

## Permit Fact Sheet

### General Information

Permit Number	WI-0024210-10-0
Permittee Name and Address	VILLAGE OF HAZEL GREEN P O Box 367 1610 Fairplay Street, Hazel Green, WI 53811
Permitted Facility Name and Address	Hazel Green Wastewater Treatment Facility 2205 CRAWFORD LANE, HAZEL GREEN, WISCONSIN
Permit Term	July 01, 2025 to June 30, 2030
Discharge Location	West Bank of the Galena River, approximately 1.6 miles from treatment plant. NW ¼ of SE ¼, Section 32, T1N, R1E (Lat: 42.51386°N / Lon: 90.39667°W)
Receiving Water	Galena (Fever) River (Galena River Watershed, GP01 – Grant-Platte River Basin) in Lafayette County
Stream Flow (Q <sub>7,10</sub> )	15 cfs
Stream Classification	Warm Water Sport Fish (WWSF), non-public water supply
Discharge Type	Existing, Continuous
Annual Average Design Flow (MGD)	0.168 MGD
Industrial or Commercial Contributors	None
Plant Classification	A2 - Attached Growth Processes; B - Solids Separation; C - Biological Solids/Sludges; P - Total Phosphorus; D - Disinfection; L - Laboratory; SS - Sanitary Sewage Collection System
Approved Pretreatment Program?	N/A

### Facility Description

The Village of Hazel Green operates a hybrid fixed film/activated sludge wastewater treatment facility that treats mostly domestic wastewater, with minor commercial users and no industrial contributors. Treatment consists of a comminutor, primary clarification, rotating biological contactors (RBCs) with solids recycling, final clarification, chemical phosphorus removal, and seasonal chlorine disinfection/dichlorination prior to discharge to the Galena (Fever) River. Sludge is aerobically digested and stored on-site prior to being land applied on department approved sites.

### Substantial Compliance Determination

Enforcement During Last Permit: A NON was issued in November 2019 for a treatment facility overflow that occurred in October 2019. A NON was issued in March 2024 for a failure to monitor sludge for List 2 parameters in 2023. The facility has completed all previously required actions as part of the enforcement process.

After a desk top review of all discharge monitoring reports, CMARs, land application reports, compliance schedule items, and a site visit on March 14, 2024, this facility has been found to be in substantial compliance with their current permit.

## 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	N/A Not required to report	Influent: 24-hr flow proportional composite sampler intake located at the influent manhole, prior to the comminutor.
001	0.060 MGD (Average July 2019 – January 2025)	Effluent: 24-hr flow proportional composite sampler intake located after the final clarifiers but before disinfection, prior to discharge to the Galena River. Grab samples collected at the effluent flow meter. A v-notch weir with an ultrasonic flow meter is located after disinfection.
003	10.4 dry U.S. tons/yr (Average 2019 – 2023)	Aerobically digested, Liquid, Class B. Representative sludge samples shall be collected from the holding tanks.

## Permit Requirements

### 1 Influent – Monitoring Requirements

#### Sample Point Number: 701- INFLUENT

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
BOD5, 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:

Influent limitations and monitoring requirements were evaluated for this permit term and no changes were required in this permit section.

#### Explanation of Limits and Monitoring Requirements

Monitoring of 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

#### Sample Point Number: 001- EFFLUENT

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	2/Week	24-Hr Flow Prop Comp	
BOD5, Total	Monthly Avg	30 mg/L	2/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Weekly Avg	45 mg/L	2/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Monthly Avg	30 mg/L	2/Week	24-Hr Flow Prop Comp	
pH Field	Daily Max	9.0 su	5/Week	Grab	
pH Field	Daily Min	6.0 su	5/Week	Grab	
Nitrogen, Ammonia Variable Limit		mg/L	2/Week	24-Hr Flow Prop Comp	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	2/Week	24-Hr Flow Prop Comp	Report the daily maximum Ammonia result in the Nitrogen, Ammonia (NH <sub>3</sub> -N) Total column of the eDMR. See Ammonia Limitation Section.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	96 mg/L	2/Week	24-Hr Flow Prop Comp	April
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	108 mg/L	2/Week	24-Hr Flow Prop Comp	May - March
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	48 mg/L	2/Week	24-Hr Flow Prop Comp	April
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	73 mg/L	2/Week	24-Hr Flow Prop Comp	May - March
E. coli	Geometric Mean - Monthly	126 #/100 ml	Weekly	Grab	May - September
E. coli	% Exceedance	10 Percent	Monthly	Calculated	May - September
Chlorine, Total Residual	Daily Max	38 ug/L	Daily	Grab	May - September

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Chlorine, Total Residual	Weekly Avg	38 ug/L	Daily	Grab	May - September
Chlorine, Total Residual	Monthly Avg	38 ug/L	Daily	Grab	May - September
Phosphorus, Total	Monthly Avg	1.0 mg/L	2/Week	24-Hr Flow Prop Comp	This is an interim MDV limit effective through June 30, 2027. See the MDV/Phosphorus sections and phosphorus schedules.
Phosphorus, Total	Monthly Avg	0.6 mg/L	2/Week	24-Hr Flow Prop Comp	This is an interim MDV limit effective on July 1, 2027. See the MDV/Phosphorus sections and phosphorus schedules.
Phosphorus, Total		lbs/month	Monthly	Calculated	Report the total monthly phosphorus discharged in lbs/month on the last day of the month on the DMR. See Standard Requirements for 'Appropriate Formulas' to calculate the Total Monthly Discharge in lbs/month.
Phosphorus, Total		lbs/yr	Annual	Calculated	Report the sum of the total monthly discharges (for the months that the MDV is in effect) for the calendar year on the Annual report form.
Chloride		mg/L	Monthly	24-Hr Flow Prop Comp	Monitoring in 2029.
Nitrogen, Total Kjeldahl		mg/L	Quarterly	24-Hr Flow Prop Comp	
Nitrogen, Nitrite + Nitrate Total		mg/L	Quarterly	24-Hr Flow Prop Comp	
Nitrogen, Total		mg/L	Quarterly	Calculated	Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen.
Acute WET		TUa	See Listed Qtr(s)	24-Hr Flow Prop Comp	See Whole Effluent Toxicity (WET) Testing

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
					section.

## 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.

**Flow:** The sample frequency for flow has been changed from “continuous” to “daily” for eDMR reporting purposes.

**pH:** The sample frequency for pH has changed from 2/Week to 5/Week.

**E. coli:** Fecal coliform monitoring and limits have been replaced with *Escherichia coli* (E. coli) monitoring and limits.

**Phosphorus MDV:** The permittee has applied for a multi-discharger variance (MDV) for phosphorus for this permit term and the application has been approved by the Department. An MDV interim limit of 0.6 mg/L has been added that goes into effect per a compliance schedule. The permittee is now required to report the total amount of phosphorus discharged in lbs/month and lbs/year. By March 1 of each year the permittee shall make a payment(s) to participating county(s) of \$66.62 per pound of phosphorus discharged during the previous year in excess of the target value of 0.2 mg/L.

**Total Nitrogen Monitoring (TKN, N02+N03 and Total N):** Quarterly monitoring is included in the permit.

## Explanation of Limits and Monitoring Requirements

Detailed discussions of limits and monitoring requirements can be found in the attached water quality-based effluent limits (WQBEL) memo for the Hazel Green Wastewater Treatment Facility, dated March 12, 2025, prepared by Sarah Luck, and used for this reissuance.

**E. coli:** Revisions to bacteria surface water quality criteria to protect recreational uses and accompanying E. coli WPDES permit implementation procedures became effective May 1, 2020. The new rule requires that WPDES permits for facilities with required disinfection include monitoring for E. coli while facilities are disinfecting during the recreation period, and establish effluent limitations for E. coli established in s. NR 210.06 (2), Wis. Adm Code. The administrative code rule changes included the following actions: revised the bacteria water quality criteria from fecal coliform to E. coli to protect recreation in ch. NR 102, Wis. Adm. Code.; removed fecal coliform criteria for certain individual waters from ch. NR 104, Wis. Adm. Code.; revised permit requirements for publicly and privately owned sewage treatment works in ch. NR 210, Wis. Adm. Code.; and, updated approved analytical methods for bacteria in ch. NR 219, Wis. Adm. Code.

