Permit Fact Sheet

General Information

Permit Number	WI-0029807-11-0
Permittee Name and Address	Lakeview Neurological Rehab Center-Midwest 1701 Sharp Road, Waterford, WI 53185
Permitted Facility Name and Address	Lakeview Neurological Rehab Center-Midwest 1701 Sharp Road, Waterford, WI 53185
Permit Term	April 01, 2025 to March 31, 2030
Discharge Location	West Bank of Dover Ditch, approximately ¼ mile southeast of WWTF
Receiving Water	Dover Ditch (Middle Fox (IL) River Watershed, Fox (IL) River Basin) in Racine County
Stream Flow ($Q_{7,10}$)	0.00 cfs
Stream Classification	Limited aquatic life, non-public water supply, then warm water sport fish community about 2.5 miles downstream
Discharge Type	Existing, continuous
Annual Average Design Flow (MGD)	0.025 MGD
Industrial or Commercial Contributors	None
Plant Classification	Basic Plant. A1 - Suspended Growth Processes; B - Solids Separation; C - Biological Solids/Sludges; P – Total Phosphorus
Approved Pretreatment Program?	N/A

Facility Description

The Lakeview Neurological Rehab Center (Lakeview) owns and operates a small activated sludge wastewater treatment facility originally constructed in 1968, and later rehabilitated in 1997. The liquid train treatment includes comminution, bar screening, course bubble aeration, and final clarification. Hyper Ion (polyaluminum chloride) is added to the head of the plant for chemical phosphorus removal. The solids train treatment process includes aerobic digestion, gravity thickening, and storage. Digested sludge is presently taken off site via a contracted hauler to another permitted facility. Effluent is discharged southeast of the facility to Dover Ditch by way of drainage tile.

Substantial Compliance Determination

Enforcement During Last Permit:

The Department issued a Notice of Violation (NOV) on March 22, 2021 for failure to adhere to permit conditions including phosphorus and chloride effluent exceedances, operator-in-charge not certified in all the plant's subclasses, and failure to submit a Final Compliance Plan per the phosphorus compliance schedule. On April 7, 2021, an enforcement conference was held to discuss a plan to return to compliance. Lakeview's WPDES permit was modified on October 28, 2021 to include Multi-Discharge Variance requirements. On November 11, 2021, the Department closed the NOV.

On September 1, 2022 the Department issued Lakeview a Notice of Noncompliance (NON) for BOD_5, TSS, and Ammonia exceedances. On September 20, 2022 the Department received the requested information.

On February 2, 2024 the Department issued Lakeview a NON for failure to submit a permit reissuance application. The Department received a permit reissuance application on May 10, 2024.

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, compliance schedule items, and a site visit on October 13, 2024 by Jacob Van Susteren-Wedesky, DNR Wastewater Engineer, 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	0.014 MGD (2019-2024)	INFLUENT: 3-hour composite samples shall be collected after the Parshall flume and before the comminuter.
003	1.7 US Dry Tons (Permit Reissuance Application)	SLUDGE: Aerobically digested, gravity tank thickened, Class B liquid sludge. Representative sludge samples shall be taken from the sludge holding tank prior to hauling.
004	N/A	EFFLUENT: 3-hour composite samples shall be collected just prior to the outflow of the old chlorine contact tank.

Permit Requirements

1 Influent – Monitoring Requirements

1.1 Sample Point Number: 701- INFLUENT TO PLANT

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
BOD5, Total		mg/L	3/Week	3-Hr Comp	
Suspended Solids, Total		mg/L	3/Week	3-Hr Comp	

1.1.1 Changes from Previous Permit:

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

1.1.2 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: 004- Effluent

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
BOD_5, Total	Weekly Avg	30 mg/L	3/Week	3-Hr Comp	
BOD_5, Total	Monthly Avg	20 mg/L	3/Week	3-Hr Comp	
Suspended Solids, Total	Weekly Avg	30 mg/L	3/Week	3-Hr Comp	
Suspended Solids, Total	Monthly Avg	20 mg/L	3/Week	3-Hr Comp	
pH Field	Daily Max	9.0 su	Daily	Grab	
pH Field	Daily Min	6.0 su	Daily	Grab	
Dissolved Oxygen	Daily Min	4.0 mg/L	Daily	Grab	
Chlorine, Total Residual	Daily Max	19 ug/L	Weekly	Grab	Limit effective when chlorinating.
Chlorine, Total Residual	Weekly Avg	7.3 ug/L	Weekly	Grab	Limit effective when chlorinating.
Chlorine, Total Residual	Monthly Avg	7.3 ug/L	Weekly	Grab	Limit effective when chlorinating.
E. coli	Geometric Mean - Monthly	126 #/100 ml	Weekly	Grab	Monitoring and limit effective May through September annually starting in 2029 per the Effluent Limitations for E. coli Schedule.
E. coli	% Exceedance	10 Percent	Monthly	Calculated	Monitoring and limit effective May through September annually starting in 2029 per the Effluent Limitations for E. coli Schedule. See the E. coli Percent Limit section below. Enter the result in the DMR on the last day of the month.
Nitrogen, Ammonia (NH3-N) Total	Daily Max	13 mg/L	3/Week	3-Hr Comp	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	9.1 mg/L	3/Week	3-Hr Comp	Limit effective for April.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	5.8 mg/L	3/Week	3-Hr Comp	Limit effective May through September.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	13 mg/L	3/Week	3-Hr Comp	Limit effective October through March.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	3.5 mg/L	3/Week	3-Hr Comp	Limit effective for April.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	2.1 mg/L	3/Week	3-Hr Comp	Limit effective May through September.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	5.0 mg/L	3/Week	3-Hr Comp	Limit effective for October.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	5.5 mg/L	3/Week	3-Hr Comp	Limit effective November through March.
Chloride, Variable Limit		lbs/day	4/Month	See Table	Look up the chloride mass from the 'Variable Chloride Mass' table and report the variable limit in the Chloride Variable Limit column on the eDMR.
Chloride	Daily Max	760 mg/L	4/Month	3-Hr Comp	
Chloride	Weekly Avg	400 mg/L	4/Month	3-Hr Comp	
Chloride	Monthly Avg	400 mg/L	4/Month	3-Hr Comp	
Chloride	Daily Max	160 lbs/day	4/Month	Calculated	
Chloride	Weekly Avg - Variable	lbs/day	4/Month	Calculated	Report the weekly average mass Chloride result in the Chloride column of the eDMR. See Chloride Mass Limit - Non-Wet Weather and Alternative Wet Weather Mass Limit Section.
Phosphorus, Total	Monthly Avg	1.0 mg/L	3/Week	3-Hr Comp	This is an interim MDV limit effective through December 31, 2026. See the MDV/Phosphorus subsections and phosphorus schedules.
Phosphorus, Total	Monthly Avg	0.6 mg/L	3/Week	3-Hr Comp	This is an interim MDV

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					limit effective on January 1, 2027. See the MDV/Phosphorus subsections 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.
Nitrogen, Total Kjeldahl		mg/L	See Listed Qtr(s)	3-Hr Comp	Annual in rotating quarters. See Nitrogen Series Monitoring section below.
Nitrogen, Nitrite + Nitrate Total		mg/L	See Listed Qtr(s)	3-Hr Comp	Annual in rotating quarters. See Nitrogen Series Monitoring section below.
Nitrogen, Total		mg/L	See Listed Qtr(s)	Calculated	See Nitrogen Series Monitoring section below. Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen.
Arsenic, Total Recoverable		ug/L	Once	3-Hr Comp	Monitoring once in 2026 with an LOD of 8.0 µg/L or lower.
Cadmium, Total Recoverable		ug/L	Once	3-Hr Comp	Monitoring once in 2026 with an LOD of 0.76 µg/L or lower.
Lead, Total Recoverable		ug/L	Once	3-Hr Comp	Monitoring once in 2026 with an LOD of 15 µg/L or lower.

