

# Permit Fact Sheet

## General Information

Permit Number:	WI-0028339-12-0	
Permittee Name:	Lake Holcombe Sanitary District #1	
Address:	27514 264th Ave	
City/State/Zip:	Holcombe WI 54745-8801	
Discharge Location:	Lake Holcombe Sanitary District #1, 270th Ave., Holcombe, WI 54745	
Receiving Water:	The surface waters of Lake Holcombe, an impoundment of the Chippewa River, located in the Holcombe Flowage Watershed of the Lower Chippewa River Basin in Chippewa County	
StreamFlow (Q <sub>7,10</sub> ):	400 cfs	
Stream Classification:	Warm Water Sport Fish (WWSF) community, non-public water supply.	
Discharge Type:	Existing, Continuous	
Design Flow:	Annual Average	0.07 MGD
Significant Industrial Loading?	No.	
Operator at Proper Grade?	Facility: A4, D, SS, OIC: Basic: A4, D, OIT: A1, A3, B, C, D Will need SS by June 1, 2025	
Approved Pretreatment Program?	N/A	

## Facility Description

The Lake Holcombe Sanitary District (SD) #1 treats domestic wastewater from portions of the Town of Lake Holcombe. The annual average design flow of the treatment facility is 0.07 million gallons per day (MGD) and the annual average influent flow for June 2023- May 2024 was 0.0216 MGD. The treatment facility consists of a 3-celled aerated lagoon system with seasonal UV disinfection. No significant operational changes occurred during the last permit term. Significant effluent monitoring and/or limit changes proposed in the upcoming term are as follows: 1) Fecal coliform monitoring and limits have been replaced with Escherichia coli (E. coli) monitoring and limits 2) Total Nitrogen Monitoring has been added to the permit (annual and specific quarters) 3) PFAS/PFOA Sludge Sampling once in the permit term has been added to the permit.

## Substantial Compliance Determination

**Enforcement During Last Permit:** The facility was issued a Notice of Noncompliance (NON) in May of 2023 for numerous reasons including: failure to properly sample, failure to report noncompliance, failure to perform proper operation and maintenance and failure to develop and implement a CMOM. The facility has taken significant action to address the items in the NON. A CMOM has been developed and is currently being implemented. Several SOPs have been developed to address sampling, reporting, and operation failures. The facility also stopped accepting hauled septic and holding tank waste.

After a desktop review of all discharge monitoring reports, CMARs, land application reports and a site visit on 5/23/2024 completed by Logan Rubeck the Lake Holcombe Wastewater Treatment Facility has been found to be in substantial compliance with their current permit. Compliance determination entered by Logan Rubeck on 7/3/2024.

Sample Point Designation		
Sample Point Number	Discharge Flow, Units, and Averaging Period	Sample Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)
702	0.0216 MGD, Actual Average influent flow to plant in June 2023 – May 2024	INFLUENT: Representative influent samples shall be collected at the headworks building prior to the first treatment pond.
003	0.0193 MGD, Actual Average Effluent Flow June 2023 – May 2024	EFFLUENT: Representative effluent samples shall be collected after UV disinfection prior to discharge to Lake Holcombe.
004	Sludge accumulation is very low, so sludge removal in the lagoon system did not occur during the last permit term, nor is it planned in the upcoming term.	SLUDGE: Representative composite sludge samples shall be collected. The sample is to contain sludge from all three ponds.

## 1 Influent – Monitoring Requirements

### Sample Point Number: 702- INFLUENT @ HEADWORKS BUILDING

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
BOD5, Total		mg/L	2/Month	24-Hr Flow Prop Comp	
Suspended Solids, Total		mg/L	2/Month	24-Hr Flow Prop Comp	

#### Changes from Previous Permit:

Changes highlighted in the table above.

