs/yr	Monthly	Calculated	Calculate the 12-Month Rolling Sum of Total Monthly mass of phosphorus discharged and report on the last day of the month on the DMR. See TMDL phosphorus section in permit.
Nitrogen, Total Kjeldahl		mg/L	See Listed Qtr(s)	Grab/24-Hr Flow Prop Comp*	See Nitrogen Series Monitoring section in permit for specific quarters that monitoring is required.
Nitrogen, Nitrite + Nitrate Total		mg/L	See Listed Qtr(s)	Grab/24-Hr Flow Prop Comp*	
Nitrogen, Total		mg/L	See Listed Qtr(s)	Calculated	See Nitrogen Series Monitoring section in permit for specific quarters that monitoring is required. Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen.
Acute WET		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	See WET section in permit

***Permittee shall collect 24 hour flow proportional composite samples by 01/01/2029 per the associated compliance schedule.**

Changes from Previous Permit

Effluent limitations and monitoring requirements were evaluated for this permit term and the following changes were made from the previous permit: 1) Effluent flow monitoring frequency changed from continuous to daily for DMR reporting purposes, 2) Removal of the 60 mg/L monthly avg TSS variance for lagoons. Since chemical treatment is currently utilized (addition of aum), Wheeler facility no longer qualifies for the total suspended solids variance limitation in accordance with s. NR 210.07(2), Wis. Adm. Code, therefore new TSS limits are included, 3) Addition of Acute WET testing twice during the permit term, 4) the addition of annual monitoring for total nitrogen, nitrite + nitrate nitrogen and total Kjeldahl nitrogen, 5) fecal coliform monitoring & limit will be replaced with Escherichia coli (E. coli) and a schedule has been included to meet the limits, 6) the variable daily maximum ammonia limit table has been expanded to include applicable limits at a lower effluent pH & the limits apply year-round, 7) weekly and monthly average ammonia limits have been added, 8) chloride monitoring added to have enough data to calculate reasonable potential for the next permit reissuance, 9) the TMDL phosphorus limit is a monthly average limit instead of an annual total because the discharge is now continuous and 10) the pH monitoring frequency has been decreased from daily to 5/week.

Explanation of Limits and Monitoring Requirements

Monitoring Frequencies- The *Monitoring Frequencies for Individual Wastewater Permits* guidance (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 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. At this time, using the criteria mentioned, the only frequency change is the decrease in pH monitoring frequency from daily to 5/week. Effluent pH levels have remained consistent over the previous permit term and no drastic day to day changes in pH levels have been observed.

Limits were determined for Wheeler's existing discharge to the Hay River using chs. NR 102, 104, 105, 106, 207, 210, 212 and 217 of the Wisconsin Administrative Code (where applicable). For additional information on any of the limits see the November 6, 2026 memo from Zainah Masri to Holly Heldstab titled "Water Quality-Based Effluent Limitations for the Wheeler Wastewater Treatment Facility WPDES Permit No. WI-0060852-11-0".

MUNICIPAL EFFLUENT LIMITS – In accordance with the federal regulation 40 CFR 122.45(d), and to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Codes, limits in this permit are to be expressed as weekly average and monthly average limits whenever practicable.

Ammonia: Weekly and monthly average ammonia limits apply year-round. Daily maximum ammonia limits that vary with effluent pH apply year-round are presented in the table below.

Variable Daily Max Ammonia Limitation Table

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
$6.0 \leq pH \leq 6.1$	108	$7.0 < pH \leq 7.1$	66	$8.0 < pH \leq 8.1$	14	$9.0 < pH \leq 9.1$	2.3
$6.1 < pH \leq 6.2$	106	$7.1 < pH \leq 7.2$	59	$8.1 < pH \leq 8.2$	11	$9.1 < pH \leq 9.2$	2.0
$6.2 < pH \leq 6.3$	104	$7.2 < pH \leq 7.3$	52	$8.2 < pH \leq 8.3$	9.4	$9.2 < pH \leq 9.3$	1.7
$6.3 < pH \leq 6.4$	101	$7.3 < pH \leq 7.4$	46	$8.3 < pH \leq 8.4$	7.8	$9.3 < pH \leq 9.4$	1.6
$6.4 < pH \leq 6.5$	98	$7.4 < pH \leq 7.5$	40	$8.4 < pH \leq 8.5$	6.4	$9.4 < pH \leq 9.5$	1.4
$6.5 < pH \leq 6.6$	94	$7.5 < pH \leq 7.6$	34	$8.5 < pH \leq 8.6$	5.3	$9.5 < pH \leq 9.6$	1.3
$6.6 < pH \leq 6.7$	89	$7.6 < pH \leq 7.7$	29	$8.6 < pH \leq 8.7$	4.4	$9.6 < pH \leq 9.7$	1.2
$6.7 < pH \leq 6.8$	84	$7.7 < pH \leq 7.8$	24	$8.7 < pH \leq 8.8$	3.7	$9.7 < pH \leq 9.8$	1.1
$6.8 < pH \leq 6.9$	78	$7.8 < pH \leq 7.9$	20	$8.8 < pH \leq 8.9$	3.1	$9.8 < pH \leq 9.9$	1.1
$6.9 < pH \leq 7.0$	72	$7.9 < pH \leq 8.0$	17	$8.9 < pH \leq 9.0$	2.6	$9.9 < pH \leq 10$	1.0

Phosphorus and Tainter Lake TMDL: The Tainter Lake/Lake Menomin TMDL Waste Load Allocation (WLA) for Total Phosphorus was approved by the U.S. Environmental Protection Agency on September 14, 2012. The approved TMDL WLA for Wheeler for total phosphorus is 152 lbs/yr. The facility's discharge was considered noncontinuous in the last permit, therefore an annual total limit of 152 lbs/yr applied based on the Tainter Lake Total Maximum Daily Load (TMDL) rather than NR 217.13. The Tainter Lake TMDL is designed to meet an in-lake total phosphorus goal of 59 µg/L. In order to meet that water quality goal, the lower portions of the Hay and Red Cedar Rivers need to be below their stream criteria (75 µg/L and 100 µg/L, respectively). The successful implementation of non-point source controls called for in the TMDL coupled with the available dilution will mean there's enough assimilative capacity in the Hay River that the TMDL-based limit is protective of local water quality. Therefore, the TMDL-based phosphorus WQBEL is included in the permit in lieu of the s. NR 217.13 based limit. The limit is a monthly average limit, however, because the discharge is no longer noncontinuous.

PFOS and PFOA: NR 106 Subchapter VIII – Permit Requirements for PFOS and PFOA Dischargers became effective on August 1, 2022. Pursuant to s. NR 106.98(3)(b), 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 permit was drafted, the department has determined the permittee does not need to sample for PFOS or PFOA as part of this permit reissuance. The department may re-evaluate the need for sampling at the next permit reissuance if new information becomes available that suggests PFOS or PFOA may be present in the discharge.