**Phosphorus:** Phosphorus rules became effective December 1, 2010 per NR 217, Wis. Adm. Code, that required the permittee to comply with water quality based effluent limits (WQBELs) for total phosphorus. The final phosphorus WQBELs are 0.225 mg/L as a monthly average and 0.075 mg/L and 0.11 lbs/day expressed as six-month averages and were to become effective as scheduled unless a variance was granted. For this permit term, the permittee has applied for the Multi-Discharger Variance (MDV) for phosphorus as provided for in s. 283.16, Wis. Stats., and approved by USEPA on February 6, 2017 for a 10-year duration. The permittee qualifies for the MDV because it is an existing source and a major facility upgrade is needed to comply with the applicable phosphorus WQBELs, thereby creating a financial burden. The interim effluent limit for total phosphorus is 1.0 mg/L as an average monthly limit.

Conditions of the MDV require the permittee to optimize phosphorus removal throughout the proposed permit term, comply with interim limits and make annual payments to participating county(s) by March 1 of each year based on the pounds of phosphorus discharged during the previous year in excess of the specified target value. A reopener clause is included in the permit to address the current MDV’s expiration date, as a permit action may be required to update or remove variance provisions if the MDV is altered or unavailable after February 6, 2027.

The “price per pound” value is \$50.00 adjusted for CPI annually during the first quarter as defined by s. 283.16(8)(a)2, Wis. Stats and takes effect for reissued permits with effective dates starting April 1. This may differ from the “price per

pound” that is public noticed; however, the “price per pound” is set upon reissuance and is applicable for the entire permit term. The participating county(s) uses these payments to implement non-point source phosphorus control strategies at the watershed level.

**Total Nitrogen Monitoring (NO<sub>2</sub>+NO<sub>3</sub>, TKN and Total N):** The Department has included effluent monitoring for Total Nitrogen in the permit through the authority under §§ 283.55(1)(e), Wis. Stats., which allows the department to require the permittee to submit information necessary to identify the type and quantity of any pollutants discharged from the point source, and through s. NR 200.065(1)(h), Wis. Adm. Code, which allows for this monitoring to be collected during the permit term. Quarterly effluent monitoring for Total Nitrogen is included in the permit because of the potential for higher nitrogen loading resulting from higher flows (major facilities), higher concentrations, or both. More information on the justification to include total nitrogen monitoring in wastewater permits can be found in the “Guidance for Total Nitrogen Monitoring in Wastewater Permits” dated October 1, 2019.

**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.

The department has been revisiting the sampling frequencies at every facility to evaluate whether current frequencies are appropriate or if an increase is warranted. In evaluating the monitoring frequency for parameters with limits in the permit, the department considered the potential public health impacts, probable environmental impact, and past operating performance. The frequency for pH was increased to align Hazel Green with other facilities of similar size to ensure fairness and in consideration of department guidance on sampling frequencies. The department may re-evaluate current sampling frequencies and implement more frequent monitoring via permit modification or at permit reissuance.

Requirements in administrative code (NR 108, 205, 210, and 214 Wis. Adm. Code) and Sections 283.55, Wis. Stats., were considered, where applicable, when determining the appropriate monitoring frequencies for pollutants that have final effluent limits in effect during this permit term. The department has determined at this time that the aforementioned changes in monitoring frequency are warranted based on compliance history and the size and type of the facility.

**Expression of Limits:** In accordance with the federal regulation 40 CFR 122.45(d) and s. NR 205.065, Wis. Adm. Code, limits in this permit are to be expressed as weekly average and monthly average limits whenever practicable.

### 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)
003	B	Liquid	Fecal Coliform	Injection or Aerobic SOUR	Land Application	10.4
Does sludge management demonstrate compliance? <b>Yes.</b>						
Is additional sludge storage required? <b>No.</b>						
Is Radium-226 present in the water supply at a level greater than 2 pCi/liter? <b>No.</b>						
Is a priority pollutant scan required? <b>No, design flow is less than 5 MGD.</b>						
Priority pollutant scans are required once every 10 years at facilities with design flows between 5 MGD and 40 MGD, and						

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)
once every 5 years if design flow is greater than 40 MGD.						

## Sample Point Number: 003- SLUDGE

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Solids, Total		Percent	Annual	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	Annual	Composite	
Cadmium Dry Wt	Ceiling	85 mg/kg	Annual	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Annual	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Annual	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Annual	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	Annual	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Annual	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Annual	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Annual	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Annual	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Annual	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Annual	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Annual	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Annual	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Annual	Composite	
Nitrogen, Total Kjeldahl		Percent	Annual	Composite	
Nitrogen, Ammonium (NH4-N) Total		Percent	Annual	Composite	
Phosphorus, Total		Percent	Annual	Composite	
Phosphorus, Water Extractable		% of Tot P	Annual	Composite	



Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Potassium, Total Recoverable		Percent	Annual	Composite	
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	Once in 2026.
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	Once in 2026.
PFOA + PFOS		ug/kg	Annual	Calculated	Report the sum of PFOA and PFOS. See PFAS Permit Sections for more information.
PFAS Dry Wt			Annual	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 is required annually pursuant to s. NR 204.06(2)(b)9, Wis. Adm. Code.

### 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), Wis. Adm. Code. Requirements for pathogens are specified in s. NR 204.07(6) and in s. NR 204.07(7), Wis. Adm. Code for vector attraction requirements. Limitations for PCBs are addressed in s. NR 204.07(3)(k), Wis. Adm. Code.

**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” may 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 Phosphorus Schedule - Continued Optimization

The permittee is required to optimize performance to control phosphorus discharges per the following schedule.

Required Action	Due Date
<b>Optimization:</b> The permittee shall continue to implement the optimization plan as previously approved to optimize performance to control phosphorus discharges. Submit a progress report on	06/30/2026



optimizing removal of phosphorus by the Due Date.	
<b>Progress Report #2:</b> Submit a progress report on optimizing removal of phosphorus.	06/30/2027
<b>Progress Report #3:</b> Submit a progress report on optimizing removal of phosphorus.	06/30/2028
<b>Progress Report #4:</b> Submit a progress report on optimizing removal of phosphorus.	06/30/2029
<b>Progress Report #5:</b> Submit a progress report on optimizing removal of phosphorus.	06/30/2030

## Explanation of Schedule

Per s. 283.16(6)(a), Wis. Stats. the Department may include a requirement that the permittee optimize the performance of a point source in controlling phosphorus discharges, which may be necessary to achieve compliance with multi-discharger variance interim limits. This compliance schedule requires the permittee to continue to implement the optimization plan that was approved during the previous permit term.

## 4.2 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><b>Annual Verification of Phosphorus Payment to County:</b> The permittee shall make a total payment to the participating county or counties approved by the Department by March 1 of each calendar year. The amount due is equal to the following: [(lbs of phosphorus discharged minus the permittee's target value) times (\$66.62 per pound)] or \$640,000, whichever is less. See the payment calculation steps in the Surface Water section.</p> <p>The permittee shall submit Form 3200-151 to the Department by March 1 of each calendar year indicating total amount remitted to the participating counties to verify that the correct payment was made. The first payment verification form is due by the specified Due Date.</p> <p>Note: The applicable Target Value 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>	03/01/2026
<b>Annual Verification of Payment #2:</b> Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2027
<b>Annual Verification of Payment #3:</b> Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2028
<b>Annual Verification of Payment #4:</b> Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2029
<b>Annual Verification of Payment #5:</b> Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2030
<b>Continued Coverage:</b> If the permittee intends to seek a renewed variance, an application for the MDV (Multi Discharger Variance) shall be submitted as part of the application for permit reissuance in accordance with s. 283.16(4)(b), Wis. Stats.	
<b>Annual Verification of Payment After Permit Expiration:</b> In the event that this permit is not reissued prior to the expiration date, the permittee shall continue to submit Form 3200-151 to the Department indicating total amount remitted to the participating counties by March 1 each year.	

## Explanation of Schedule

Subsection 283.16(6)(b), Wis. Stats., requires permittees that have received approval for the multi-discharger variance (MDV) to implement a watershed project that is designed to reduce non-point sources of phosphorus within the HUC 8 watershed in which the permittee is located. The permittee has 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) that are calculated based on the amount of phosphorus actually discharged during a calendar year in pounds per year less the amount of phosphorus that would have been discharged had the permittee discharged phosphorus at a target value concentration of 0.2 mg/L. The pounds of phosphorus discharged in excess of the target value is multiplied by a per pound phosphorus charge that will equal \$66.62 per pound. This schedule requires the permittee to submit Form 3200-151 to the Department indicating the total amount remitted to the participating county(s).