2.1.1 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. See additional explanation of limits under "Explanation of Limits and Monitoring Requirements" below.

- **Disinfection & E. coli:** At the end of the compliance schedule, Disinfection requirements and E. coli limits of 126 #/100 ml as a monthly geometric mean that may not be exceeded and 410 #/100 ml as a daily maximum that may not be exceeded more than 10 percent of the time in any calendar month will apply. Monitoring is not required until the limit becomes effective and the end of the compliance schedule. Chlorine limits in effect only when facility is disinfection or using chlorine.
- **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):** Annual monitoring is required in specific quarters as outlined in the permit.

2.1.3 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 dated December 9, 2024.

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.

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.

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

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

It was determined that the permittee is required to disinfect, during the following months: May through September. See WQBEL for further explanation.

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 phosphorous. The final phosphorus WQBELs are 0.075 mg/L six-month average and 0.225 mg/L monthly average 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 0.6 mg/L as an average monthly limit. The limit was derived using DMR data from May 1, 2021 to April 30, 2024.

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 (NO2+NO3, 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. 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. Annual tests are scheduled in the following rotating quarters: **October – December 2025, January – March 2026, April – June 2027, July – September 2028, January – March 2029**.

Arsenic, Cadmium, and Lead: The data supplied in the permit application for arsenic, cadmium, and lead and are above 1/5th of the lowest calculated limits so reasonable potential cannot be determined. Arsenic, cadmium, and lead shall be resampled once during the permit term (2028) with LODs at least as stringent as 8.0 µg/L for arsenic, 0.76 µg/L for cadmium, and 15 µg/L for lead.

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	Do not land apply. Sludge is hauled to another permitted facility.			1.7 US Dry Tons/Year
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.						

3.1 Sample Point Number: 003- Hauled Sludge

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Solids, Total		Percent	Annual	Composite	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
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	
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	Once in 2028.
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	Once in 2028.
PFOA + PFOS		ug/kg	Annual	Calculated	
PFAS Dry Wt			Annual	Grab	Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS Permit Sections for more information.

3.1.1 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. See additional explanation of limits under "Explanation of Limits and Monitoring Requirements" below.

PCB: Addition of sampling PCB once in 2028.

PFAS: Monitoring is required annual pursuant to s. NR 204.06(2)(b)9., Wis. Adm. Code.

3.1.2 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 is currently developing a risk assessment to determine future land application rates and expects to release this risk assessment by the end of 2024. In the interim, the department has developed the "Interim Strategy for Land Application of Biosolids and Industrial Sludges Containing PFAS."

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 Disinfection and Effluent Limitations for E. coli

Required Action	Due Date
Progress Report: The permittee shall submit a progress report on development and submittal of a facility plan for upgrades to meet disinfection requirements and E. coli limits.	12/31/2025
Submit Facility Plan: The permittee shall submit a Facility Plan per s. NR 110.09, Wis. Adm. Code for meeting disinfection requirements and complying with E. coli surface water limitations. The permittee may submit an abbreviated facility plan if the Department determines that the modifications are minor.	04/30/2026
Final Plans and Specifications: The permittee shall submit final construction plans to the Department for approval pursuant to ch. NR 108, Wis. Adm. Code, specifying treatment plant upgrades that must be constructed to meet disinfection requirements per s. NR 210.06(1), Wis. Adm Code, achieve compliance with final E. coli limitations, and a schedule for completing construction of the upgrades by the complete construction date specified below.	03/31/2027
Treatment Plant Upgrade to Meet Limitations: The permittee shall initiate bidding, procurement, and/or construction of the project. The permittee shall obtain approval of the final construction plans and schedule from the Department pursuant to s. 281.41. Stats., prior to initiating activities defined as construction under ch. NR 108, Wis. Adm. Code. Upon approval of the final construction plans and schedule by the Department pursuant to s. 281.41, Stats., the permittee shall construct the treatment plant upgrades in accordance with the approved plans and specifications.	09/30/2027
Construction Upgrade Progress Report: The permittee shall submit a progress report on construction upgrades.	09/30/2028
Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades.	03/31/2029
Achieve Compliance: The permittee shall achieve compliance with final E. coli limitations.	04/30/2029

4.1.1 Explanation of Schedule

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

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
Annual Verification of Phosphorus Payment to County: 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 ($64.75 per pound)] or $640,000, whichever is less. See the payment calculation steps in the Surface Water section. 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. Note: The applicable Target Value is 0.2 mg/L as defined by s. 283.16(1)(h), Wis. Stats. The "per pound" value is $50.00 adjusted for CPI.	03/01/2026
Annual Verification of Payment #2: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2027
Annual Verification of Payment #3: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2028
Annual Verification of Payment #4: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2029
Annual Verification of Payment #5: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2030
Continued Coverage: 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.	
Annual Verification of Payment After Permit Expiration: 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.	

4.2.1 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 Schedule - Continued Optimization

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

Required Action	Due Date
Optimization: The permittee shall continue to implement the optimization plan as previously approved to optimize performance to control phosphorus discharges. Submit a progress report on optimizing removal of phosphorus by the Due Date.	03/31/2026
Progress Report #2: Submit a progress report on optimizing removal of phosphorus.	03/31/2027
Progress Report #3: Submit a progress report on optimizing removal of phosphorus.	03/31/2028
Progress Report #4: Submit a progress report on optimizing removal of phosphorus.	03/31/2029
Progress Report #5: Submit a progress report on optimizing removal of phosphorus.	03/31/2030

4.3.1 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.

4.4 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
Report on Effluent Discharges: Submit a report on effluent discharges of phosphorus with conclusions regarding compliance.	07/01/2025
Action Plan: Submit an action plan for complying with the specified interim effluent limit (0.6 mg/L). If construction is required, include plans and specifications with the submittal.	01/01/2026
Initiate Actions: Initiate actions identified in the plan.	07/01/2026
Complete Actions: Complete actions identified in the plan and achieve compliance with the specified interim effluent limit (0.6 mg/L).	01/01/2027

4.4.1 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 until January 1, 2027 to comply with 0.6 mg/L limit.

Other Comments

None.

Attachments

WQBEL Memo: Water Quality-Based Effluent Limitations for Lakeview Neurological Rehab Center – Midwest WPDES Permit No. WI-0029807-11, by Nicole Krueger, Water Resources Engineer, dated December 12, 2024

Justification Of Any Waivers From Permit Application Requirements

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

Prepared By: Victoria Ziegler Wastewater Specialist **Date:** January 14, 2025

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: 12/09/2024

TO: Melanie Burns – SER

FROM: Nicole Krueger – SER Nicole Krueger

SUBJECT: Water Quality-Based Effluent Limitations for Lakeview Neurological Rehab Center – Midwest
WPDES Permit No. WI-0029807-11

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 Lakeview Neurological Rehab Center in Racine County. This municipal wastewater treatment facility (WWTF) discharges to Dover Ditch, located in the Middle Fox River – Illinois Watershed in the Fox (IL) River Basin. The evaluation of the permit recommendations is discussed in more detail in the attached report.