3 Land Application - Monitoring and Limitations

Municipal Sludge Description						
Sample Point	**Sludge Class (A or B)**	**Sludge Type (Liquid or Cake)**	**Pathogen Reduction Method**	**Vector Attraction Method**	**Reuse Option**	**Amount Reused/Disposed (Dry Tons/Year)**
002	B	Liquid	Fecal Coliform	Incorporation	Land Application	Sludge was not removed last permit term, but sludge removal is anticipated in this permit term
Does sludge management demonstrate compliance? Yes						
Is additional sludge storage required? No						
Is Radium-226 present in the water supply at a level greater than 2 pCi/liter? No						
Is a priority pollutant scan required? No Priority pollutant scans are required once every 10 years at facilities with design flows between 5 MGD and 40 MGD, and once every 5 years if design flow is greater than 40 MGD.						

3.1 Sample Point Number: 002- LAGOON SLUDGE

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Solids, Total		Percent	Once	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	Once	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	Once	Composite	
Cadmium Dry Wt	Ceiling	85 mg/kg	Once	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Once	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Once	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Once	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	Once	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Once	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Once	Composite	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Mercury Dry Wt	High Quality	17 mg/kg	Once	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Once	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Once	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Once	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Once	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Once	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Once	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Once	Composite	
Nitrogen, Total Kjeldahl		Percent	Per Application	Composite	
Nitrogen, Ammonium (NH4-N) Total		Percent	Per Application	Composite	
Phosphorus, Total		Percent	Per Application	Composite	
Phosphorus, Water Extractable		% of Tot P	Per Application	Composite	
Potassium, Total Recoverable		Percent	Per Application	Composite	
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	
PFOA + PFOS		ug/kg	Once	Calculated	Monitor for PFOA + PFOS between 01/01/2027 - 06/30/2027 to meet the requirements of PFAS General Permit (WI-0012345-1).
PFAS Dry Wt			Once	Grab	Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS Permit Sections for more information.

Changes from Previous Permit:

Sludge limitations and monitoring requirements were evaluated for this permit term and the following changes were made from the previous permit:

PFAS – Monitoring for PFAS has been added once during the permit term pursuant s. NR 204.06(2)(b)9., Wis. Adm. Code. To maintain compliance with General Permit, WI-0012345-01, "PFAS Monitoring for Sewage Sludge (Biosolids) Generators" language has been added to the permit to restate that monitoring for PFOA+PFOS is required by June 30, 2027.

If the PFOA+PFOS result is under 20 ug/kg General Permit, WI-0012345-01, "PFAS Monitoring for Sewage Sludge (Biosolids) Generators" will be discontinued. If the results are over 20 ug/kg, General Permit section 5.4 must be followed (See link https://dnr.wisconsin.gov/sites/default/files/topic/Wastewater/PFASMonitoringforSewageSludgeGenerators-GeneralPermit.pdf). Based on the requirements of this section the Individual Permit WI-0060582-11-0 for the Village of Wheeler may be modified to include additional sludge PFAS conditions.

• List 2 Nutrient monitoring – Monitoring for list 2 (nutrients) is highly recommended at the same time as the monitoring of List 1 (metals). Results will assist in the determination of the acres needed for land application of sludge should it be necessary.

• Change in form submittal – In prior permit reissuances when it has been noted in the application that sludge would not be removed during the permit term, the department required sampling during the second year of the permit term and the sludge characteristic report (3400-049) would be generated only during that year. Due to moving to electronic submittal of forms via Switchboard, forms 3400-049 ("Characteristics Report"), 3400-052 ("Other Methods of Disposal") and 3400-055 ("Annual Land Application") will now be generated by the department and the permittee will be required to submit all three reports each year of the permit term. This change was adopted to provide the permittee flexibility because many lagoon desludging projects can be unexpected, are delayed or staggered over multiple years. Additionally, it is used to officially report that no land application of sludge has occurred, and annual submittal of the forms is required per the standard requirements section.

Explanation of Limits and Monitoring Requirements

Requirements for disposal, including land application of municipal sludge, are determined in accordance with ch. NR 204, Wis. Adm. Code. Ceiling and high-quality limits for metals in sludge are specified in s. NR 204.07(5). Requirements for pathogens are specified in s. NR 204.07(6) and in s. NR 204.07 (7) for vector attraction requirements. Limitations for PCBs are addressed in s. NR 204.07(3)(k).

PFAS- The presence and fate of PFAS in municipal and industrial sludges is an emerging public health concern. EPA has developed a draft risk assessment to determine future land application rates and released this risk assessment in January of 2025. The department is evaluating this new information. Until a decision is made, the "Interim Strategy for Land Application of Biosolids and Industrial Sludges Containing PFAS" should be followed

Collecting sludge data on PFAS concentrations from a wide range of wastewater treatment facilities will help protect public health from exposure to elevated levels of PFAS and determine the department's implementation of EPA's recommendations. To quantitate this risk, PFAS sampling has been included in this WPDES permit pursuant to ss. NR 214.18(5)(b) and NR 204.06(2)(b)9., Wis. Adm. Code.

4 Schedules

4.1 Effluent Autosampler Installation

Required Action	Due Date
Submit Plans & Specifications: Permittee shall submit to the Department for approval Plans & Specifications for installation of the effluent sampler so as to begin collecting 24 hour flow proportional effluent samples.	12/31/2027
Complete Installation: Permittee shall complete installation of the effluent sampler per the Plans & Specifications approved by the Department.	12/31/2028

Explanation of Schedule: The permittee is required to switch from collecting effluent grab samples to 24-hour flow proportional composite samples for BOD, TSS, total ammonia nitrogen, total phosphorus, copper, hardness, chloride, total Kjeldahl nitrogen, total nitrite + nitrate nitrogen and Acute WET testing. The 24-hour flow proportional composite samples provide more representative data to accurately track and determine compliance.

4.2 Copper Compliance Schedule

Required Action	Due Date
Report on Effluent Discharges: Submit a report on effluent discharges of copper with conclusions regarding compliance.	12/31/2027
Action Plan: Submit an action plan for complying with the effluent copper limitations. If construction is required, include plans and specifications with the submittal.	04/30/2028
Initiate Actions: Initiate actions identified in the plan.	03/31/2029
Complete Actions: Complete actions necessary to achieve compliance with the effluent copper limitations. Limitations become effective 01/01/2030.	12/31/2029

Explanation of Schedule: The compliance schedule for copper provides a schedule for conducting the actions necessary to comply with the new limits. The compliance schedule lays out a timeline for the permittee to investigate and implement a plan to comply with the limits by the end of the schedule.