### 4.3 Phosphorus Multi-Discharger Variance Interim Limit (0.6 mg/L)

This compliance schedule requires the permittee to achieve compliance with the specified MDV interim effluent limit in accordance with s. 283.16(6), Wis. Stats., by the due date.

Required Action	Due Date
<b>Report on Effluent Discharges:</b> Submit a report on effluent discharges of phosphorus with conclusions regarding compliance.	12/31/2025
<b>Action Plan:</b> Submit an action plan for complying with the specified interim effluent limit. If construction is required, include plans and specifications with the submittal.	06/30/2026
<b>Initiate Actions:</b> Initiate actions identified in the plan.	12/31/2026
<b>Complete Actions:</b> Complete actions identified in the plan and achieve compliance with the specified interim effluent limit.	06/30/2027

#### Explanation of Schedule

Subsection 283.16(6), Wis. Stats., establishes required interim phosphorus effluent limits that must be met for multi-discharger variance (MDV) eligibility. The schedule above provides the permittee with two years to comply with that limit.

### 4.4 Land Application Management Plan

A management plan is required for the land application system.

Required Action	Due Date
<b>Land Application Management Plan Submittal:</b> Submit an update to the management plan to optimize the land application system performance and demonstrate compliance with ch. NR 204, Wis. Adm. Code, by the Due Date. This management plan shall 1) specify information on pretreatment processes (if any); 2) identify land application sites; 3) describe site limitations; 4) address vegetative cover management and removal; 5) specify availability of storage; 6) describe the type of transporting and spreading vehicle(s); 7) specify monitoring procedures; 8) track site loading; 9) address contingency plans for adverse weather and odor/nuisance abatement; and 10) include any other pertinent information. Once approved, all landspreading 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.	12/31/2029

#### Explanation of Schedule

An up-to-date Land Application Management Plan is required that documents how the permittee will manage the land application of biosolids consistent with ch. NR 204, Wis. Adm. Code.

## **Attachments**

Water Quality Based Effluent Limits dated March 12, 2025

MDV Conditional Approval Letter dated November 27, 2024

MDV Evaluation Checklist dated November 27, 2024

## **Justification Of Any Waivers From Permit Application Requirements**

No waivers requested or granted as part of this permit reissuance.

**Prepared By:** BetsyJo Howe, Wastewater Specialist

**Date:** 05/08/2025

# CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: March 12, 2025

TO: BetsyJo Howe – SCR/ Fitchburg

FROM: Sarah Luck – SCR/Fitchburg

SUBJECT: Water Quality-Based Effluent Limitations for the Hazel Green Wastewater Treatment Facility  
WPDES Permit No. WI-0024210-10-0

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 Hazel Green Wastewater Treatment Facility in Lafayette County. This municipal wastewater treatment facility (WWTF) discharges to the Galena (Fever) River, located in the Galena River Watershed of the Grant - Platte River Basin. The evaluation of the permit recommendations is discussed in more detail in the attached report.

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

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Flow Rate						1
BOD <sub>5</sub>			45 mg/L	30 mg/L		2
TSS			45 mg/L	30 mg/L		2
pH	9.0 s.u.	6.0 s.u.				2
Ammonia Nitrogen April May - March	Variable Variable		96 mg/L 108 mg/L	48 mg/L 73 mg/L		2,3,4
<i>E. coli</i>				126 #/100 mL geometric mean		5
Residual Chlorine	38 µg/L		38 µg/L	38 µg/L		2,4
Chloride						6
Phosphorus LCA Interim Limit HAC Interim Limit Final WQBELs				1.0 mg/L 0.60 mg/L 0.225 mg/L	0.075 mg/L 0.11 lbs/day	7
TKN, Nitrate+Nitrite, and Total Nitrogen						8
Acute WET						9

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. These limits apply year-round.

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
6.0 ≤ pH ≤ 6.1	108	7.0 < pH ≤ 7.1	66	8.0 < pH ≤ 8.1	14

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
6.1 < pH ≤ 6.2	106	7.1 < pH ≤ 7.2	59	8.1 < pH ≤ 8.2	11
6.2 < pH ≤ 6.3	104	7.2 < pH ≤ 7.3	52	8.2 < pH ≤ 8.3	9.4
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

4. Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Code, are included in bold.
5. Additional final limit: No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 count/100 mL.
6. Monitoring at a frequency to ensure that 11 samples are available at the next permit issuance.
7. Under the phosphorus MDV, a level currently achievable (LCA) interim limit of 1.0 mg/L should be effective upon permit reissuance. A compliance schedule may be included in the permit until the highest attainable condition (HAC) limit of 0.60 mg/L can be met. The final WQBELs are 0.225 mg/L as a monthly average and 0.075 mg/L and 0.11 lbs/day as a six-month averages.
8. As recommended in the Department's October 1, 2019 *Guidance for Total Nitrogen Monitoring in Wastewater Permits*, quarterly total nitrogen monitoring is recommended for municipal permittees with total nitrogen greater than 40 mg/L. Total nitrogen is the sum of nitrate (NO<sub>3</sub>), nitrite (NO<sub>2</sub>), and total Kjeldahl nitrogen (TKN) (all expressed as N). Total nitrogen was reported as 41.4 mg/L (sample date 10/30/23) on the permit application.
9. Two acute WET tests are required. According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), a synthetic (standard) laboratory water may be used as the dilution water and primary control in acute WET tests. Sampling WET concurrently with any chemical-specific toxic substances is recommended. Tests should be done in rotating quarters to collect seasonal information about this discharge.

Please consult the attached report for details regarding the above recommendations. If there are any questions or comments, please contact Sarah Luck (Sarah.Luck@wisconsin.gov) or Diane Figiel (Diane.Figiel@wisconsin.gov).

Attachments (3) – Narrative, Site Map, and Ammonia Nitrogen Calculations

PREPARED BY: Sarah Luck Date: March 12, 2025  
 Sarah Luck  
 Water Resources Engineer

E-cc: Caitlin O'Connell, Wastewater Engineer – SCR/Dodgeville  
 Diane Figiel, Water Resources Engineer – WY/3  
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## Water Quality-Based Effluent Limitations for Hazel Green Wastewater Treatment Facility

**WPDES Permit No. WI-0024210-10-0**

### PART 1 – BACKGROUND INFORMATION

#### Facility Description

The Village of Hazel Green operates a hybrid fixed-film/activated sludge wastewater treatment facility that consists of a comminutor, primary clarification, RBCs with solids recycling, final clarification, chemical phosphorus removal, and seasonal chlorine disinfection/dechlorination prior to discharge to the Galena River. Sludge is aerobically digested and stored on-site prior to being land applied on Department approved sites. The chemical phosphorus removal system was completed in November 2022.

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

#### Existing Permit Limitations

The current permit, which expired on June 30, 2024, includes the following effluent limitations and monitoring requirements.

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Flow Rate						1
BOD <sub>5</sub>			45 mg/L	30 mg/L		2
TSS			45 mg/L	30 mg/L		2
pH	9.0 s.u.	6.0 s.u.				2
Ammonia Nitrogen						3,4
April	Variable		<b>96 mg/L</b>	<b>48 mg/L</b>		
May - March	Variable		<b>108 mg/L</b>	<b>73 mg/L</b>		
Fecal Coliform			<b>656#/100 mL</b>	400#/100 mL		4
May – September			geometric mean	geometric mean		
Residual Chlorine	38 µg/L		<b>38 µg/L</b>	<b>38 µg/L</b>		4
Chloride						1
Phosphorus						5
LCA				5.1 mg/L		
HAC				1.0 mg/L		
Final				0.225 mg/L	0.075 mg/L	
Acute WET						6

Footnotes:

1. Monitoring only.
2. 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. These limitations are not being evaluated as part of this review since the water quality criteria, reference effluent flow rate, and receiving water characteristics have not changed.

3. The variable daily maximum ammonia nitrogen limit table corresponding to various effluent pH values was included in the permit in place of the single limit.