The following recommendations are made on a chemical-specific basis at Outfall 004:

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
BOD_5			30 mg/L	20 mg/L		1
TSS			30 mg/L	20 mg/L		1,2
pH	9.0 s.u.	6.0 s.u.				1
Dissolved Oxygen		4.0 mg/L				1
Chlorine	19 µg/L		7.3 µg/L	**7.3 µg/L**		3
Bacteria						4
Final Limit *E. coli*				126 #/100 mL geometric mean		
Ammonia Nitrogen						5
April	13 mg/L		9.1 mg/L	3.5 mg/L		
May – September	13 mg/L		5.8 mg/L	2.1 mg/L		
October	13 mg/L		**13 mg/L**	5.0 mg/L		
November – March	13 mg/L		**13 mg/L**	5.5 mg/L		
Phosphorus						2,6
LCA Interim Limit				1.0 mg/L		
HAC Interim Limit				0.6 mg/L		
Final WQBEL				0.225 mg/L	0.075 mg/L 0.016 lbs/day	
Chloride	760 mg/L 160 lbs/day		400 mg/L	**400 mg/L**		1,5
Dry weather			82 lbs/day			
Wet weather			140 lbs/day			
TKN, Nitrate+Nitrite, and Total Nitrogen						7
Arsenic						8
Cadmium						9

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Lead						10

Footnotes:

1. No changes from the current permit.
2. A Total Maximum Daily Load (TMDL) is being developed for the Fox (IL) River Basin to address total phosphorus water quality impairments within the TMDL area. This TMDL will likely result in limitations for TSS and phosphorus that must be included in WPDES permits, which may be different than those calculated for this reissuance. TMDL-derived limits may be included in lieu of or in addition to the calculated limits upon permit reissuance or modification once the TMDL has been approved by U.S. EPA, according to s. NR 217.16, Wis. Adm. Code.
3. Chlorine limits shall only be effective if/when Lakeview chlorinates.
4. 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. A compliance schedule is recommended in the reissued permit to meet these limits.
5. Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Codes, are included in bold.
6. 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 0.6 mg/L can be met. The final WQBELs remain at 0.225 mg/L as a monthly average and 0.075 mg/L as a six-month average, as well as a respective mass limit.
7. As recommended in the Department's October 1, 2019 Guidance for Total Nitrogen Monitoring in Wastewater Permits, annual total nitrogen monitoring is recommended for all minor municipal permittees. Total Nitrogen is the sum of nitrate (NO_3), nitrite (NO_2), and total kjeldahl nitrogen (TKN) (all expressed as N).
8. Monitor once. The LOD for arsenic should be at least as stringent as 8.0 µg/L.
9. Monitor once. The LOD for cadmium should be at least as stringent as 0.76 µg/L.
10. Monitor once. The LOD for lead should be at least as stringent as 15 µg/L.

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

Attachments (3) – Narrative, Outfall Map, &

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Attachment #1

Water Quality-Based Effluent Limitations for
Lakeview Neurological Rehab Center

WPDES Permit No. WI-0029807-11

Prepared by: Nicole Krueger

PART 1 – BACKGROUND INFORMATION

Facility Description

Lakeview Neurological Rehab Center ("Lakeview") operates a small activated sludge wastewater treatment facility (WWTF). The liquid train treatment includes comminution, bar screening, course bubble aeration, and final clarification. The solids train treatment process includes aerobic digestion, gravity thickening, and storage. Digested sludge is presently taken off site via a contracted hauler. Effluent is discharge southeast of the facility to Dover Ditch via drainage tile (1/4th mile).

Attachment #2 is a map of the area showing the approximate location of Outfall 004.

Existing Permit Limitations

The current permit, which expired on 06/30/2024, includes the following effluent limitations and monitoring requirements.

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
BOD_5			30 mg/L	20 mg/L		1,2
TSS			30 mg/L	20 mg/L		1,2
pH	9.0 s.u.	6.0 s.u.				1
Dissolved Oxygen		4.0 mg/L				1,2
Ammonia Nitrogen						3
April	13 mg/L		9.1 mg/L	3.5 mg/L		
May – September	13 mg/L		5.8 mg/L	2.1 mg/L		
October	13 mg/L		**13 mg/L**	5.0 mg/L		
November – March	13 mg/L		**13 mg/L**	5.5 mg/L		
Phosphorus						
MDV Interim				1.0 mg/L		
Final				0.225 mg/L	0.075 mg/L 0.016 lbs/day	
Chloride	760 mg/L 160 lbs/day		400 mg/L	**400 mg/L**		3
Dry weather			82 lbs/day			
Wet weather			140 lbs/day			

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

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

Receiving Water Information

- Name: Dover Ditch
- Waterbody Identification Code (WBIC): 760600
- Classification used in accordance with chs. NR 102 and 104, Wis. Adm. Code: Limited aquatic life (LAL) community, non-public water supply from Outfall 004 downstream to Dover Line Road (approximately 2.5 miles). This discharge location is listed in ch. NR 104, Wis. Adm. Code under "Holy Redeemer College". At this location, the waterbody is considered to support a warmwater sport fish (WWSF) community.
- 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 estimates from USGS, where Outfall 001 is located.

  LAL classification
  7-Q_{10} = 0 cfs (cubic feet per second)
  7-Q_2 = 0 cfs

  WWSF classification
  7-Q_{10} = 0.11 cfs (cubic feet per second)
  7-Q_2 = 0.29 cfs

The flows at the WWSF classification were determined in the previous WQBEL memo using the drainage area and equations from the Low-Flow Characteristics of Streams in Rock-Fox River Basin, Wisconsin (USGS Open-File Report 78-85).

- Hardness = 285 mg/L as $CaCO_3$. This value represents the geometric mean of data from the permit application from 02/09/2024 – 02/15/2024. Effluent hardness is used in place of receiving water because there is no receiving water flow upstream of the discharge.
- % of low flow used to calculate limits in accordance with s. NR 106.06(4)(c)5., Wis. Adm. Code: Not applicable where the receiving water low flows are zero.
- Source of background concentration data: Background concentrations are not included because they don't impact the calculated WQBEL when the receiving water low flows are equal to zero.
- Multiple dischargers: None
- Impaired water status: The Fox (IL) River, approximately 9 miles downstream, is 303(d) listed as impaired for PCBs and total phosphorus.

Effluent Information

- Design flow rate(s):
  Annual average = 0.025 MGD (Million Gallons per Day)
  Peak daily = 0.069 MGD
  Peak weekly = 0.050 MGD
  Peak monthly = 0.044 MGD
  The peak design flows were estimated from the annual average design flow and a peaking factor based on data from 07/01/2019 – 09/30/2024.

  For reference, the actual average flow from 07/01/2019 – 09/30/2024 was 0.0137 MGD.