4.3 Effluent Limitations for E. coli

The permittee shall comply with surface water limitations for E. coli 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

Required Action	Due Date
Status Update: The permittee shall submit information within the discharge monitoring report (DMR) comment section documenting the steps taken in preparation for properly monitoring and testing for E. coli including, but not limited to, selected test method and location of sampling.	02/21/2027
Operational Evaluation Report: The permittee shall prepare and submit an Operational Evaluation Report to the Department for review and approval. The report shall include an evaluation of collected effluent data and proposed operational improvements that will optimize efficacy of disinfection at the treatment plant during the period prior to complying with final E. coli limitations and, to the extent possible, enable compliance with the final E. coli limitations. The report shall include a plan and schedule for implementation of the operational improvements. These improvements shall occur as soon as possible, but not later than 04/30/2028. The report shall state whether the operational	11/30/2027

improvements are expected to result in compliance with the final E. coli limitations. The permittee shall implement the operational improvements in accordance with the approved plan and schedule specified in the Operational Evaluation Report and in no case later than 04/30/2028. If the Operational Evaluation Report concludes that the operational improvements are expected to result in compliance with the final E. coli limitations, the permittee shall comply with the final E. coli limitations by 04/30/2028 and the permittee is not required to comply with subsequent milestones identified below in this compliance schedule ('Submit Facility Plan', 'Final Plans and Specifications', 'Treatment Plant Upgrade to Meet Limitations', 'Construction Upgrade Progress Report', 'Complete Construction', 'Achieve Compliance'). FACILITY PLAN - If the Operational Evaluation Report concludes that operational improvements alone are not expected to result in compliance with the final E. coli limitations, the permittee shall initiate development of a facility plan for meeting final E. coli limitations and comply with the remaining required actions in this schedule of compliance. If the Department disagrees with the conclusion of the report and determines that the permittee can achieve final E. coli limitations using the existing treatment system with only operational improvements, the Department may reopen and modify the permit to include an implementation schedule for achieving the final E. coli limitations sooner than 04/30/2031.	
Submit Facility Plan: If the Operational Evaluation Report concluded that the permittee cannot achieve final E. coli limitations with operational improvements alone, the permittee shall submit a Facility Plan per s. NR 110.09, Wis. Adm. Code. The permittee may submit an abbreviated facility plan if the Department determines that the modifications are minor.	04/30/2028
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 achieve compliance with final E. coli limitations and a schedule for completing construction of the upgrades by the complete construction date specified below.	03/31/2029
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.	09/30/2029
Construction Upgrade Progress Report: The permittee shall submit a progress report on construction upgrades.	09/30/2029
Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades.	03/31/2031
Achieve Compliance: The permittee shall achieve compliance with final E. coli limitations.	04/30/2031

Explanation of Schedule: A compliance schedule is included in the permit to provide time for the permittee to investigate options for meeting new effluent E. coli water quality-based effluent limits while coming into compliance with the limits as soon as reasonably possible.

4.4 Sludge Management Plan

Required Action	Due Date
Sludge Management Plan: The permittee shall submit a management plan for approval if removal of sludge will occur during this permit term. The plan shall demonstrate compliance with ch. NR 204, Wis. Adm. Code and at minimum address 1) How and where is sludge sampled; 2) Available sludge storage details and location(s); 3) How will the sludge be removed with details on volume, characterization and how will the treatment plant continue to function during the drawdown; 4) Describe the type of transportation and spreading vehicles and loading and unloading practices; 5) Identify approved land application sites, apply for needed sites, site limitations, total acres needed and vegetative cover management; 6) Specify record keeping procedures including site loading; 7) Address contingency plans for adverse weather and odor/nuisance abatement; and 8) Include any other pertinent information such as other disposal options that may be used or specifications of any pretreatment processes Once approved, all sludge management activities shall be conducted in accordance with the plan. Any changes to the plan must be approved by the Department prior to implementing the changes. No desludging may occur unless approval from the Department is obtained. Daily logs shall be kept that record where the sludge has been disposed. The plan is due at least 60 days prior to desludging.	

Explanation of Sludge Management Plan Schedule: If the lagoons are to be de-sludged during this permit term, a management plan is needed to show compliance with ch NR 204, Wis. Adm. Code that clearly explains how the sludge will be safely removed, what contingencies are in place, the type of equipment that will be used and how the sludge will be land applied to ensure the proper precautions are in place to prevent any negative impacts to surface water or groundwater.

Other Comments

None

Attachments

- Water Quality Based Effluent Limits: 11/06/2026 memo from Zainah Masri to Holly Heldstab titled "Water Quality-Based Effluent Limitations for the Wheeler Wastewater Treatment Facility WPDES Permit No. WI-0060852-11-0"

Justification Of Any Waivers From Permit Application Requirements

No waivers requested or granted as part of this permit reissuance

Prepared By: Holly Heldstab, Wastewater Specialist **Date:** 11/13/2026

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: November 6, 2026

TO: Holly Heldstab – WCR/Eau Claire

FROM: Zainah Masri – WY/3

SUBJECT: Water Quality-Based Effluent Limitations for the Wheeler Wastewater Treatment Facility WPDES Permit No. WI-0060852-11-0

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 Wheeler Wastewater Treatment Facility in Dunn County. This municipal wastewater treatment facility (WWTF) discharges to the Hay River located in the Hay River Watershed in the Lower Chippewa River Basin. This discharge is included in the Tainter Lake/Lake Menomin (TL/LM) Total Maximum Daily Load (TMDL) as approved by EPA on 09/14/2012.

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	Footnotes
Flow Rate					1,2
BOD_5			45 mg/L	30 mg/L	2
TSS			45 mg/L	30 mg/L	
pH	9.0 s.u.	6.0 s.u.			2
Ammonia Nitrogen	Variable		**108 mg/L**	**108 mg/L**	3
Copper Concentration Limit Mass Limit	43 µg/L 0.25 lbs/day		**43 µg/L**	**43 µg/L**	4
Hardness					5
Chloride					6
Bacteria					
Final Limit *E. coli*				126 #/100 mL geometric mean	7
Phosphorus TMDL Limit				0.79 lbs/day	8
TKN, Nitrite+Nitrate, and Total Nitrogen					9
Acute WET					10

Footnotes:

1. Monitoring only.
2. No changes from the current permit.
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. The table has been expanded from the table in the current permit.

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Daily Maximum Ammonia Nitrogen Limits – WWSF

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
$6.0 \leq pH \leq 6.1$	108	$7.0 < pH \leq 7.1$	66	$8.0 < pH \leq 8.1$	14
$6.1 < pH \leq 6.2$	106	$7.1 < pH \leq 7.2$	59	$8.1 < pH \leq 8.2$	11
$6.2 < pH \leq 6.3$	104	$7.2 < pH \leq 7.3$	52	$8.2 < pH \leq 8.3$	9.4
$6.3 < pH \leq 6.4$	101	$7.3 < pH \leq 7.4$	46	$8.3 < pH \leq 8.4$	7.8
$6.4 < pH \leq 6.5$	98	$7.4 < pH \leq 7.5$	40	$8.4 < pH \leq 8.5$	6.4
$6.5 < pH \leq 6.6$	94	$7.5 < pH \leq 7.6$	34	$8.5 < pH \leq 8.6$	5.3
$6.6 < pH \leq 6.7$	89	$7.6 < pH \leq 7.7$	29	$8.6 < pH \leq 8.7$	4.4
$6.7 < pH \leq 6.8$	84	$7.7 < pH \leq 7.8$	24	$8.7 < pH \leq 8.8$	3.7
$6.8 < pH \leq 6.9$	78	$7.8 < pH \leq 7.9$	20	$8.8 < pH \leq 8.9$	3.1
$6.9 < pH \leq 7.0$	72	$7.9 < pH \leq 8.0$	17	$8.9 < pH \leq 9.0$	2.6