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
$6.0 \leq \text{pH} \leq 6.1$	108	$7.0 < \text{pH} \leq 7.1$	66	$8.0 < \text{pH} \leq 8.1$	14
$6.1 < \text{pH} \leq 6.2$	106	$7.1 < \text{pH} \leq 7.2$	59	$8.1 < \text{pH} \leq 8.2$	11
$6.2 < \text{pH} \leq 6.3$	104	$7.2 < \text{pH} \leq 7.3$	52	$8.2 < \text{pH} \leq 8.3$	9.4
$6.3 < \text{pH} \leq 6.4$	101	$7.3 < \text{pH} \leq 7.4$	46	$8.3 < \text{pH} \leq 8.4$	7.8
$6.4 < \text{pH} \leq 6.5$	98	$7.4 < \text{pH} \leq 7.5$	40	$8.4 < \text{pH} \leq 8.5$	6.4
$6.5 < \text{pH} \leq 6.6$	94	$7.5 < \text{pH} \leq 7.6$	34	$8.5 < \text{pH} \leq 8.6$	5.3
$6.6 < \text{pH} \leq 6.7$	89	$7.6 < \text{pH} \leq 7.7$	29	$8.6 < \text{pH} \leq 8.7$	4.4
$6.7 < \text{pH} \leq 6.8$	84	$7.7 < \text{pH} \leq 7.8$	24	$8.7 < \text{pH} \leq 8.8$	3.7
$6.8 < \text{pH} \leq 6.9$	78	$7.8 < \text{pH} \leq 7.9$	20	$8.8 < \text{pH} \leq 8.9$	3.1
$6.9 < \text{pH} \leq 7.0$	72	$7.9 < \text{pH} \leq 8.0$	17	$8.9 < \text{pH} \leq 9.0$	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. Code, are included in bold.
5. Under the Multi-Discharger Variance (MDV), the facility had a level currently achievable (LCA) interim limit of 5.1 mg/L that was effective upon permit reissuance. The highest attainable condition (HAC) limit of 1.0 mg/L went into effect July 1, 2023. The final WQBELs were 0.225 mg/L as a monthly average and 0.075 mg/L as a six-month average.
6. Two acute WET tests were required.

### Receiving Water Information

- Name: Galena River (known locally as the Fever River)
- Waterbody Identification Code (WBIC): 935500
- Classification used in accordance with chs. NR 102 and 104, Wis. Adm. Code: Warm Water Sport Fish (WWSF) community, non-public water supply.
- Low flows used in accordance with chs. NR 106 and 217, Wis. Adm. Code: The following 7-Q<sub>10</sub> and 7-Q<sub>2</sub> values are from USGS for Station 05415000 (Galena River at Buncombe, WI), where Outfall 001 is located.
  - 7-Q<sub>10</sub> = 15 cubic feet per second (cfs)
  - 7-Q<sub>2</sub> = 23 cfs
  - Harmonic Mean Flow = 43.47 cfs using a drainage area of 125 mi<sup>2</sup>
  - The Harmonic Mean has been estimated based on average flow and the 7-Q<sub>10</sub> using an equation from U.S. EPA's *Technical Support Document for Water Quality-Based Toxics Control* (March 1991, EPA/505/2-90-001, pgs. 88-89).
- Hardness = 473 mg/L as CaCO<sub>3</sub>. This value represents the geometric mean of seven samples collected between July 1995 through August 1997 from SWIMS station 333230 – Galena River at Beebe Road.
- % 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 the Galena River are used for this evaluation (SWIMS Station #333230 – Galena River at Beebe Road). 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.



#### Attachment #1

- Multiple dischargers: Benton Wastewater Treatment Facility discharges approximately nine miles upstream of Outfall 001, so the mixing zones do not overlap, and Benton's discharge does not impact this evaluation.
- Impaired water status: The Galena River is listed as impaired for an unknown pollutant on the 303d list upstream of the outfall (river miles 19.43 - 52.07); there is no impairment listed at the point of discharge. Approximately 17 miles downstream, the Mississippi River is listed as impaired for total phosphorus, mercury, and PCBs.

#### Effluent Information

- Flow rate:  
Design annual average = 0.168 million gallons per day (MGD)  
For reference, the actual average flow from July 2019 through January 2025 was 0.06 MGD.
- Hardness = 318 mg/L as CaCO<sub>3</sub>. This value represents the geometric mean of four samples collected in October 2023 which were 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).
- Wastewater source: Domestic and commercial wastewater.
- Water supply: Municipality waterworks (Hazel Green Water)
- Additives: Chlorine (disinfection), sodium bisulfite (dechlorination), and aluminum sulfate (phosphorus removal)
- 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 below, 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)
10/23/23	10.2	11/06/23	16.2	11/20/23	18.5
10/26/23	14.7	11/09/23	12.1	11/27/23	16.5
10/30/23	15.3	11/13/23	57.8	11/30/23	12.6
11/02/23	14.0	11/16/23	13.9		
1-day P <sub>99</sub> = 67.3 µg/L					
4-day P <sub>99</sub> = 39.0 µg/L					

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

#### Chloride Effluent Data

Sample Date	Chloride (mg/L)	Sample Date	Chloride (mg/L)	Sample Date	Chloride (mg/L)
01/12/23	275	05/11/23	322	09/06/23	220
02/09/23	346	06/08/23	285	10/04/23	228
03/23/23	379	07/12/23	303	11/02/23	307
04/20/23	345	08/02/23	281	12/06/23	344
1-day P <sub>99</sub> = 432 mg/L					

Attachment #1

Sample Date	Chloride (mg/L)	Sample Date	Chloride (mg/L)	Sample Date	Chloride (mg/L)
4-day P <sub>99</sub> = 363 mg/L					

The following table presents the average concentrations and loadings at Outfall 001 from July 2019 through January 2025 for all parameters with limits in the current permit to meet the requirements of s. NR 201.03(6), Wis. Adm. Code:

**Averages of Parameters with Limits**

	Average Measurement
BOD <sub>5</sub>	8 mg/L
TSS	8 mg/L
pH field	7.53 s.u.
Phosphorus	1.32 mg/L
Ammonia Nitrogen	0.76 mg/L*
Total residual chlorine	4.6 mg/L*
Fecal Coliform	50#/100 mL

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

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

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

1. The maximum effluent concentration exceeds the calculated limit (s. NR 106.05(3), Wis. Adm. Code)
2. If 11 or more detected results are available in the effluent, the upper 99<sup>th</sup> percentile (or P<sub>99</sub>) 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<sub>10</sub>**

Daily maximum effluent limitations for toxic substances are based on the acute toxicity criteria (ATC), listed in ch. NR 105, Wis. Adm. Code. Previously daily maximum limits for toxic substances were calculated as two times the ATC. However, changes to ch. NR 106, Wis. Code, (September 1, 2016) require the Department to calculate acute limitations using the same mass balance equation as used for other limits along with the 1-Q<sub>10</sub> receiving water low flow to determine if more restrictive effluent limitations are needed to protect the receiving stream from discharges which may cause or contribute to an exceedance of the acute water quality standards. The mass balance equation is provided below.

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

Where:

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

Q<sub>s</sub> = average minimum 1-day flow which occurs once in 10 years (1-day Q<sub>10</sub>)

if the 1-day Q<sub>10</sub> flow data is not available = 80% of the average minimum 7-day flow which occurs once in 10 years (7-day Q<sub>10</sub>).

Attachment #1

Q<sub>e</sub> = Effluent flow (in units of volume per unit time) as specified in s. NR 106.06(4)(d), Wis. Adm. Code.