**Flow-** Sample frequency changed to Daily from Continuous for eDMR reporting purposes.

#### Explanation of 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

### Sample Point Number: 003- EFFLUENT TO LAKE HOLCOMBE

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	Daily	Grab	
pH Field	Daily Min	6.0 su	Daily	Grab	
E. coli	Geometric Mean - Monthly	126 #/100 ml	Weekly	Grab	Limit Effective May through September annually.
E. coli	% Exceedance	10 Percent	Monthly	Calculated	Limit Effective May through September annually. See the E. coli Percent Limit section below. Enter the result in the DMR on the last day of the month.
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 (NH3-N) Total column of the eDMR. See Ammonia Limitation Section.
Nitrogen, Ammonia	Weekly Avg	108 mg/L	2/Week	24-Hr Flow	

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
(NH3-N) Total				Prop Comp	
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	108 mg/L	2/Week	24-Hr Flow Prop Comp	
Phosphorus, Total		mg/L	2/Month	24-Hr Flow Prop Comp	Monitoring required in 2027-2028.
Chloride		mg/L	Monthly	24-Hr Flow Prop Comp	Monitoring required in 2028.
Nitrogen, Total Kjeldahl		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Annual in rotating quarters. See 'Nitrogen Series Monitoring' section.
Nitrogen, Nitrite + Nitrate Total		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Annual in rotating quarters. See 'Nitrogen Series Monitoring' section.
Nitrogen, Total		mg/L	See Listed Qtr(s)	Calculated	Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen.

### Changes from Previous Permit

Changes highlighted in the table above.

**Flow-** Sample frequency changed to Daily from Continuous for eDMR reporting purposes.

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

**Nitrogen Ammonia**—Sampling frequency increased from Weekly to 2/Week.

**Total Nitrogen Monitoring (TKN, N02+N03 and Total N)-** Annual monitoring is required in specific quarters as outlined 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 dated October 11, 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.

**BOD5, Total Suspended Solids and pH-** Categorical limits and WQBELs are included in the permit as outlined in ch. NR 210, Wis. Adm. Code. The effluent limitations for BOD5, Total Suspended Solids, and pH are carried over from the previous permit and are not subject to change at this time because the receiving water characteristics have not changed.

**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 s. 283.55(1)(e), Wis. Stats. Testing is required during the following quarters: **April – June 2025, July – Sept 2026, Oct – Dec 2027, April – June 2028, Jan – March 2029.**

**PFOS and PFOA**- NR 106 Subchapter VIII – Permit Requirements for PFOS and PFOA Dischargers became effective on August 1, 2022. Pursuant to s. NR 106.98(3)(b), Wis. Adm. Code, the department evaluated the need for PFOS and PFOA monitoring taking into consideration the presence of potential PFOS or PFOA industrial wastes, remediation sites and other potential sources of PFOS or PFOA. Based on information available at the time the proposed permit was drafted, the department has determined the permittee does not need to sample for PFOS or PFOA as part of this permit reissuance. The department may re-evaluate the need for sampling at the next permit reissuance if new information becomes available that suggests PFOS or PFOA may be present in the discharge.

### 3 Land Application - Monitoring and Limitations

Municipal Sludge Description						
Sample Point	Sludge Class (A or B)	Sludge Type (Liquid or Cake)	Pathogen Reduction Method	Vector Attraction Method	Reuse Option	Amount Reused/Disposed (Dry Tons/Year)
004	B	Liquid	To be evaluated with submittal of sludge management plan (should there be a need to desludge the lagoon during the permit term).			
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.</b>						

#### Sample Point Number: 004- SLUDGE SAMPLE

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

**Monitoring Requirements and Limitations**

<b>Parameter</b>	<b>Limit Type</b>	<b>Limit and Units</b>	<b>Sample Frequency</b>	<b>Sample Type</b>	<b>Notes</b>
Mercury Dry Wt	Ceiling	57 mg/kg	Once	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Once	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Once	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Once	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Once	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Once	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Once	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Once	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Once	Composite	
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.
Nitrogen, Total Kjeldahl		Percent	Once	Composite	Required only when sludge is land applied.
Nitrogen, Ammonia (NH3-N) Total		Percent	Once	Composite	Required only when sludge is land applied.
Phosphorus, Total		Percent	Once	Composite	Required only when sludge is land applied.
Phosphorus, Water Extractable		% of Tot P	Once	Composite	Required only when sludge is land applied.
Potassium, Total Recoverable		Percent	Once	Composite	Required only when sludge is land applied.
PFOA + PFOS		ug/kg	Once	Calculated	Report the sum of PFOA and PFOS. See PFAS Permit Sections for more information.
PFAS Dry Wt			Once	Grab	Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS Permit Sections for more information.