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. Whenever a daily maximum limitation is determined necessary to protect water quality, a weekly and monthly average limitation shall also be included in the permit and set equal to the daily maximum limit unless a more restrictive limit is already determined necessary to protect water quality.
5. Quarterly hardness monitoring is recommended because of the relationship between hardness and daily maximum limits based on acute toxicity criteria for copper.
6. Monitoring at a frequency to ensure that 11 samples are available at the next permit issuance.
7. Bacteria limits apply during the disinfection season of May through September. Additional final limit: No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 count/100 mL
8. The phosphorus mass limit is based on the Total Maximum Daily Load (TMDL) for the Tainter Lake/Lake Menomin to address phosphorus water quality impairments within the TMDL area. The TMDL was approved by EPA on September 14, 2012. The WLA is 152 lbs/yr. The limit is expressed as a monthly average rather than in pounds per year because the discharge has changed from a noncontinuous to a continuous discharge.
9. 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. Sections 283.37(5) and 283.55(1)(e), Wis. Stats, and ss. NR 200.065(1)(g) and NR 200.065(1)(h), Wis. Adm. Codes, provide the authority to request this monitoring during the permit term. Total Nitrogen is the sum of nitrite (NO_2), nitrate (NO_3), and total Kjeldahl nitrogen (TKN) (all expressed as N).
10. Two acute WET tests are recommended throughout the 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.

Please consult the attached report for details regarding the above recommendations. If there are any questions or comments, please contact Zainah Masri at Zainah.Masri@wisconsin.gov or Diane Figiel at Diane.Figiel@wisconsin.gov.

Attachments (3) – Narrative, Map & Ammonia Nitrogen Calculations

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Attachment #1

Water Quality-Based Effluent Limitations for
Wheeler Wastewater Treatment Facility

WPDES Permit No. WI-0060852-11-0

Prepared by: Zainah Masri – WY/3

PART 1 – BACKGROUND INFORMATION

Facility Description

The Wheeler Wastewater Treatment Facility operates a 4-cell aerated lagoon system run in series. Wastewater flows from NW (aerated cell) to NE (aerated cell) to SW (settling pond) to SE (settling pond), Alum is added to NE cell for phosphorus removal, disinfection is conducted seasonally via UV lights. The effluent outfall is located on the south bank of the south channel of the Hay River approximately 1 mile downstream of the Hwy 25 bridge.

Attachment #2 is a map of the area showing the approximate location of Outfall 001.

Existing Permit Limitations

The current permit, which expired on September 30, 2023 includes the following effluent limitations and monitoring requirements.

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Annual Total	Footnotes
Flow Rate						1,2
BOD_5			45 mg/L	30 mg/L		3
TSS				60 mg/L		4
pH	9.0 s.u.	6.0 s.u.				3
Ammonia Nitrogen	Variable					5
Fecal Coliform May – September				400#/100 mL geometric mean		6
Phosphorus TMDL limit					152 lbs/year	7

Footnotes:

1. These limitations are not being evaluated as part of this review. Because the water quality criteria (WQC), reference effluent flow rates, and receiving water characteristics have not changed, limitations for these water quality characteristics do not need to be re-evaluated at this time.
2. Monitoring only
3. These limits are based on the Warm Water Sport Fish (WWSF) community of the immediate receiving water as described in s. NR 210.05(1), Wis. Adm. Code.
4. The TSS limit is a variance limit according to s. NR 210.07(2), Wis. Adm. Code, where aerated lagoons and stabilization ponds are the principal treatment processes.
5. The following variable daily maximum ammonia nitrogen limit table corresponding to various effluent pH values is included in the permit in place of the single limit.

Attachment #1

Daily Maximum Ammonia Nitrogen Limits – WWSF

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
pH ≤ 7.3	>46	8.1 < pH ≤ 8.2	11
7.3 < pH ≤ 7.4	46	8.2 < pH ≤ 8.3	9.4
7.4 < pH ≤ 7.5	40	8.3 < pH ≤ 8.4	7.8
7.5 < pH ≤ 7.6	34	8.4 < pH ≤ 8.5	6.4
7.6 < pH ≤ 7.7	29	8.5 < pH ≤ 8.6	5.3
7.7 < pH ≤ 7.8	24	8.6 < pH ≤ 8.7	4.4
7.8 < pH ≤ 7.9	20	8.7 < pH ≤ 8.8	3.7
7.9 < pH ≤ 8.0	17	8.8 < pH ≤ 8.9	3.1
8.0 < pH ≤ 8.1	14	8.9 < pH ≤ 9.0	2.6

6. Bacteria limits apply during the disinfection season of May through September.
7. This is a TMDL limit for the Tainter Lake/Lake Menomin TMDL for a noncontinuous discharge.

Receiving Water Information

- Name: Hay River
- Waterbody Identification Code (WBIC):2068600
- Classification used in accordance with chs. NR 102 and 104, Wis. Adm. Code: Warm Water Sport Fish (WWSF) community, non-public water supply and recreational use.
- Low flows used in accordance with chs. NR 106 and 217, Wis. Adm. Code: The following 7-Q_{10} and 7-Q_2 values are from USGS for Station at Hay River at Wheeler, WI (USGS 05368000) where Outfall 001 is located. Flows here represent the portion of the flow moving through the side channel where the discharge is located.
  7-Q_{10} = 31.3 cubic feet per second (cfs)
  7-Q_2 = 47.3 cfs
  Harmonic Mean Flow = 98 cfs
- Hardness = 190 mg/L as $CaCO_3$. This value represents the geometric mean of data found in the chronic WET receiving water background data from August 2014 – June 2024 collected for the Boyceville Wastewater Treatment Facility which discharges to the South Fork of the Hay River. Boyceville discharges approximately 7 miles upstream from Wheeler.
- % of low flow used to calculate limits in accordance with s. NR 106.06(4)(c)5., Wis. Adm. Code: 25%
- Source of background concentration data: Metals data from Hay River is used for this evaluation. The numerical values are shown in the tables below. If no data is available, the background concentration is assumed to be negligible and a value of zero is used in the computations. Background data for calculating effluent limitations for ammonia nitrogen are described later.
- Multiple dischargers: There are several other dischargers to the Hay River, however, they are not in the immediate vicinity and the mixing zones do not overlap. Therefore, the other dischargers do not impact this evaluation.

Effluent Information

- Design flow rate:
  Annual average = 0.05 million gallons per day (MGD)
  Calculated Peak Daily Design Flow = 0.70 MGD

For reference, the actual average flow from May 2021 – May 2026 was 0.009 MGD including zero flow days.

The 0.017 MGD is the average flow calculated excluding zero flow days the noncontinuous nature of the discharge and excludes zero flow days.