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

C<sub>s</sub> = 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<sub>10</sub> 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 Hazel Green 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. 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 = 12 cfs, (1-Q<sub>10</sub> (estimated as 80% of 7-Q<sub>10</sub>)), 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 <sub>99</sub>	1-day MAX. CONC.
Chlorine		19.0	38.1	7.61	5		<b>1680</b>
Arsenic		340	679.6	135.9	<0.77		
Cadmium	318	38.8	77.7	15.5	<0.084		
Chromium	301	4446	8891.7	1778	<0.70		
Copper	318	46.2	92.4			67.3	57.8
Lead	318	327	653.7	130.7	<1.08		
Nickel	268	1080	2160.6	432	<0.90		
Zinc	318	331	661.9	132.4	<26		
Chloride (mg/L)		757	1514.0			432	379

\* 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<sub>10</sub> 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 = 3.8 cfs (¼ of the 7-Q<sub>10</sub>), 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 <sub>99</sub>
Chlorine		7.28		112.30	22.46	5	
Arsenic		152.2	2.4	2313	462.7	<0.77	
Cadmium	175	3.82	0.41	53.01	10.6	<0.084	
Chromium	301	325.75	6.0	4939	987.7	<0.70	
Copper	473	39.14	2.83	563.0			39.0
Lead	356	95.51		1473.4	294.7	<1.08	

## Attachment #1

SUBSTANCE	REF. HARD.* mg/L	CTC	MEAN BACK- GRD.	WEEKLY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	4-day P <sub>99</sub>
Nickel	268	120.18		1854	370.8	<0.90	
Zinc	333	344.68		5317	1063.4	<26	
Chloride (mg/L)		395		6093			363

\* 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 = 11 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	0.41	15823	3164.6	<0.084
Chromium (+3)	3818000	6.0	163454070	32690814	<0.70
Lead	140		5994	1198.7	<1.08
Nickel	43000		1840895	368179	<0.90

### Monthly Average Limits based on Human Cancer Criteria (HCC)

RECEIVING WATER FLOW = 11 cfs (¼ of Harmonic Mean), as specified in s. NR 106.06(4), Wis. Adm. Code.

SUBSTANCE	HCC	MEAN BACK- GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.
Arsenic	13.3	2.4	469.0	93.81	<0.77

In addition to evaluating the need for limits for each individual substance for which HCC exist, s. NR 106.06(8), Wis. Adm. Code, requires the evaluation of the cumulative cancer risk. Because no effluent limits are needed based on HCC, determination of the cumulative cancer risk is not needed per s. NR 106.06(8), Wis. Adm. Code.

### Conclusions and Recommendations

Based on a comparison of the effluent data and calculated effluent limitations, **effluent limitations are required for total residual chlorine.**

Total Residual Chlorine – Since chlorine is added as a disinfectant, effluent limitations are included to assure proper operation of the de-chlorination system. Section NR 210.06(2)(b), Wis. Adm. Code, states, “When chlorine is used for disinfection, the daily maximum total residual chlorine concentration of the discharge may not exceed 0.10 mg/L.” Because the WQBELs are more restrictive, they are recommended instead. Specifically, **a daily maximum limit of 38 µg/L is required.**

Attachment #1

Due to revisions to s. NR 106.07(2), Wis. Adm. Code, mass limitations are no longer required. Weekly average limitations are not needed based on reasonable potential as the daily maximum limitations will provide adequate protection of the resource; however, **weekly and monthly average limits, set equal to the daily maximum limit of 38 µg/L, are required** per s. NR 106.07(3), Wis. Adm. Code, as follows:

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.

Chloride – Considering available effluent data from the current permit term (January 2023 through December 2023), the 1-day P<sub>99</sub> chloride concentration is 432 mg/L, and the 4-day P<sub>99</sub> of effluent data is 363 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 the Hazel Green 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), Wis. Adm. Code.” A review of the past five years of sludge characteristics data reveals that all the sample results are within expected analytical ranges and well below the 17 mg/kg level. Of the five samples collected between March 2020 through March 2024, four were non-detects and the single detected concentration was 0.63 mg/kg. Therefore, **no mercury monitoring is recommended at Outfall 001.**

PFOS and PFOA – The need for PFOS and PFOA monitoring is evaluated in accordance with s. NR 106.98(2), Wis. Adm. Code. Based on the type of discharge, the effluent flow rate, and lack of indirect dischargers, **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, weekly average, and monthly average limits.

#### **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:

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

Where:

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

The current permit has variable daily maximum effluent limits based on effluent pH, as shown below, in place of a single daily maximum limit.

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

#### 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 2008 are shown in Attachment #3.

#### Effluent Data

The following table evaluates the statistics based upon ammonia data reported from July 2019 through January 2025.

**Ammonia Nitrogen Effluent Data**

	April (mg/L)	May – March (mg/L)
1-day P <sub>99</sub>	6.22	9.58
4-day P <sub>99</sub>	3.53	5.61
30-day P <sub>99</sub>	1.47	2.34
Mean*	0.56	0.79
Std	1.89	3.17
Sample size	43 (19 ND)	540 (248 ND)
Range	<0.05 - 7.02	<0.03 - 18.81

\*“<” means that the pollutant was not detected at the indicated level of detection. The mean concentration was calculated using zero in place of the non-detected (ND) result.

### Reasonable Potential

The need to include ammonia limits in the Hazel Green Wastewater Treatment Facility permit is determined by calculating 99<sup>th</sup> upper percentile (or P<sub>99</sub>) values for ammonia during the month ranges and comparing those to the calculated limits. Based on this comparison, there is no reasonable potential for the discharge to exceed any of the calculated ammonia nitrogen limits. However, since the permit currently has weekly and monthly average limits year-round, **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, the following ammonia nitrogen limitations are recommended. No mass limitations are recommended in accordance with s. NR 106.32(5), Wis. Adm. Code.

**Final Ammonia Nitrogen Limits**

	Daily Maximum (mg/L)	Weekly Average (mg/L)	Monthly Average (mg/L)
April	Variable	<b>96</b>	<b>48</b>
May – March	Variable	<b>108</b>	<b>73</b>

Additional limits to meet the requirements in s. NR 106.07, Wis. Adm. Code, are denoted in bold text.

## 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. Hazel Green Wastewater Treatment Facility's 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.

### Effluent Data

Hazel Green Wastewater Treatment Facility has monitored effluent *E. coli* from May 2023 through September 2024, and a total of 46 results are available. A geometric mean of 126 counts/100 mL was not



exceeded, and the maximum monthly geometric mean was 3.2 counts/100 mL. Effluent data did not exceed 410 counts/100 mL. The maximum reported value was 37 counts/100 mL. Based on this effluent data **it appears that the facility can meet new *E. coli* limits, and a compliance schedule is not needed in the reissued permit.**

## PART 5 – PHOSPHORUS

### Technology-Based Effluent Limit

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

**Since Hazel Green Wastewater Treatment Facility currently has an interim limit of 1.0 mg/L in effect, this limit should be included in the reissued permit.** This limit remains applicable unless a more stringent WQBEL is given.

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.

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

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

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

Where:

WQC = 0.075 mg/L for Galena River

Qs = 100% of the 7-Q<sub>2</sub> of 23 cfs

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

Qe = effluent flow rate = 0.168 MGD = 0.26 cfs

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

Section NR 217.13(2)(d), Wis. Adm. Code, specifies that the background phosphorus concentration used in the limit calculation formula shall be calculated as a median using the procedures specified in s. NR 102.07(1)(b) to (c), Wis. Code. All representative data from the most recent 5 years shall be used, but data from the most recent 10 years may be used if representative of current conditions.

Attachment #1

A previous evaluation resulted in a WQBEL of 0.075 mg/L using a background concentration of 0.094 mg/L. Section NR 217.13(2)(d) states that the determination of upstream concentrations shall be evaluated at each permit reissuance. No additional data are available. Ambient phosphorus data is from the Galena River at Beebe Road (Surface Water Integrated Monitoring System station number 333230) sampled during 2006 and 2007. The rolling median concentration (Cs) in the Galena river is 0.094 mg/L.

Substituting a background concentration above criteria into the limit calculation equation above would result in a calculated limit that is less than the applicable criterion of 0.075 mg/L. However, s. NR 217.13(7), Wis. Adm. Code, specifies that “if the WQBEL calculated pursuant to the procedures in this section is less than the phosphorus criterion specified in s. NR 102.06, Wis. Adm. Code, for the water body, the effluent limit shall be set equal to the criterion.”

### Effluent Data

The following table summarizes effluent total phosphorus monitoring data for the entire permit term (July 2019 through January 2025) and also when the MDV highest attainable condition limit of 1.0 mg/L went into effect (July 1, 2023).

**Total Phosphorus Effluent Data**

	<b>July 2019 through Jan 2025 mg/L</b>	<b>July 2023 through Jan 2025 (Data since 1.0 mg/L limit went into effect) mg/L</b>
1-day P <sub>99</sub>	8.20	1.97
4-day P <sub>99</sub>	4.43	1.23
30-day P <sub>99</sub>	2.22	0.85
Mean	1.32	0.68
Std	1.73	0.37
Sample size	585	165
Range	0.04 - 19.84	0.22 - 2.56

### Reasonable Potential Determination

**The discharge has reasonable potential to cause or contribute to an exceedance of the water quality criterion** because the 30-day P<sub>99</sub> of reported effluent total phosphorus data is greater than the calculated WQBEL. Therefore, **a WQBEL is required.**

### Limit Expression

According to s. NR 217.14(2), Wis. Adm. Code, because the calculated WQBEL is less than or equal to 0.3 mg/L, the effluent limit of 0.075 mg/L may be expressed as a six-month average. If a concentration limitation expressed as a six-month average is included in the permit, a monthly average concentration limitation of 0.225 mg/L, equal to three times the WQBEL calculated under s. NR 217.13, Wis. Adm. Code shall also be included in the permit. The six-month average should be averaged during the months of May – October and November – April.