- Hardness = 285 mg/L as $CaCO_3$. This value represents the geometric mean of data from the permit application from 02/09/2024 – 02/15/2024.
- Acute dilution factor used in accordance with s. NR 106.06(3)(c), Wis. Adm. Code: Not applicable – this facility does not have an approved Zone of Initial Dilution (ZID).
- Water source: Domestic wastewater with water supply from a private well.
- Additives: None.
- 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.

Effluent Chloride Data

	Chloride mg/L
1-day P_{99}	603
4-day P_{99}	410
30-day P_{99}	310
Mean	262
Std	107
Sample size	247
Range	40.3 - 598

The following table presents the average concentrations and loadings at Outfall 004 from 07/01/2019 – 09/30/2024 for all parameters with limits in the current permit to meet the requirements of s. NR 201.03(6), Wis. Adm. Code:

Parameter Averages with Limits

	Average Measurement	Average Mass Discharged
BOD_5	6.1 mg/L	
TSS	7.0 mg/L	
pH field	7.4 s.u.	
Phosphorus	0.78 mg/L	0.12 lbs/day
Ammonia Nitrogen	3.7 mg/L	
Chloride	262 mg/L	29.6 lbs/day

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. 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 the case for Lakeview.

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 = 0 cfs

SUBSTANCE	REF. HARD.* mg/L	ATC	MEAN BACK-GRD.	MAX. EFFL. LIMIT**	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	1-day P_{99}	1-day MAX. CONC.
Chlorine		19.0		19.0				
Arsenic		340		340	68.0	<40		
Cadmium	285	96.0		96.0	19.2	<4		
Chromium	285	4251		4251	850	<6		
Copper	285	41.7		41.7	8.34	<4		
Lead	285	294		294	58.8	<40		
Nickel	268	1080		1080	216	<0.6		

Attachment #1

SUBSTANCE	REF. HARD.* mg/L	ATC	MEAN BACK-GRD.	MAX. EFFL. LIMIT**	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	1-day P_{99}	1-day MAX. CONC.
Zinc	285	301		301	60.2	<60		
Chloride (mg/L)		757		757			603	598

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

Weekly Average Limits based on Chronic Toxicity Criteria (CTC)
RECEIVING WATER FLOW = 0 cfs

SUBSTANCE	REF. HARD.* mg/L	CTC	MEAN BACK-GRD.	WEEKLY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	4-day P_{99}
Chlorine		7.28		7.28			
Arsenic		152		152	30.4	<40	
Cadmium	175	3.82		3.82	0.76	<4	
Chromium	285	312		312	62.3	<6	
Copper	285	25.4		25.4	5.07	<4	
Lead	285	77.0		77.0	15.4	<40	
Nickel	268	169		169	33.8	<0.6	
Zinc	285	301		301	60.2	<60	
Chloride (mg/L)		395		395			**410**

* 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 = 0 cfs

SUBSTANCE	HTC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.
Cadmium	880		880	176	<4
Chromium (+3)	8400000		8400000	1680000	<6
Lead	2240		2240	448	<40
Nickel	110000		110000	22000	<6

Monthly Average Limits based on Human Cancer Criteria (HCC)
RECEIVING WATER FLOW = 0 cfs

SUBSTANCE	HCC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.
Arsenic	40		40	8.0	<40

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 chloride.

Chloride – Considering available effluent data from the current permit term (07/03/2019 – 09/05/2024), the 1-day P_{99} chloride concentration is 603 mg/L, and the 4-day P_{99} of effluent data is 410 mg/L. Because the 4-day P_{99} exceeds the calculated weekly average WQBEL, an effluent limit is needed in accordance with s. NR 106.05(4)(b), Wis. Adm. Code.

The current permit has a daily maximum limit of 760 mg/L and a weekly average limit of 400 mg/L (rounded to two significant figures) which are recommended to continue. The current monthly average limit of 400 mg/L is recommended to continue as well to meet expression of limits requirements per ss. NR 106.07(3) and NR 205.067(7), Wis. Adm. Code.

Weekly average dry weather and wet weather mass limits are required when a weekly average concentration limit is needed: wet weather limit of 82 lbs/day (395 mg/L × 0.025 MGD × 8.34) and a weekly average wet weather mass limit of 165 lbs/day (395 mg/L × 0.050 MGD × 8.34). However, the calculated wet weather mass limit of 165 lbs/day based on peaking factors from the current permit term is greater than the current wet weather weekly mass limit of 140 lbs/day. Without a demonstration of need for a higher limit in accordance with s. NR 207.04, Wis. Adm. Code, the current limit of 140 lbs/day must be continued in the reissued permit. The highest mass reported during the permit term was 107 lbs/day. Therefore, **the current dry weather and wet weather weekly average mass limits are recommended to continue in the reissued permit.**

Four samples per month (on consecutive days) are recommended for comparison with the weekly average limits.

Mercury – The permit application did not require monitoring for mercury because Lakeview 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. The average

concentration in the sludge from 10/14/2020 – 11/29/2023 was 0.56 mg/kg, with a maximum reported concentration of 2.1 mg/kg. Therefore, no mercury monitoring is recommended at Outfall 001.

Arsenic, cadmium, and lead – The data supplied in the permit application for arsenic, cadmium, and lead and are above 1/5th of the lowest calculated limits so reasonable potential cannot be determined. **It's recommended that arsenic, cadmium, and lead be resampled once during the permit term with LODs at least as stringent as 8.0 µg/L for arsenic, 0.76 µg/L for cadmium, and 15 µg/L for lead.**

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 and the effluent flow rate, 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 weekly average and monthly average 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.
- The maximum expected effluent pH has changed

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 = 0.633 and B = 90.0 for Limited Aquatic Life, and
pH (s.u.) = that characteristic of the effluent.

The effluent pH data was examined as part of this evaluation. A total of 1919 sample results were reported from 07/02/2019 – 09/30/2024. The maximum reported value was 7.9 s.u. (Standard pH Units). The effluent pH was 7.8 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 7.7 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 7.7 s.u. Therefore, a value of 7.7 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 7.7 s.u. into the equation above yields an ATC = 22 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 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	45
1-Q_{10}	22

The 1-Q_{10} method yields the most stringent limits for Lakeview.

Presented below is a table of daily maximum limitations corresponding to various effluent pH values. Use of this table is not necessarily recommended in the permit, but it is presented herein for informational purposes.

Daily Maximum Ammonia Nitrogen Limits – LAL

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

Weekly and Monthly Average Limits based on Chronic Toxicity Criteria (CTC)

Weekly and monthly average limits are not included in the current permit but are being evaluated here due to changes to ch. NR 106, Wis. Adm. Code. **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 and the current limits are shown below:

Current Ammonia Limits

	Daily Maximum mg/L	Weekly Average mg/L	Monthly Average mg/L
April	13	9.1	3.5
May – September	13	5.8	2.1
October	13	**13**	5.0
November – March	13	**13**	5.5

Effluent Data

The following table evaluates the statistics based upon ammonia data reported from 07/03/2019 – 09/25/2024, with those results being compared to the calculated limits to determine the need to include ammonia limits in Lakeview's permit for the respective month ranges. That need is determined by calculating 99th upper percentile (or P_{99}) values for ammonia during each of the month ranges and comparing the daily maximum values to the daily maximum limit.