- Hardness = 140 mg/L as $CaCO_3$. This value represents the geometric mean of four samples collected in March 2026 – April 2026 and was reported on the permit application.
- 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 supply: Municipality waterworks.
- Additives: Wheeler Wastewater Treatment has included one additive in the permit application that has the potential to be present in Outfall 001. The additive is listed below:
  - Alum– Phosphorus Removal

    An additive review is not necessary for any additives where either the toxicity is well documented and understood, can be controlled by a WQBEL, or are not believed to be present in the discharge. This is the case upon initial review of the listed additive.
- Effluent characterization: This facility is categorized as a minor municipality, so the permit application required effluent sample analyses for a limited number of common pollutants, as specified in s. NR 200.065, Table 1, Wis. Adm. Code, primarily metal substances plus ammonia, chloride, hardness and phosphorus.
- Effluent data for substances for which a single sample was analyzed is shown in the tables in Part 2, in the column titled "MEAN EFFL. CONC.". Otherwise, substances with multiple effluent data are shown in the tables below or in their respective parts in this evaluation.

Copper Effluent Data

Sample Date	Copper (µg/L)	Sample Date	Copper (µg/L)	Sample Date	Copper (µg/L)
03/09/2026	17	04/06/2026	151	08/19/2026	2.2
03/12/2026	29	04/09/2026	265	08/22/2026	2.1
03/16/2026	17	04/13/2026	112	08/25/2026	<1.69
03/19/2026	17	04/16/2026	8.1	08/28/2026	<1.69
03/30/2026	18	04/20/2026	8.8		
04/02/2026	13	08/16/2026	38		
1-day P_{99} = 331 µg/L					
4-day P_{99} = 182 µg/L					

"<" means that the pollutant was not detected at the indicated limit of detection. The mean concentration was calculated using zero in place of the non-detected results.

Chloride Effluent Data

Sample Date	Chloride mg/L
03/12/2026	84
03/24/2026	85
03/19/2026	83
04/21/2026	47
Mean	75

The following table presents the average concentrations and loadings at Outfall 001 from May 2021 – May 2026 for all parameters with limits in the current permit to meet the requirements of s. NR 201.03(6), Wis. Adm. Code:

Parameters with Effluent Limits

	Average Measurement	Average Mass Discharged
BOD_5	14 mg/L*	-
TSS	20 mg/L	-
pH field	6.8 s.u.	-
Ammonia Nitrogen	15 mg/L*	-
Fecal Coliform	108#/100 mL**	-
Phosphorus	3.0 mg/L	72 lbs/yr

*Results below the limit of detection (LOD) were included as zeroes in calculation of average.
** The average measurement for bacteria is calculated as a geometric mean. Values reported below the LOD are replaced with a value of 1 for the calculation of the geometric mean.

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 P_{99}) 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-Q_{10}

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. Adm. 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-Q_{10} 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.

$$\text{Limitation} = \frac{(WQC)\,(Qs + (1-f)\,Qe) - (Qs - f\,Qe)\,(Cs)}{Qe}$$

Where:

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

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

Qe = 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

Cs = 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-Q_{10} method of limit calculation produces the most stringent daily maximum limitations and should be used while making reasonable potential determinations. This is not the case for Wheeler Wastewater Treatment Facility, and the limits are set based on two times the acute toxicity criteria.

The following tables list the calculated WQBELs for this discharge along with the results of effluent sampling for all the detected substances. 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 = 25 cfs, (1-Q_{10} (estimated as 80% of 7-Q_{10})), as specified in s. NR 106.06(3)(bm), Wis. Adm. Code.

SUBSTANCE	REF. HARD.* mg/L	ATC	MAX. EFFL. LIMIT**	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	1-day P_{99}	1-day MAX. CONC.
Arsenic		340	679.6	135.9	<0.77		
Cadmium	140	15.2	30.3	6.1	<0.084		
Chromium	140	2,375	4,750	950	<0.96		
Copper	140	**21.3**	**42.6**			**331**	**29**
Lead	140	148	296	59.2	<1.08		
Nickel	140	624	1,247.4	249	2.5		
Zinc	140	162	323.1	64.6	<32		
Chloride (mg/L)		757	1,514	303	75		

* The indicated hardness may differ from the effluent hardness because the effluent hardness exceeded the maximum range in ch. NR 105, Wis. Adm. Code, over which the acute criteria are applicable. In that case, the maximum of the range is used to calculate the criterion.

* * The 2 × ATC method of limit calculation yields a more restrictive limit than consideration of ambient concentrations and 1-Q_{10} flow rates per the changes to s. NR 106.07(3), Wis. Adm. Code, effective 09/01/2016.

Weekly Average Limits based on Chronic Toxicity Criteria (CTC)

RECEIVING WATER FLOW = 7.8 cfs (¼ of the 7-Q_{10}), as specified in s. NR 106.06(4)(c), Wis. Adm. Code

SUBSTANCE	REF. HARD.* mg/L	CTC	MEAN BACK-GRD.	WEEKLY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	4-day P_{99}
Arsenic		152.2	-	15,547	3,109	<0.77	
Cadmium	175	3.8	0.01	390	78	<0.084	
Chromium	190	223	0.35	22,828	4,565.5	<0.96	
Copper	190	17.93	1.05	1,831			182
Lead	190	52	0.23	5,295	1,059	<1.08	
Nickel	190	90	-	9,177	1,835	2.5	
Zinc	190	211	1.2	21,433	4,287	<32	
Chloride (mg/L)		395	-	40,348	8,070	75	

* The indicated hardness may differ from the receiving water hardness because the receiving water hardness exceeded the maximum range in ch. NR 105, Wis. Adm. Code, over which the chronic criteria are applicable. In that case, the maximum of the range is used to calculate the criterion.

Monthly Average Limits based on Wildlife Criteria (WC)
The effluent characterization did not include any effluent sampling results for substances for which Wildlife Criteria exist.

Monthly Average Limits based on Human Threshold Criteria (HTC)
RECEIVING WATER FLOW = 25 cfs (¼ of Harmonic Mean), as specified in s. NR 106.06(4), Wis. Adm. Code.

SUBSTANCE	HTC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.
Cadmium	370	0.01	117,543	23,509	<0.084
Chromium (+3)	3,818,000	0.35	1,212,928,856	242,585,771	<0.96
Lead	140	0.23	44,403	8,881	<1.08
Nickel	43,000	-	13,660,541	2,732,108	2.5

Monthly Average Limits based on Human Cancer Criteria (HCC)
RECEIVING WATER FLOW = 25 cfs (¼ of Harmonic Mean), as specified in s. NR 106.06(4), Wis. Adm. Code.