### Mass Limit

A mass limit is also required, pursuant to s. NR 217.14(1)(a), Wis. Adm. Code, because the discharge is to a surface water that is upstream of a phosphorus-impaired water (Mississippi River). **This final mass limit shall be  $0.075 \text{ mg/L} \times 8.34 \times 0.168 \text{ MGD} = 0.11 \text{ bs/day}$  expressed as a six-month average.**

### Multi-Discharge Variance Interim Limit

Hazel Green Wastewater Treatment Facility was covered under the phosphorus multi-discharger variance (MDV) during the previous permit term and is approved for the MDV again. The recommended interim limit during the second permit under MDV approval, pursuant to s. 283.16(6)(a), Wis. Stats., is 0.60 mg/L as a monthly average. A review of effluent phosphorus data indicates that Hazel Green Wastewater Treatment Facility may need a compliance schedule to meet this interim limit, but **compliance with 0.60 mg/L shall be no later than the end of the reissued permit.**

The current permit had a compliance schedule to meet the limit of 1.0 mg/L by July 1, 2023. **Therefore, 1.0 mg/L is the level currently achievable (LCA) for the discharge** since the facility may still be optimizing the chemical phosphorus removal system. A limit of 1.0 mg/L as a monthly average should not be exceeded during the compliance schedule.

## 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.

In accordance with s. NR 106.53(2)(b), Wis. Adm. Code, the highest daily maximum flow rate for a calendar month is used to determine the acute (daily maximum) effluent limitation. In accordance with s. NR 106.53(2)(c), Wis. Adm. Code, the highest 7-day rolling average flow rate for a calendar month is used to determine the sub-lethal (weekly average) effluent limitation. Based on actual flow reported from July 2019 through December 2024, the lowest calculated limitation is 120°F as a daily maximum. There is no reasonable potential for a municipal treatment plant with no significant industrial loading to approach that limit. Therefore, **no temperature limits or monitoring are required.**

## 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<sub>50</sub> (Lethal Concentration to 50% of the test organisms) greater than

100% effluent, according to s. NR 106.09(2)(b), Wis. Adm Code.

- Chronic tests predict the concentration that interferes with the growth or reproduction of test organisms during a seven-day exposure. To assure that a discharge is not chronically toxic to organisms in the receiving water, WET tests must produce a statistically valid IC<sub>25</sub> (Inhibition Concentration) greater than the instream waste concentration (IWC), according to s. NR 106.09(3)(b), Wis. Adm Code. The IWC is an estimate of the proportion of effluent to total volume of water (receiving water + effluent). The **IWC of 6%**, shown in the WET Checklist summary below, was calculated according to the following equation, as specified in s. NR 106.03(6), Wis. Adm Code:

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

Where:

$Q_e$  = annual average flow = 0.168 MGD = 0.26 cfs

$f$  = fraction of the  $Q_e$  withdrawn from the receiving water = 0

$Q_s$  =  $\frac{1}{4}$  of the 7- $Q_{10}$  = 15 cfs  $\div$  4 = 3.75 cfs

- According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), a synthetic (standard) laboratory water may be used as the dilution water and primary control in acute WET tests, unless the use of different dilution water is approved by the Department prior to use. The primary control water must be specified in the WPDES permit.
- 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 <sub>50</sub> %				Footnotes or Comments
	<i>C. dubia</i>	Fathead minnow	Pass or Fail?	Used in RP?	
09/29/2009	>100	>100	Pass	No	1
10/09/2012	>100	>100	Pass	Yes	
01/29/2013	>100	>100	Pass	Yes	
05/27/2020	>100	>100	Pass	Yes	
07/27/2022	>100	>100	Pass	Yes	
11/13/2024	>100	>100	Pass	Yes	

Footnote:

- Tests done by S-F Analytical, July 2008 – March 2011.* The DNR has reason to believe that WET tests completed by SF Analytical Labs from July 2008 through March 31, 2011 were not performed using proper test methods. Therefore, WET data from this lab during this period has been disqualified and was not included in the analysis.
- According to s. NR 106.08, Wis. Adm. Code, WET reasonable potential is determined by multiplying the highest toxicity value that has been measured in the effluent by a safety factor, to predict the likelihood (95% probability) of toxicity occurring in the effluent above the applicable WET limit. The safety factor used in the equation changes based on the number of toxicity detects in the dataset. The fewer detects present, the higher the safety factor, because there is more uncertainty surrounding the

Attachment #1

predicted value. **WET limits must be given, according to s. NR 106.08(6), Wis. Adm. Code, whenever the applicable Reasonable Potential equation results in a value greater than 1.0.**

According to s. NR 106.08(6)(d), Wis. Adm. Code, TUa and TUC effluent values are equal to zero whenever toxicity is not detected (i.e. when the  $LC_{50}$ ,  $IC_{25}$  or  $IC_{50} \geq 100\%$ ).

Acute Reasonable Potential =  $0 < 1.0$ , reasonable potential is not shown, and a limit is not required.

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**

	<b>Acute</b>	<b>Chronic</b>
<b>AMZ/IWC</b>	Not Applicable. <b>0 Points</b>	IWC = 6% <b>0 Points</b>
<b>Historical Data</b>	5 tests used to calculate RP. No tests failed. <b>0 Points</b>	No data available. <b>5 Points</b>
<b>Effluent Variability</b>	Little variability, few violations, no upsets, consistent WWTF operations. <b>0 Points</b>	Same as Acute. <b>0 Points</b>
<b>Receiving Water Classification</b>	WWSF <b>5 Points</b>	Same as Acute. <b>5 Points</b>
<b>Chemical-Specific Data</b>	Reasonable potential for limits for total residual chlorine based on ATC. Ammonia nitrogen limit carried over from the current permit. Chloride and copper detected. Additional Compounds of Concern: None. <b>8 Points</b>	No reasonable potential for limits based on CTC. Ammonia nitrogen limit carried over from the current permit. Chloride and copper detected. Additional Compounds of Concern: None. <b>3 Points</b>
<b>Additives</b>	One biocide (chlorine) and two water quality conditioners (sodium bisulfite and alum) added. Permittee has proper P chemical SOP in place. <b>5 Points</b>	All additives used more than once per 4 days. <b>5 Points</b>
<b>Discharge Category</b>	No industrial contributors. <b>0 Points</b>	Same as Acute. <b>0 Points</b>
<b>Wastewater Treatment</b>	Secondary or better. <b>0 Points</b>	Same as Acute. <b>0 Points</b>
<b>Downstream Impacts</b>	No impacts known. <b>0 Points</b>	Same as Acute. <b>0 Points</b>
<b>Total Checklist Points:</b>	<b>18 Points</b>	<b>18 Points</b>

## Attachment #1

	Acute	Chronic
<b>Recommended Monitoring Frequency (from Checklist):</b>	2 tests during permit term.	None.
<b>Limit Required?</b>	No	No
<b>TRE Recommended? (from Checklist)</b>	No	No

- After consideration of the guidance provided in the Department's *WET Program Guidance Document* (2022) and other information described above, **two (2) acute and no chronic WET tests are recommended in the reissued permit.** Tests should be done in rotating quarters to collect seasonal information about this discharge.