Ammonia Nitrogen Effluent Data

Ammonia Nitrogen mg/L	April	May – September	October	November - March
1-day P_{99}	13.8	44.9	13.5	4.71
4-day P_{99}	7.99	24.3	7.31	2.57
30-day P_{99}	3.46	12.1	3.55	1.22
Mean*	1.58	7.08	2.03	0.68
Std	3.27	9.52	2.88	1.02
Sample size	21	122	21	109
Range	0.3 – 11.5	0.1 – 38.8	0.18 – 10.1	0.13 – 7.61

Based on this comparison, daily maximum limits are required in May – September.

The permit currently has weekly and monthly average 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, the following ammonia nitrogen limitations are recommended. 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 shown below in bold.

Final Ammonia Nitrogen Limits – Single Daily Maximum Limit

	Daily Maximum mg/L	Weekly Average mg/L	Monthly Average mg/L
April	13	9.1	3.5
May – September	13	5.8	2.1
October	13	**13**	5.0
November – March	13	**13**	5.5

Attachment #1

PART 4 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR BACTERIA

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

Dover Ditch had previously been exempted from disinfection based on the limited aquatic life community classification of the receiving water. Section NR 210.06(3)(g), Wis. Adm. Code, states that disinfection decisions may be made based on the hydrologic classifications listed in s. NR 104.02(1), Wis. Adm. Code (not on the water quality classifications - i.e., limited forage fish, limited aquatic life - that are defined in s. NR 104.02(3), Wis. Adm. Code). The hydrologic classification for Dover Ditch is listed in ch. NR 104, Wis. Adm. Code, as noncontinuous. Discharges to noncontinuous streams with $7Q_{10}$ values < 0.1 cfs usually result in effluent-dominated situations. Since little to no dilution is present in these situations, disinfection should not be exempted based solely on this hydrological classification.

The Department has considered the information required by s. NR 210.06(3), Wis. Adm. Code, and has determined that the discharge cannot meet bacteria limits without disinfection. Section NR 210.06(2)(a)1, Wis. Adm. Code, includes two limits which must be included in permits for facilities which are required to disinfect:

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

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

Total Residual Chlorine – If Lakeview decides to install chlorine addition for disinfection purposes, chlorine limits will be required. 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 (calculated in Part 2 of this evaluation), they are recommended instead. Specifically, **a daily maximum limit of 19 µg/L is required**. Due to revisions to s. NR 106.07(2), Wis. Adm. Code, mass limitations are no longer required. **The weekly average effluent limitation of 7.3 µg/L should be included in the permit because it is more restrictive than the daily maximum limit.**

Sections NR 106.07(3) and NR 205.067(7), Wis. Adm. Code require WPDES permits contain weekly average and monthly average limitations for municipal dischargers whenever practicable and necessary to protect water quality. **Therefore, a monthly average limit of 7.3 µg/L is required** to meet expression of limits requirements in addition to the weekly average limit.

PART 5 – PHOSPHORUS

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

Because Lakeview currently has a limit of 1.0 mg/L, 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.

Phosphorus criteria in s. NR 102.06, Wis. Adm. Code, do not apply to limited aquatic life waters as described in s. NR 102.06(6)(d), Wis. Adm. Code. These waters were not included in the USGS/WDNR stream and river studies and, therefore, the Department lacked the technical basis to determine and propose applicable criteria. At some time in the future, the Department may adopt phosphorus criteria based on new studies focusing on limited aquatic life waters. The Guidance for Implementing Wisconsin's Phosphorus Water Quality Standards for Point Source Discharges (2020) suggests that during the interim, WQBELs should be based on the criteria and flow conditions for the next stream segment downstream (or downstream lake or reservoir, if appropriate), because ss. 217.12 and 217.13, Wis. Adm. Code, state that the Department must set WQBELs to protect downstream waters. The discharge location of the wastewater from Lakeview is classified as limited aquatic life downstream from the point of discharge downstream to Dover Line Road. Here, the receiving water (unnamed tributary WBIC 760500) is classified for warm water sport fishery uses.

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 unnamed tributary.

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

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

Where:

WQC = 0.075 mg/L for the unnamed tributary
Qs = 100% of the 7-Q_2 of 0.29 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 = 0.025 MGD = 0.039 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.

A previous evaluation resulted in a WQBEL of 0.075 mg/L. Section NR 217.13(2)(d), Wis. Adm. Code, states that the determination of upstream concentrations shall be evaluated at each permit reissuance. Additional data were considered in estimating the background phosphorus concentration.

In stream total phosphorus data upstream of the discharge is not available however the following data were considered in estimating the background phosphorus concentration:

SWIMS ID	10030352	523111
Station Name	Monitoring station at Unnamed Trib to the Root River at Waukesha Rd	Monitoring station at Root River Canal at 7 Mi Rd
Waterbody	Unnamed Trib (WBIC	Root River Canal (WBIC
Sample Count	9	11
First Sample	05/18/2017	05/10/2017
Last Sample	10/24/2017	10/22/2017
Mean	0.565 mg/L	0.187 mg/L
Median	0.189 mg/L	0.158 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 from 07/03/2019 – 09/30/2024.

Total Phosphorus Effluent Data

	Phosphorus mg/L	**Phosphorus lbs/day**
1-day P_{99}	3.73	0.40
4-day P_{99}	2.05	0.24
30-day P_{99}	1.16	0.16
Mean	0.78	0.12
Std	0.76	0.08
Sample size	800	326
Range	0.07 – 5.4	0.008 – 0.49

Reasonable Potential Determination
The calculated WQBEL of 0.075 mg/L is less than the current technology-based limit of 1.0 mg/L, so the WQBEL must be included in the permit per s. NR 217.15(2), Wis. Adm. Code.

In accordance with s. NR 217.15(1), Wis. Adm. Code, there is reasonable potential for the discharge to cause or contribute to an exceedance of the water quality criteria. The data suggest that a compliance schedule will be necessary for the facility to meet the given phosphorus limits.