SUBSTANCE	HCC	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.
Arsenic	13.3	4,225	845	<0.77

Conclusions and Recommendations
Based on a comparison of the effluent data and calculated effluent limitations, effluent limitations are required for copper, and monitoring is required for chloride. Limits and/or monitoring recommendations are made in the paragraphs below:

Copper – Considering available effluent data from the current permit term March 2026 – April 2026 the 1-day P_{99} concentration is 389 µg/L, with a maximum concentration of 265 µg/L. The maximum effluent concentration and the 1-day P_{99} of the effluent data exceed the calculated daily maximum limit, **therefore a daily maximum concentration limit of 43 µg/L concentration and mass limits, as well as monthly monitoring, are required.**

The acute mass limitation of 0.25 lbs/day is based on the concentration limit and the calculated peak daily design flow rate of 0.70 MGD (43 µg/L * 0.70 MGD * 8.34/1000) in accordance with s. NR 106.07(2)(a), Wis. Adm. Code.
Due to the high variability of the copper data provided, it is recommended that a compliance schedule be put in place in the reissued permit. If within the compliance schedule the Wheeler Wastewater Treatment Facility can meet the limit, then the limit can be dropped. If within the compliance schedule the facility fails to meet the limit, then the copper limits must be retained.

Quarterly hardness monitoring is also recommended because of the relationship between hardness and daily maximum limits based on acute toxicity criteria.

Chloride – Considering available effluent data from the current permit term March 2026 – April 2026 the mean chloride concentration is 75 mg/L, with a maximum concentration of effluent data is 85 mg/L.

These effluent concentrations are below the calculated WQBELs for chloride, therefore no effluent limits are needed. 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 Wheeler Wastewater Treatment Facility 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)." No sludge samples have been taken during the current permit term but sludge sampling results from 2018 showed mercury concentrations were less than 1 mg/kg. 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. **No monitoring is recommended.**

PFOS and PFOA – The need for PFOS and PFOA monitoring is evaluated in accordance with s. NR 106.98(2), Wis. Adm. Code.

Available monitoring sample data from the Wheeler Waterworks (PWS ID:61702740) is provided in the table below:

Water Supply PFAS Data

Sample Date	Sample ID	Well #	PFOS (ng/L)	PFOA (ng/L)
06/21/2023	685348001	BF735	<0.271	<0.373
9/03/2025	CD10829-02	ACI469	<0.48	<0.47
3/30/2026	CE03127-01	ACI469	<0.48	<0.47

"<" means that the pollutant was not detected at the indicated limit of detection. The mean concentration was calculated using zero in place of the non-detected results.

The limited data above shows the municipal water supply is below 1/5th of the applicable PFOS and PFOA criteria.

Based on the type of discharge, the effluent flow rate, and known levels of PFOS/PFOA in the source water, **PFOS and PFOA monitoring is not recommended.**

The Department may re-evaluate the need for sampling at the next permit reissuance if new information becomes available that suggests PFOS or PFOA may be present in the discharge.

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 limits. These limits are re-evaluated at this time due to the following changes:

- Subchapter IV of ch. NR 106, Wis. Adm. Code allows limits based on available dilution instead of limits set to twice the acute criteria.
- Section NR 106.07(3), Wis. Adm. Code requires weekly and monthly average limits for

municipal treatment plants.

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 acute toxicity criterion (ATC) for ammonia is calculated using the following equation:

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

Where:

A = 0.411 and B = 58.4 for a Warm Water Sport fishery
pH (s.u.) = that characteristic of the effluent.

The effluent pH data was examined as part of this evaluation. A total of 610 sample results were reported from May 2021 – May 2026. The maximum reported value was 8.5 s.u. (Standard pH Units). The effluent pH was 8.4 s.u. or less 99% of the time. The 1-day P_{99}, calculated in accordance with s. NR 106.05(5), Wis. Adm. Code, is 7.6 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 7.6 s.u. Therefore, a value of 8.4 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 8.4 s.u. into the equation above yields an ATC = 3.9 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 calculated using the 1-Q_{10} receiving water low flow 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-Q_{10} (estimated as 80 % of 7-Q_{10}) and the 2×ATC approach are shown below.

Daily Maximum Ammonia Nitrogen Determination

	Ammonia Nitrogen Limit mg/L
2×ATC	7.8
1-Q_{10}	1,238

The 2×ATC method yields the most stringent limits for Wheeler Wastewater Treatment Facility.

The current permit has variable daily maximum effluent limits based on effluent pH. Presented below is a table of daily maximum limitations corresponding to various effluent pH values.

Daily Maximum Ammonia Nitrogen Limits – WWSF

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
$6.0 \leq pH \leq 6.1$	108	$7.0 < pH \leq 7.1$	66	$8.0 < pH \leq 8.1$	14
$6.1 < pH \leq 6.2$	106	$7.1 < pH \leq 7.2$	59	$8.1 < pH \leq 8.2$	11
$6.2 < pH \leq 6.3$	104	$7.2 < pH \leq 7.3$	52	$8.2 < pH \leq 8.3$	9.4

Attachment #1

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
6.3 < pH ≤ 6.4	101	7.3 < pH ≤ 7.4	46	8.3 < pH ≤ 8.4	7.8
6.4 < pH ≤ 6.5	98	7.4 < pH ≤ 7.5	40	8.4 < pH ≤ 8.5	6.4
6.5 < pH ≤ 6.6	94	7.5 < pH ≤ 7.6	34	8.5 < pH ≤ 8.6	5.3
6.6 < pH ≤ 6.7	89	7.6 < pH ≤ 7.7	29	8.6 < pH ≤ 8.7	4.4
6.7 < pH ≤ 6.8	84	7.7 < pH ≤ 7.8	24	8.7 < pH ≤ 8.8	3.7
6.8 < pH ≤ 6.9	78	7.8 < pH ≤ 7.9	20	8.8 < pH ≤ 8.9	3.1
6.9 < pH ≤ 7.0	72	7.9 < pH ≤ 8.0	17	8.9 < pH ≤ 9.0	2.6

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.

Weekly and Monthly Average Limits based on Chronic Toxicity Criteria (CTC)
The weekly and monthly average ammonia nitrogen limits calculation from the previous memo do not change because there have been no changes in the effluent and receiving water flow rates. The calculations from the previous WQBEL memo are shown in attachment #3.

Effluent Data
The following table evaluates the statistics based upon ammonia data reported from May 2021 – May 2026.

Ammonia Nitrogen Effluent Data

	Ammonia Nitrogen mg/L
1-day P_{99}	48
4-day P_{99}	29
30-day P_{99}	20
Mean*	15
Std	9.3
Sample size	53
Range	1.1 - 32

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

Reasonable Potential
The permit currently has daily maximum limits year-round. 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:

> (b) 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.

Conclusions and Recommendations
In summary, after rounding to two significant figures, **variable daily maximum ammonia nitrogen limits are recommended year-round**. No mass limitations are recommended in accordance with s. NR 106.32(5), Wis. Adm Code.

Additional limits to meet the requirements in s. NR 106.07, Wis. Adm Code, are described in part 8 of this memo.

PART 4 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR BACTERIA

On May 1, 2020, revisions to chs. NR 102 and NR 210, Wis. Adm. Codes, became effective which replace fecal coliform limits with new *Escherichia coli* (*E. coli*) limits for protection of recreational uses. 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.

E. coli monitoring is recommended at the same frequency that fecal coliform monitoring is required in the current permit. Because Wheeler Wastewater Treatment Facility permit requires weekly monitoring, the 410 counts/100 mL limit will effectively function as a daily maximum limit unless the facility performs additional monitoring. Any additional monitoring beyond what is required by the permit must also be reported on the DMR as required in the standard requirements section of the permit.