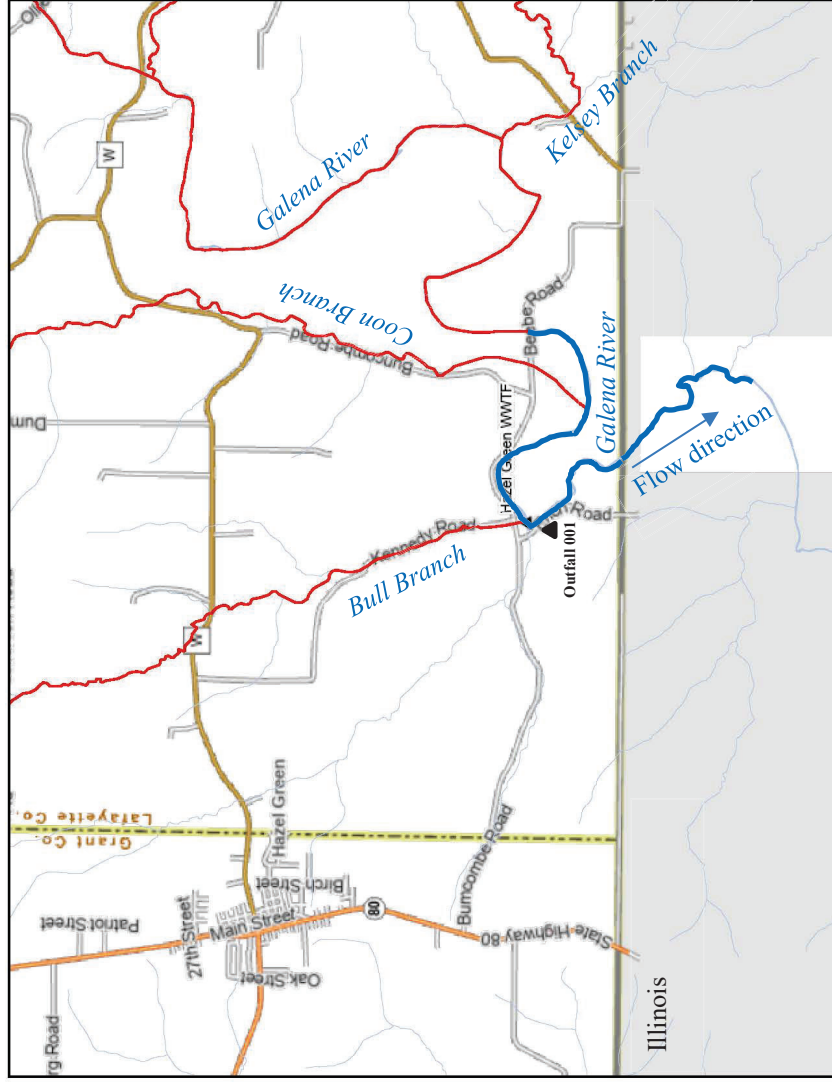
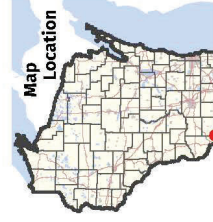
# Attachment #2 Site Map

## Hazel Green Wastewater Treatment Facility



- Legend:** (some map layers may not be displayed)
- IWL - River Stream Beach
  - Shore
  - Surface Water Outfalls
  - 24K Lakes and Open Water
  - 24K Streams and Rivers
  - City or Village
  - State Boundaries
  - County Boundaries
  - Major Roads
  - State Highway
  - County and Local Roads
  - County HWY
  - Local Road

**Notes:**  
No longer to scale.



Map projection: NAD 1983 HARN Wisconsin TM  
Service Layer Credits:  
EN Basic Basemap WTM Ext., Permits & Determinations: WI DNR Bureau of Watershed Management.

Map: 0 3,000 6,000 Feet  
0 960 1,920 Meters



**This map is a product generated by a web mapping application.**  
This map is for informational purposes only and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. The user is solely responsible for verifying the accuracy of information before using for any purpose. By using this product for any purpose user agrees to be bound by all disclaimers found here: <https://dnr.wisconsin.gov/info411>

Date Printed: 2/24/2025 5:01 PM



**Ammonia Nitrogen Limits from April 29, 2008 WQBEL Memo**

<b>AMMONIA (as N) LIMITS</b>	<b>Hazel Green</b>		
<b>CLASSIFICATION:</b>	<b>WARMWATER SPORTFISH</b>		
EFFLUENT FLOW (MGD):	0.168		
EFFLUENT FLOW (cfs):	0.260		
MAX. EFFLUENT pH (s.u.):	7.9		
<b>BACKGROUND INFO:</b>	<i>summer</i>	<i>winter</i>	<i>April</i>
7-Q <sub>10</sub> (cfs)	15	15	15
7-Q <sub>2</sub> (cfs)	23	23	23
Ammonia (mg/L)	0.06	0.48	0.11
Temperature (deg C)	23	3	9
pH (std. units)	8.21	7.97	7.97
% of river flow used:	100	25	25
Reference weekly flow:	15	3.75	3.75
Reference monthly flow:	19.55	4.8875	4.8875
<b>CRITERIA (in mg/L):</b>			
4-day Chronic (@ backgrd. pH):			
early life stages present	2.55	6.35	6.35
early life stages absent	2.55	10.31	9.06
30-day Chronic (@ backgrd. pH)			
early life stages present	1.02	2.54	2.54
early life stages absent	1.02	4.12	3.63
<b>EFFLUENT LIMITS (in mg/L):</b>			
<b>Weekly average</b>			
early life stages present	146.44		96.38
early life stages absent		152.14	
<b>Monthly average</b>			
early life stages present	73.33		48.23
early life stages absent		72.65	

**Note:** Early life stages present limits apply during the months of April through September and the early life stages absent limits apply to October through March for warm water sport fish community streams where burbot are not expected to be present.



11/27/2024

Sally Bauer  
P O Box 367  
Hazel Green, WI 53811

Subject: Conditional approval of a multi-discharger phosphorus variance  
Receiving Stream: Galena River in Grant County  
Permittee: Village of Hazel Green, WPDES WI-0024210

Dear Ms. Bauer:

In accordance with s. 283.16 of the Wisconsin Statutes, you have requested coverage under Wisconsin's multi-discharger phosphorus variance for the Hazel Green Wastewater Treatment Facility in an application dated 1/2/24. Wisconsin's multi-discharger phosphorus variance was approved by EPA on February 6, 2017. Coverage under the multi-discharger phosphorus variance may only be granted to an existing source that demonstrates a major facility upgrade is necessary to achieve phosphorus compliance and the upgrade will result in economic hardship as defined in the federally approved variance. The water quality criterion for which you are seeking a variance is contained in s. NR 102.06, Wis. Adm. Code.

After review of the application materials, the Department is tentatively approving coverage under the phosphorus multi discharger variance because the applicant has demonstrated that a major facility upgrade would be required to comply with the phosphorus water quality based effluent limitation, and the applicant meets the economic hardship eligibility criteria delineated in the federally approved variance. In addition, the permitted facility has agreed to comply with the interim limitations that will be included in the WPDES permit, and has agreed to reduce the amount of phosphorus entering surface waters by making payments to the counties pursuant to s. 283.16(6)(b)1., Wis. Stats.

Public comment on this decision will be solicited at the time of permit reissuance after which a final decision will be made. The Department appreciates your attention and interest in Wisconsin's multi-discharger phosphorus variance. Should you have further questions regarding this matter, please contact me at (608) 400 – 5596 or by email at [matthew.claucherty@wisconsin.gov](mailto:matthew.claucherty@wisconsin.gov).

Sincerely,

Matt Claucherty, MDV Point Source Coordinator  
Bureau of Water Quality

e-cc:

Caitlin Oconnell, WDNR  
Betsyjo Howe, WDNR  
Tim Elkins, EPA Region 5  
Micah Bennett, EPA Region 5

## Multi-Discharger Variance Application Evaluation Checklist

Form 3200-145 (R 5/16)

Page 1 of 4

**Notice:** This checklist is meant to be a tool to help Department of Natural Resources (DNR) staff review municipal and industrial multi-discharger variance (MDV) applications (Forms 3200-149 and 3200-150). Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law (ss. 19.31-19.39, Wis. Stats.).