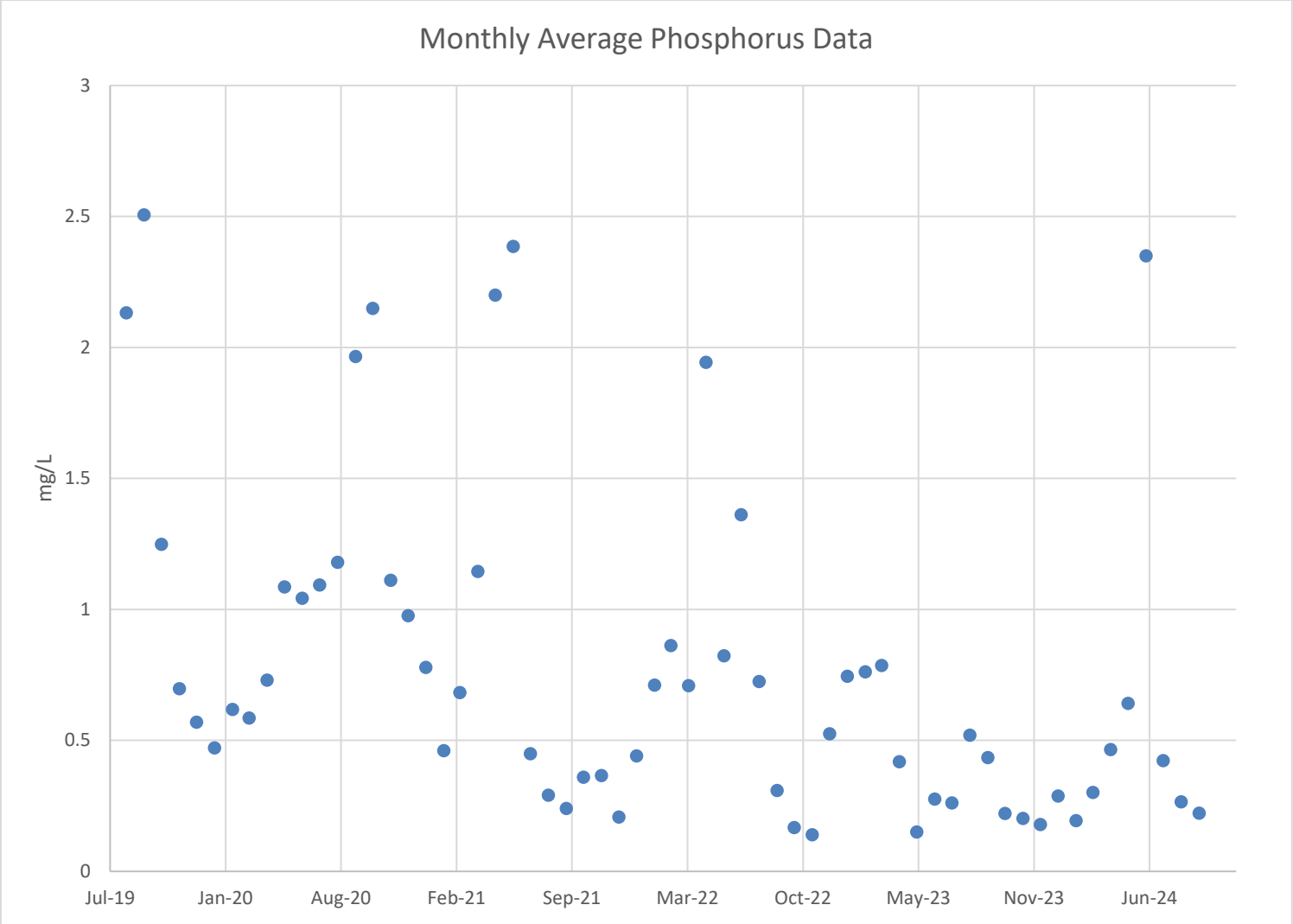
Limit Expression
According to s. NR 217.14(2), Wis. Adm. Code, because the calculated WQBEL is less than or equal to 0.3 mg/L, the effluent limit of 0.075 mg/L may be expressed as a six-month average. If a concentration limitation expressed as a six-month average is included in the permit, a monthly 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 Limits
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 to or upstream of a phosphorus-impaired water. **This final mass limit shall be 0.075 mg/L × 8.34 × 0.025 MGD = 0.016 lbs/day expressed as a six-month average.**

Multi-Discharge Variance Interim Limit
With the permit application, Lakeview has re-applied for the phosphorus multi-discharger variance (MDV). Conditions of the phosphorus MDV require the facility to comply with an interim phosphorus limit in lieu of meeting the final WQBEL. The recommended interim limit during the 2nd permit under MDV approval, pursuant to s. 283.16 (6) (a), Wis. Stats., is 0.6 mg/L as a monthly average. **A compliance schedule may be appropriate to meet this interim limit but compliance with 0.6 mg/L shall be no later than the end of the reissued permit. The previous interim limit of 1.0 mg/L should not be exceeded during the compliance schedule.**

Attachment #1

The graph below shows the monthly averages from the current permit term for informational purposes.



TMDL Under Development

A Total Maximum Daily Load (TMDL) is being developed for the Fox (IL) River Basin for phosphorus. The TMDL will address phosphorus water quality impairments within the basins and provide waste load allocations (WLA) required to meet water quality standards. This TMDL will likely result in phosphorus limitations that must be included in WPDES permits, which may be different than those calculated in this WQBEL memo. TMDL-derived phosphorus limits may be included in lieu of or in addition to the calculated limits upon permit reissuance or modification once the TMDL has been approved by U.S. EPA, according to s. NR 217.16, Wis. Adm. Code.

PART 6 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR THERMAL

LAL discharge

Surface water quality standards for temperature took effect on October 1, 2010. These regulations are

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

Reasonable Potential
Based on the available discharge temperature data from 01/02/2012 – 09/30/2013 shown below, the maximum daily effluent temperature reported was 77 °F; therefore, no reasonable potential for exceeding the daily maximum limit exists, and **no limits or monitoring are recommended**.

Monthly Temperature Effluent Data & Limits

Month	Representative Highest Monthly Effluent Temperature		Calculated Effluent Limit	
	Weekly Maximum (°F)	Daily Maximum (°F)	Weekly Average Effluent Limitation (°F)	Daily Maximum Effluent Limitation (°F)
JAN	58	61	-	86
FEB	55	59	-	86
MAR	65	66	-	86
APR	63	66	-	86
MAY	67	73	-	86
JUN	76	77	-	86
JUL	76	77	-	86
AUG	74	75	-	86
SEP	74	75	-	86
OCT	65	68	-	86
NOV	60	61	-	86
DEC	60	61	-	86

PART 7 – WHOLE EFFLUENT TOXICITY (WET)

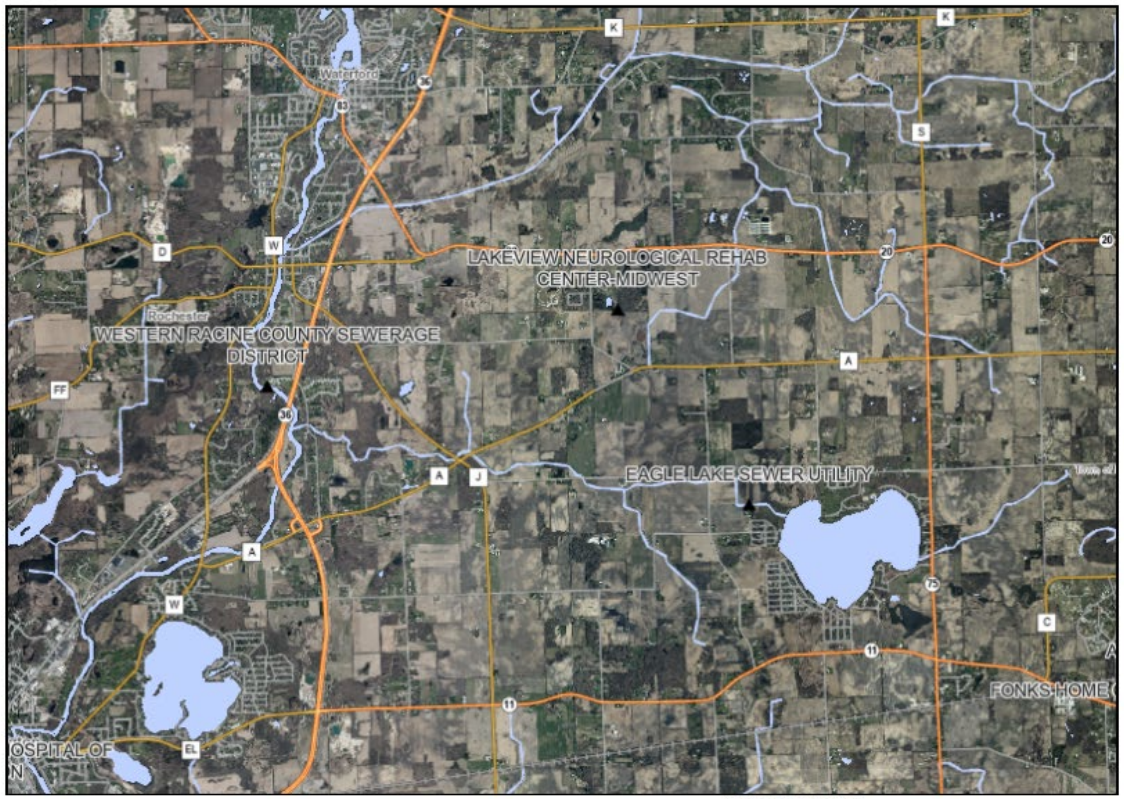
WET testing is used to measure, predict, and control the discharge of toxic materials that may be harmful to aquatic life. In WET tests, organisms are exposed to a series of effluent concentrations for a given time and effects are recorded. Decisions below related to the selection of representative data 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)*.