These limits are required during May through September. No changes are recommended to the current recreational period and the required disinfection season. In September 2022 four e. Coil samples were taken with all results being 0 #/*E.coli,* a level of detection was not reported. It is unknown whether the facility can meet E.coli limits, therefore a compliance schedule is recommended to be included in the permit upon reissuance.

PART 5 – PHOSPHORUS AND TOTAL SUSPENDED SOLIDS (TSS)

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 Wheeler Wastewater Treatment Facility 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 and therefore no technology-based limit is required.

Attachment #1

Annual Average Mass Total Phosphorus Loading

Month	Average Phosphorus Concentration (mg/L)	Total Effluent Flow (Million Gallons)	Calculated Mass (lbs/month)
June 2025	0.21	2.4	4.2
July 2025	0.21	1.6	2.8
August 2025	0.30	1.5	3.7
September 2025	0.43	0.99	3.5
October 2025	0.37	0.57	1.7
November 2025	0.51	0.46	1.9
December 2025	0.41	0.53	1.8
January 2026	0.47	1.4	5.7
February 2026	0.41	3.4	12
March 2026	0.51	4.7	20
April 2026	0.47	2.7	11
May 2026	0.50	2.5	11
Average			**6.6**

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

In addition, the need for a WQBEL for phosphorus must be considered.

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.

Effluent Data

The following table summarizes effluent total phosphorus monitoring data from May 2022 – May 2026. Please note that data prior to May 2022 was excluded, as it is not representative of the facility.

Total Phosphorus Effluent Data

	Phosphorus mg/L	Phosphorus lbs/day
1-day P_{99}	8.2	1.2
4-day P_{99}	4.8	0.7
30-day P_{99}	3.1	0.41
Mean	2.4	0.29
Std	1.6	0.25
Sample size	117	117
Range	0.33-7.1	0.035-1.2

Attachment #1

Annual TP Loading

Year	TP lbs/year
2022	175
2023	15
2024	66
2025	33

Reasonable Potential Determination
The discharge has reasonable potential to cause or contribute to an exceedance of the water quality criterion and is currently operating the treatment facility to remove phosphorus and meet the WQBELs. Therefore, **the WQBELs are required to continue in the reissued permit per ss. NR 217.15 and 205.067(5), Wis. Adm. Codes.**

TMDL Limits – 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 lbs/yr. This WLA is found in page 44 *of the Phosphorus Total Maximum Daily Loads (TMDLs) Tainter Lake and Lake Menomin (May 2012)* and is expressed as a maximum annual load (lbs/yr). For Wheeler Wastewater Treatment Facility, it was previously non-continuous and received an annual WLA of 152 lbs/yr. As they are now operating continuously the following was calculated below:

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 Tainter Lake/Lake Menomin 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:

TP Equivalent Effluent Concentration = WLA ÷ (365 days/yr * Flow Rate * Conversion Factor)
= 152 lbs/yr ÷ (365 days/yr * 0.05 MGD * 8.34)
= 1.0 mg/L

Since this value is greater than 0.3 mg/L, the **WLA should be expressed as a monthly average mass limit of 0.22 lbs/day for total phosphorus and no six-month average limit is required**.

TP Monthly Average Permit Limit = WLA ÷ 365 days/yr * monthly multiplier
= (152 lbs/yr ÷ 365 days/yr)* 1.9
= 0.79 lbs/day

The multiplier used in the monthly average calculation was determined according to the implementation guidance. A standard coefficient of variation of 0.6 was selected, along with monitoring frequency, to select the multiplier. The current permit specifies phosphorus monitoring as weekly; if a different monitoring frequency is used, the stated limits should be reevaluated.

Monthly average mass effluent limits are recommended for this discharge. The limits are equivalent to a concentration of 0.53 mg/L at the facility design flow of 0.05 MGD.

The current permit for Wheeler Wastewater Treatment Facility contains a TMDL-based limit of 152 lbs/year rather than a limit based on s. NR 217.13. The Tainter Lake TMDL is designed to meet an in-lake total phosphorus goal of 59 µg/L. To meet that water quality goal, the lower portions of the Hay and Red Cedar Rivers will need to be below their stream criteria (75 µg/L and 100 µg/L, respectively). The successful implementation of non-point source controls called for in the TMDL coupled with the available dilution will mean that there will be enough assimilative capacity in the Hay River such that the TMDL-based limit would be protective of local water quality. Therefore, per s. NR. 217.16 (1), it is recommended that the TMDL-based phosphorus WQBEL continue to be included in the reissued permit in lieu of the s. NR 217.13 based limit.

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.

Total Suspended Solids (TSS)
Wheeler Wastewater Treatment Facility previously qualified for a variance limit of 60 mg/L according to s. NR 210.07(2), Wis. Adm. Code, where aerated lagoons and stabilization ponds are the principal treatment processes. Recently, Wheeler Wastewater Treatment Facility has begun using a water quality conditioner for phosphorus removal, which means they are no longer eligible for a variable limit and are now required **the 45 mg/L weekly average and 30 mg/L average limit for WWSF (warm water sport fish) community designated waters**.

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 chs. NR 102 (Subchapter II – Water Quality Standards for Temperature) and NR 106 (Subchapter V – Effluent Limitations for Temperature) of the Wisconsin Administrative Code. Daily maximum and weekly average temperature criteria are available for the 12 different months of the year depending on the receiving water classification.

Due to the amount of upstream flow available for dilution in the limit calculation (Qs:Qe >20:1), the lowest calculated limitation is 120° F (s. NR 106.55(6)(a), Wis. Adm. Code). For lagoon systems of domestic waste, there is no reasonable potential for the discharge to exceed this limit. Therefore, no effluent limits or monitoring are recommended for temperature.

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 LC_{50} (Lethal Concentration to 50% of the test organisms) greater than 100% effluent, according to s. NR 106.09(2)(b), Wis. Adm Code.

- Chronic testing is usually not recommended where the ratio of the 7-Q_{10} to the effluent flow exceeds 100:1, For the Wheeler Wastewater Treatment Facility, that ratio is approximately 626:1. With this amount of dilution, there is believed to be little potential for chronic toxicity effects in the Hay River associated with the discharge from the Wheeler Wastewater Treatment Facility, so the need for chronic WET testing will not be considered further.

- 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.

- Shown below is a tabulation of all available WET data for Outfall 001. Efforts are made to ensure that decisions about WET monitoring and limits are made based on representative data, as specified in s. NR 106.08(3), Wis. Adm Code. Data which is not believed to be representative of the discharge was not included in reasonable potential calculations. The table below differentiates between tests used and not used when making WET determinations.