Permittee Name

Village of Hazel Green

WPDES Permit Number <b>WI- 0   0   2   4   2   1   0</b>	County Lafayette
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1. Did the point source apply for the MDV at the appropriate time?	<input checked="" type="radio"/> Yes <input type="radio"/> No. <i>STOP- facility not eligible at this time.</i>	See Questions 1-3.
2. This operation is (check one):	<input type="radio"/> New or relocated outfall. <i>STOP- facility not eligible.</i> <input checked="" type="radio"/> Existing outfall	See Questions 5-6.
3. Is the point source is located in an MDV eligible area?	<input checked="" type="radio"/> Yes <input type="radio"/> No. <i>STOP- facility not eligible.</i>	Apply County information to Appendix H. Additional information provided in Q7 on municipal form & Q7-8 on industrial form.
4. The secondary indicator score for the county (counties) the discharge is located is:	<u>5</u>	See Appendices A-F. If the score is less than 2, stop; the facility is not eligible. See Q23 on municipal form & Q28 on industrial form.
5. Is a major facility upgrade required to comply with phosphorus limits?	<input checked="" type="radio"/> Yes <input type="radio"/> No. <i>STOP- facility not eligible.</i>	See Q8 on municipal form/Q9 on industrial form.
6. List the months where phosphorus limits cannot be achieved during the permit term:	<input checked="" type="checkbox"/> All <input checked="" type="checkbox"/> Jan <input checked="" type="checkbox"/> Apr <input checked="" type="checkbox"/> Jul <input checked="" type="checkbox"/> Oct <input checked="" type="checkbox"/> Feb <input checked="" type="checkbox"/> May <input checked="" type="checkbox"/> Aug <input checked="" type="checkbox"/> Nov <input checked="" type="checkbox"/> Mar <input checked="" type="checkbox"/> Jun <input checked="" type="checkbox"/> Sep <input checked="" type="checkbox"/> Dec	Consider checking with limit calculator. If this does not match information in application, the application should be updated prior to approval.

7. What is the current effluent level achievable?

Outfall Number(s) 001	Conc. (mg/L) 0.83	Method for calculation: <input checked="" type="radio"/> 30-day P99 <input type="radio"/> Other, specify: _____	Does this concur with application? <input type="radio"/> Yes <input checked="" type="radio"/> No, why not: application used smaller data subset _____	DNR staff should verify the effluent concentration value(s) provided. See Q11 on municipal form & Q12 on industrial form.
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8. What is the appropriate interim limitation(s) for the permit term?  
0.6 mg/L as a monthly average, pursuant to s. 283.16(6)(a)2., Wis. Stats.  
Target Value = 0.2 mg/L

Provide Rationale:

Effluent total phosphorus data from the past three years (11/1/2021 - 10/31/2024, n=313) yield a 30-day P99 value of 0.83 mg/L. A rounded value of 0.8 mg/L could be considered a level currently achievable. The facility may need a schedule to meet 0.6 mg/L on a consistent basis, as some recent monthly averages have exceeded this level.

*Note: See description in Section 2.02 of the MDV implementation guidance. Interim limitations should reflect the "highest attainable condition" for the permittee in question pursuant to s. 283.16(7), Wis. Stat.*

Save

9. <i>For Industries Only</i> - Where does the phosphorus in the effluent come from? (check all that apply)	<input type="checkbox"/> Process <input type="checkbox"/> Additive Usage <input type="checkbox"/> Water supply  <i>Can intake credits be given or can the facility use an alternative water supply?</i> <input type="radio"/> Not feasible <input type="radio"/> Possibly, but further analysis needed <input type="radio"/> Not evaluated at this time	See Q14-15 & 19 on industrial form. If the answer is "possibly" or "not evaluated", the schedule section of the MDV permit should contain a requirement to perform this analysis.
10. Has this facility optimized?	<input checked="" type="radio"/> Yes <input type="radio"/> In progress <input type="radio"/> No	See Q14 on municipal form & Q16 & 20 on industrial form. Facility must optimize and operate at an optimize treatment level (s. 283.16(6)(a), Wis. Stat.) If no will need compliance schedule.
11. Has a facility plan/compliance alternative plan been completed for the facility?	<input checked="" type="radio"/> Yes <input type="radio"/> In progress <input type="radio"/> No	See Q15 on municipal form & Q17 on industrial form.
12. What is the projected cost for complying with phosphorus?   Source:	\$ <u>1,334,375.00</u>  January 2024 engineer's cost estimate  _____	Facility must submit site-specific compliance costs. If cost projections are used from EIA, the permittee must certify that these costs are reasonable for the facility in question. See "projected compliance costs" in Section 2.02 of the MDV Implementation Guidance for details.
Comments on planning efforts:		
A June 2018 final compliance alternatives plan was prepared by Feher Graham and submitted on behalf of the Village of Hazel Green. The Plan evaluates various avenues for meeting the low-level phosphorus effluent limits. Water quality trading and adaptive management are evaluated. Neither are viable due to lack of available trading partners and magnitude of offset needed, respectively. Alternative discharge location and regionalization were evaluated and not deemed not viable due to challenges with phosphorus at surrounding waterbodies and treatment facilities. The cost to regionalize is higher than tertiary filtration. Several treatment technologies are evaluated, with the lowest cost option used the in the economic demonstration below. In 2024, DNR concurs that sand filtration remains amongst the most cost effective treatment options. During the current permit term, Hazel Green installed chemical phosphorus removal and began a more formalized search for water quality trading opportunities.		
13. Are adaptive management and water quality trading viable?	<input type="radio"/> Yes <input checked="" type="radio"/> Perhaps. Additional analysis required. <input type="radio"/> No	See Q18-21 on municipal form & Q22-25 on industrial form. If additional analyses required, the applicant may need to complete this analysis during the MDV permit term.
14. Has the point source met the appropriate primary screener?	<input checked="" type="radio"/> Yes <input type="radio"/> No. STOP- facility not eligible.	See Q4 of this form in addition to the "eligibility" guidance in Section 2.01 of the MDV Implementation Guidance.

## Comments on economic demonstration:

The updated cost for tertiary filtration arrived at capital costs of \$1,334,375 with additional O&M costs of \$22,150.00. Assuming a 20-year CWF loan is used at 2.2% interest, annual costs amount to \$83,189.50 (loan payments) or \$105,339.50 (with annual O&M). With an 89% residential use rate, costs are \$93,752.15. Divided amongst 484 residential users, the annual cost increase would be \$193.70 on average. Current sewer rates average \$762.96 annually, and future sewer user rates are projected to average \$956.66. This value is 1.7% of the village's \$55,139 median household income. In Lafayette County with a secondary indicator score of 5, projected sewer user rates at 1% of MHI meet the primary screener. The applicant meets the primary screener.

## 15. What watershed option was selected?

- ☒ County project option. *Complete Section 5.*
- ☐ Binding, written agreement with the DNR to construct a project or implement a watershed plan. *Complete Section 4.*
- ☐ Binding, written agreement with another person that is approved by the DNR to construct a project or implement a watershed plan. *Complete Section 4.*

**Section 4. Watershed Plan Review**

## 16. MDV Plan Number:

*Note: This is for tracking purposes. Contact Statewide Phosphorus Implementation Coordinator for the plan number.*

\_\_\_\_\_

## 17. Did the point source complete Form 3200-148?

- ☐ Yes
- ☐ No

## 18. Is the project area in the same HUC 8 watershed as the point of discharge?

- ☐ Yes
- ☐ No. *STOP- Watershed plan must be updated.*

## 19. What is the annual offset required?

*See Section 2.03 of the MDV implementation guidance. If this value is different from the offset target provided in form 3200-148, the watershed plan should be amended.*

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## 20. Does the plan ensure that the annual load is offset annually?

- ☐ Yes
- ☐ No. *STOP- Watershed plan must be updated.*

## 21. Are projects occurring on land owned/operated by a CAFO or within a permitted MS4 boundary?

- ☐ Yes. *Work with appropriate DNR staff to ensure projects are not working towards other permit compliance.*
- ☐ No.

## 22. Are other funding sources being used as part of the MDV watershed project?

- ☐ Yes. *Work with appropriate DNR staff to ensure that funding sources can be appropriately used in the plan area.*
- ☐ No.

## 23. Do you have any concerns about the watershed project?

*Note: Coordinate with other DNR staff as appropriate.*

- ☐ Yes. *STOP- Watershed plan must be updated.*
- ☐ No.

## Comments:

Section 5. Payment to the County(ies)

24. At this time, the appropriate per pound payment is: \$ 64.75

See "Payment Calculator" document at  
[\\centra\water\WQWT PROJECTS\WY CW Phosphorus\MDV.](#)

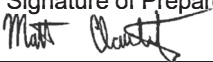
Section 6. Determination

Based on the available information, the MDV application is:

- ☒ Approved
- ☐ Request for more information
- ☐ Denied

Additional Justification (if needed):

Certification

Preparer Name	Title
Matt Claucherty	Water Resources Management Specialist
Signature of Preparer	Date
	11/27/2024