Guidance in Chapter 1.11 of the WET Guidance Document (WET Testing of Minor Municipal Discharges) was consulted. This is a minor municipal discharge (< 1.0 MGD) comprised solely of

domestic wastewater, with no history of WET failures and no toxic compounds detected at levels of concern. No WET testing is recommended at this time because of the low risk in effluent toxicity.

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Lakeview Neurological Rehab Center



Legend

Permits

Surface Water Outfalls

Basemaps

Hydro

24K Hydro (Cached) Inland

Water Resources

Rivers and Streams

Intermittent Streams

Open Water

Great Lakes water

Imagery

Latest Leaf Off Imagery

Red: Band_1

Notes

Not to scale

1:75,000

0 1 2 mi

Service layer credits:
WI DNR, Water Division | WI Dept. of Natural Resources, Division of Water

Date Printed: 11/08/2024

Attachment #3

2013 Ammonia Calculations

Weekly Average & Monthly Average Limits based on Chronic Toxicity Criteria (CTC):
Weekly average and monthly average limits for Ammonia Nitrogen are based on chronic toxicity criteria.

The 30-day chronic toxicity criterion (CTC) for ammonia in waters classified for Limited Aquatic Life is calculated by the following equation, which is used to calculate chronic toxicity criteria for Dover Ditch.

$$CTC = E \times \{[0.0676 \div (1 + 10^{(7.688 - pH)})] + [2.912 \div (1 + 10^{(pH - 7.688)})]\} \times C$$

Where:

pH = the pH (su) of the receiving water,
E = 1.0,
$C = 8.09 \times 10^{(0.028 \times (25 - T))}$
T = the temperature of the receiving (ºC)

The 30-day chronic toxicity criterion (CTC) for ammonia in waters classified as a Warmwater sport fishery is calculated by the following equation, which is used to calculate chronic toxicity criteria for Goose Lake Branch Canal.

$$CTC = E \times \{[0.0676 \div (1 + 10^{(7.688 - pH)})] + [2.912 \div (1 + 10^{(pH - 7.688)})]\} \times C$$

Where:

pH = the pH (su) of the receiving water,
E = 0.854,
C = the minimum of 2.85 or $1.45 \times 10^{(0.028 \times (25 - T))}$ – (Early Life Stages Present), or
$C = 1.45 \times 10^{(0.028 \times (25 - T))}$ – (Early Life Stages Absent), and
T = the temperature (ºC) of the receiving water – (Early Life Stages Present), or
T = the maximum of the actual temperature (ºC) and 7 - (Early Life Stages Absent)

The 4-Day criterion is simply equal to the 30-Day criterion multiplied by 2.5. The 4-day criteria are used in a mass-balance equation with the 7-Q_{10} (4-Q_3, if available) to derive weekly average limitations. And the 30-day criteria are used with the 30-Q_5 (estimated as 85% of the 7-Q_2 if the 30-Q_5 is not available) to derive monthly average limitations. The stream flow value is further adjusted to temperature. 100% of the flow is used if the Temperature ≥ 16 ºC. Only 25% of the flow is used if the Temperature < 11 ºC. And 50% of the flow is used if the Temperature ≥ 11 ºC but < 16 ºC.

Since minimal ambient data is available, the "default" basin assumed values are used for Temperature, pH and background ammonia concentrations, shown in the table below, with the resulting criteria and effluent limitations.

Dover Ditch – Limited Aquatic Life		**Spring**	**Summer**	**Fall**	**Winter**
		April	**May – Sept.**	**October**	**Nov. – March**
Background Information:	7-Q_{10} (cfs)	0	0	0	0
	7-Q_2 (cfs)	0	0	0	0
	Ammonia (mg/L)	0.04	0.05	0.05	0.17
	Temperature (°C)	9	23	9	3
	pH (su)	7.97	8.21	7.97	7.97
	% of Flow used	25	100	25	25
	Reference Weekly Flow (cfs)	0	0	0	0
	Reference Monthly Flow (cfs)	0	0	0	0

Criteria mg/L:	4-Day Chronic	59.22	16.68	59.22	87.18
	30-Day Chronic	23.69	6.67	23.69	34.87
Effluent Limits mg/L:	Weekly Average	59.22	16.68	59.22	87.18
	Monthly Average	23.69	6.67	23.69	34.87

The rules provide a mechanism for less stringent weekly average and monthly average effluent limitations when early life stages (ELS) of critical organisms are absent from the receiving water. This applies only when the water temperature is less than 14.5 ºC, during the winter and spring months. Burbot, an early spawning species, are not believed to be present in Southeastern Wisconsin river basins, so "ELS Absent" criteria apply from October through March, and "ELS Present" criteria will apply from April through September. Although average temperature for Goose Lake Branch Canal in April is estimated to be only 9°C, April should always be considered to have ELS present per 106.32(3)2. and 3.

Because the 7-Q_{10} and 7-Q_2 rates of Goose Lake Branch Canal are unknown, an estimated value of 0.05 cfs is used for the estimated low-flow.