WET Data History

Date Test Initiated	Acute Results LC_{50} %				Chronic Results IC_{25} %				Footnotes or Comments
	C. dubia	Fathead minnow	Pass or Fail?	Used in RP?	*C. dubia*	Fathead Minnow	Pass or Fail?	Use in RP?	
02/22/1996	>100	89.1	Fail	No	-	-	-	-	1
02/22/1996	-	-	-	-	31.1	40.6	Pass	No	1
08/07/1997	>100	>100	Pass	No	-	-	-	-	1

Footnotes:

1. *Data Not Representative.* Significant changes were made to WET test methods in 2004 and these changes were assumed to be fully implemented by certified labs by no later than June 2005. It may be appropriate to exclude data collected before July 1, 2005, unless 1) it shows repeated toxicity that was never resolved or 2) older data is all that is available, and no significant changes have occurred which obviously make it unrepresentative. Ammonia limits were added to the permit in 2005 based on updated water quality criteria.

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
AMZ/IWC	Not Applicable. **0 Points**
Historical Data	No tests used to calculate RP. **5 Points**
Effluent Variability	Little variability, no violations or upsets, consistent WWTF operations. **0 Points**
Receiving Water Classification	WWSF **5 Points**
Chemical-Specific Data	Reasonable potential for limits for Copper based on ATC; Ammonia nitrogen limit carried over from the current permit. Zinc, Nickel, Chloride detected. **8 Points**
Additives	No Biocides and 1 Water Quality Conditioners added. Permittee has proper P chemical SOPs in place **1 Point**
Discharge Category	No Industrial Contributors. **0 Points**
Wastewater Treatment	Secondary Treatment **0 Points**
Downstream Impacts	No impacts known **0 Points**
Total Checklist Points:	**19 Points**
Recommended Monitoring Frequency (from Checklist):	2 tests during permit term
Limit Required?	No
TRE Recommended? (from Checklist)	No

- After consideration of the guidance provided in the Department's *WET Program Guidance Document* (2022) and other information described above, two acute WET tests thought the permit term are

recommended in the reissued permit. Sampling WET concurrently with any chemical-specific toxic substances is recommended.

PART 8 – EXPRESSION OF LIMITS

Revisions to chs. NR 106 and 205, Wis. Adm. Code, align Wisconsin's WQBELs with 40 CFR 122.45(d), which requires WPDES permits 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.

Wheeler Wastewater Treatment Facility is a municipal treatment facility and is therefore subject to weekly average and monthly average limitations whenever limitations are determined to be necessary.

This evaluation provides additional limitations necessary to comply with the expression of limits in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Code. Pollutants already compliant with these rules or that have an approved impracticability demonstration, are excluded from this evaluation including water-quality based effluent limitations for phosphorus, temperature, pH, and *E. coli* among other parameters. Mass limitations are not subject to the limit expression requirements if concentrations limits are given.

Method for Calculation

The methods for calculating limitations for continuous discharges subject to ch. NR 210 to conform to 40 CFR 122.45(d) are specified in s. NR 106.07(3), Wis. Adm. Code, and are as follows:

The methods for calculating limitations for continuous discharges subject to ch. NR 210 to conform to 40 CFR 122.45(d) are specified in s. NR 106.07(3), Wis. Adm. Code, and are as follows:

1. Whenever a daily maximum limitation is determined necessary to protect water quality, a weekly and monthly average limitation shall also be included in the permit and set equal to the daily maximum limit unless a more restrictive limit is already determined necessary to protect water quality.
2. Whenever a weekly average limitation is determined necessary to protect water quality, a monthly average limitation shall also be included in the permit and set equal to the weekly average limit unless a more restrictive limit is already determined necessary to protect water quality.
3. Whenever a monthly average limitation is determined necessary to protect water quality, a weekly average limit shall be calculated using the following procedure and included in the permit unless a more restrictive limit is already determined necessary to protect water quality:

   Weekly Average Limitation = (Monthly Average Limitation × MF)

   Where:

   MF= Multiplication factor as defined in Table 1

   CV= coefficient of variation (CV) as calculated in s. NR 106.07(5m), Wis. Adm. Code.

   n= the number of samples per month required in the permit

s. NR 106.07(3)(e)4, Table 1, Wis. Adm. Code — Multiplication Factor (for CV = 0.6)

CV	n=1	n=2	n=3	n=4	n=8	n=12	n=16	n=20	n=24	n=30
0.6	1.00	1.31	1.51	1.64	1.95	2.12	2.23	2.30	2.36	2.43

Note: This methodology is based on the *Technical Support Document for Water Quality-based Toxics Control* (March 1991). PB91-127415.

Summary of Additional Limitations:
In conclusion, the following additional limitations are required to comply with ss. NR 106.07 and NR 205.065(7), Wis. Adm. Code.

Expression of Limits Summary

Parameter	Daily Maximum	Weekly Average	Monthly Average
Copper	43 µg/L	**43 µg/L**	**43 µg/L**
Ammonia Nitrogen	Variable	**108 mg/L**	**108 mg/L**

Ammonia Nitrogen
The permit contains pH variable daily maximum limits and the highest daily maximum limit allowed dependent on pH is more restrictive than the calculated weekly and monthly average limits. Therefore, **monthly and weekly average limits of 108 mg/L** are recommended in the permit.

Site Map:

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Wheeler Wastewater Treatment Facility



Legend: (some map layers may not be displayed)

- Surface Water Outfalls
- Latest Leaf On Index

Notes:



Map projection: NAD 1983 HARN Wisconsin TM

N

Map: 0 300 600 Feet
0 80 150 Meters

Service Layer Credits:
DNR Detailed Feature VTL (WTM): , Latest Leaf On: , Outfalls & Determinations: WI DNR Bureau of Watershed Management

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Attachment #3

Ammonia Nitrogen Calculations from WQBEL dated June 27, 2018

AMMONIA (as N)				
LIMITS				
Effluent Flow (mgd):	0.05			
Effluent Flow (cfs):	0.077			
Effluent pH data:				
Begin Date	01-Oct-13			
End Date	30-Apr-18			
# of Samples	1559			
Maximum	7.3			
Average	6.95			
Standard Deviation	0.109			
Estimated 99th Percentile	7.21			
Max. Effluent pH (s.u.):	7.20			
BACKGROUND INFORMATION:				
	summer	***winter***	***spring***	***fall***
4Q3 (cfs)				
7Q10 (cfs)	31.3	31.3		
30Q5 (cfs)				
7Q2 (cfs)	47.3	47.3		
Ammonia (mg/L) (1)	0.045	0.081		
Temperature (deg C) (2)	25	7		
pH (std. units) (3)	7.9	7.9		
% of river flow used:	100	25		
Reference weekly flow:	31.3	7.825		
Reference monthly flow:	40.2	10.1		
CRITERIA (in mg/L):				
Acute (@ effl. pH):	29.54	29.54		
4-day Chronic (@ backgrd. pH):				
early life stages present	3.56	6.99		
early life stages absent	3.56	11.36		
30-day Chronic (@ backgrd. pH)				
early life stages present	1.42	2.80		
early life stages absent	1.42	4.54		
EFFLUENT LIMITS (in mg/L):				
Daily maximum	59	59		
Weekly average				
early life stages present	1425			
early life stages absent		1152		
Monthly average				
early life stages present	718			
early life stages absent		584		

(1) Hay River Data
(2) Default Data
(3) Hay River Data