Goose Lake Branch Canal – Warm Water Fish Community		**Spring**	**Summer**	**Fall**	**Winter**
		April	**May – Sept.**	**October**	**Nov. - March**
Background Information:	7-Q_{10} (cfs)	0.05	0.05	0.05	0.05
	7-Q_2 (cfs)	0.05	0.05	0.05	0.05
	Ammonia (mg/L)	0.04	0.05	0.05	0.17
	Temperature (°C)	9	23	9	3
	pH (su)	7.97	8.21	7.97	7.97
	% of Flow used	25	100	25	25
	Reference Weekly Flow (cfs)	0.0125	0.05	0.0125	0.0125
	Reference Monthly Flow (cfs)	0.010625	0.0425	0.010625	0.010625
Criteria mg/L:	4-Day Chronic				
	Early Life Stages Present	6.35	2.55	6.35	6.35
	Early Life Stages Absent	9.06	2.55	9.06	10.31
	30-Day Chronic				
	Early Life Stages Present	2.54	1.02	2.54	2.54
	Early Life Stages Absent	3.63	1.02	3.63	4.12
Effluent Limitations mg/L:	Weekly Average				
	Early Life Stages Present	8.39	5.79	8.39	8.35
	Early Life Stages Absent			11.98	13.59
	Monthly Average				
	Early Life Stages Present	3.23	2.09	3.22	3.19
	Early Life Stages Absent			4.61	5.21

In order to account for some ammonia decay occurring from the discharge point to the downstream start of the Warm Water classification, decay calculations are done using the ammonia limitation done above and a distance of 4 miles from discharge point to WW classification. Based on a comparison of the calculated ammonia limitations for Dover Ditch (LAL) and the decayed ammonia limitations for Goose Lake Branch canal (WW), it is apparent that the limitations calculated with decay to protect the warm

water community of Goose Lake Branch Canal are the most stringent in all cases. These limitations are given below (in mg/L).

Months Applicable	Daily Maximum	Weekly Average	Monthly Average
April	15	9.1	3.5
May – September	18	7.4	2.7
October	15	13	5.0
November – March	15	14	5.5

Conclusions and Recommendations:
In summary, the following effluent limitations for Ammonia Nitrogen are recommended for Lakeview. The 1-day P99 exceeds the daily maximum limitations. Lakeview currently monitors the effluent for ammonia, so the 1-day P99 must also be considered representative of performance in reference to meeting weekly and monthly limits as well. Therefore, limitations as shown in the table below are recommended. No mass limitations are recommended in accordance with s. NR 106.32(5).

Months Applicable	Daily Maximum	Weekly Average	Monthly Average
April	15	9.1	3.5
May – September	18	7.4	2.7
October	15	13	5.0
November – March	15	14	5.5

State of Wisconsin
Department of Natural Resources
Bureau of Water Quality
Permits Section - WQ/3

Multi-Discharger Variance Application Evaluation Checklist

Form 3200-145 (R 5/16)

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

Lakeview Nuerorehab Center Midwest, Inc.

WPDES Permit Number	County
WI- 0 | 0 | 2 | 9 | 8 | 0 | 7	Racine

1. Did the point source apply for the MDV at the appropriate time?	(•) Yes ( ) No. *STOP- facility not eligible at this time.*	*See Questions 1-3.*
2. This operation is (check one):	( ) New or relocated outfall. *STOP- facility not eligible.* (•) Existing outfall	*See Questions 5-6.*
3. Is the point source is located in an MDV eligible area?	(•) Yes ( ) No. *STOP- facility not eligible.*	*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:	5	*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?	(•) Yes ( ) No. *STOP- facility not eligible.*	*See Q8 on municipal form/Q9 on industrial form.*
6. List the months where phosphorus limits cannot be achieved during the permit term:	☒ All ☒ Jan ☒ Apr ☒ Jul ☒ Oct ☒ Feb ☒ May ☒ Aug ☒ Nov ☒ Mar ☒ Jun ☒ Sep ☒ 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)	Conc. (mg/L)	Method for calculation:	Does this concur with application?	
004	0.95	(•) 30-day P99 ( ) Other, specify:	( ) Yes (•) No, why not: Application used data from one month only	*DNR staff should verify the effluent concentration value(s) provided. See Q11 on municipal form & Q12 on industrial form.*

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 results from the past three years (5/1/2021 - 4/30/2024, n=467) yield a 30-day P99 value of 0.95 mg/L. This 3-year evaluation period includes results prior to optimization of the chemical feed system. More recent phosphorus treatment performance indicates a 0.6 mg/L interim limit can generally be met.

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. *For Industries Only*- Where does the phosphorus in the effluent come from? (check all that apply)	☐ Process ☐ Additive Usage ☐ Water supply *Can intake credits be given or can the facility use an alternative water supply?* ◯ Not feasible ◯ Possibly, but further analysis needed ◯ 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?	◯ Yes ◉ In progress ◯ 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?	◉ Yes ◯ In progress ◯ No	*See Q15 on municipal form & Q17 on industrial form.*
12. What is the projected cost for complying with phosphorus? Source:	$ 1,080,000.00 Site-specific cost estimate, "pre-fab package plant"	*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:

Several planning reports were prepared by Baxter & Woodman, Inc. and submitted to DNR on behalf of Lakeview. These reports provide analysis and recommendations surrounding the low-level WQBEL for phosphorus applicable to the Lakeview facility. Reports for 2015 and 2016 identified regionalization as the best solution, however, regionalization is not currently viable and evaluation of compliance costs via an upgrade at the current facility was required. Process Equipment Repair Services was enlisted to provide a site-specific cost estimate for a tertiary filtration upgrade to achieve the phosphorus effluent limit. The lowest-cost option, "pre-fab package plant" was used in the economic demonstration below.

13. Are adaptive management and water quality trading viable?	◯ Yes ◉ Perhaps. Additional analysis required. ◯ 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?	◉ Yes ◯ 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:

Compliance costs associated with achieving the low-level phosphorus effluent limit are estimated at $1,080,000 in capital costs. O&M costs were not provided. This amount, when financed with a 20-year loan at 1.65% interest, results in annual payments of $63,436. This cost, divided amongst 52 users, represents an annual per-user cost of $1219.92. The MHI for system users is reported to be $14,812. However, as a conservative measure, the MHI value of the local area, Town of Dover, is used in the demonstration. In Racine County with a secondary indicator score of 5, sewer rates at 1% of MHI meet the primary screener. The applicant meets the primary screener.

Save

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.*	_____
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 \\central\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

Save

Additional Justification (if needed):
Continued planning for regionalization will be a requirement of the upcoming permit's annual reporting schedule.

Certification		
Preparer Name	Title	
Matt Claucherty	Water Resources Management Specialist	
Signature of Preparer Sign Clear		Date

A copy of this completed checklist should be saved in SWAMP, and a notification of the decision should be sent to the Phosphorus Implementation Coordinator.

Submit to Coordinator...

Save

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
101 S. Webster Street
Box 7921
Madison WI 53707-7921

Tony Evers, Governor

Telephone 608-266-2621
FAX 608-267-3579
TTY Access via relay - 711

WISCONSIN
DEPT. OF NATURAL RESOURCES

11/4/2024

Chris Slover
1701 Sharp Road
Waterford, WI 53185

Subject: Conditional approval of a multi-discharger phosphorus variance
Receiving Stream: Wind Lake Canal in Racine County
Permittee: Lakeview Neurological Rehab Center, WPDES WI-0029807

Dear Mr. Slover,

In accordance with s. 283.16 of the Wisconsin Statutes, you have requested coverage under Wisconsin's multi-discharger phosphorus variance for Lakeview Neurological Rehab Wastewater Treatment Facility in an application dated 5/9/2024. 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.

Sincerely

Matt Claucherty, MDV Point Source Coordinator
Bureau of Water Quality

e-cc John Toomey, Lakeview Neurological Rehab
Jacob Van Susteren-Wedesky, WDNR
Melanie Burns, WDNR
Tim Elkins, EPA Region 5
Micah Bennett, EPA Region 5