## Changes from Previous Permit:

Changes highlighted in the table above.

**List 2 (Nutrients)**- Nutrients have been added to the permit. Monitoring only required if sludge is removed and land applied.

**PFAS** – Monitoring one time in the permit term is included in the permit pursuant s. NR 204.06(2)(b)9, Wis. Adm. Code

## Explanation of Limits and Monitoring Requirements

Requirements for 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), 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 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 the proposed WPDES permit pursuant to ss. NR 214.18(5)(b) and NR 204.06(2)(b)9, Wis. Adm. Code.

## 4 Schedules

### 4.1 Operator Certification

Operator In Charge (OIC) is required to have a certificate in SS Subclass.

Required Action	Due Date
<b>Operator Certification- SS Subclass:</b> Per s. NR 114.53 Wis. Adm. Code, the permittee shall have an operator in charge certified in the SS Subclass (Sanitary Sewage Collection System) by the due date. Within 30 days of receiving certification, the permittee shall notify the department in writing of the certified operator's name and certification number with the SS Subclass certification.	06/01/2025

### 4.2 Sludge Management Plan

A sludge management plan is required for the removal of sludge and land application.

Required Action	Due Date
<b>Sludge Management Plan Submittal:</b> Sludge Management Plan: The permittee shall submit an updated land management plan for approval if removal of sludge will occur during this permit term. The plan shall demonstrate compliance with ch. NR 204, Wis. Adm. Code and at minimum address 1) How and where is sludge sampled; 2) Available sludge storage details and location(s); 3)How will the sludge be removed with details on volume, characterization and how will the treatment plant continue to function during the drawdown; 4) describe the type of transportation and spreading vehicles and loading and unloading practices; 5) identify approved land application sites, apply for needed sites, site limitations, total acres needed and vegetative cover management; 6) specify record	60 days prior to desludging.

keeping procedures including site loading; 7) address contingency plans for adverse weather and odor/nuisance abatement; and 8) include any other pertinent information such as other disposal options that may be used or specifications of any pretreatment processes Once approved, all sludge management activities shall be conducted in accordance with the plan. Any changes to the plan must be approved by the Department prior to implementing the changes. No desludging may occur unless approval from the Department is obtained. Daily logs shall be kept that record where the sludge has been disposed.	
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## Explanation of Schedule

If a lagoon will be desludged during this permit term a management plan is needed to explain how the sludge will be safely removed, what contingencies are in place, the type of equipment that will be used and how the sludge will be land applied to ensure the proper precautions are in place to prevent any negative impacts to surface water or groundwater. The 60 days allows the department adequate time to review the sludge management plan and approve sites for land application of sludge should the facility select this as the means for final disposition. This timeframe presumes that the sludge management plan and site request packages are complete.

## Special Reporting Requirements

None.

## Other Comments:

None.

## Attachments:

Water Quality Based Effluent Limitations Memo dated October 11, 2024 and prepared by Zainah Masri.

## Expiration Date:

December 31, 2029

## Justification Of Any Waivers From Permit Application Requirements

No waivers were requested or granted from permit application requirements.

**Prepared By:** Melanie Burns, Wastewater Specialist

**Date:** October 14, 2024

**Date Post Fact Check:** October 31, 2024

**Date Post Public Notice:**



DATE: October 11, 2024

TO: Melanie Burns– Milwaukee/SER

FROM: Zainah Masri WY/3

SUBJECT: Water Quality-Based Effluent Limitations for the Lake Holcombe Sanitary District #1  
WPDES Permit No. WI-00283399-11-0

This is in response to your request for an evaluation of the need for water quality-based effluent limitations (WQBELs) using chapters NR 102, 104, 105, 106, 207, 210, 212, and 217 of the Wisconsin Administrative Code (where applicable), for the discharge from the Lake Holcombe Sanitary District #1 in Chippewa County. This municipal wastewater treatment facility (WWTF) discharges to the Chippewa River, located in the Holcombe Flowage Watershed in the Upper Chippewa River Basin. The evaluation of the permit recommendations is discussed in more detail in the attached report.

Based on our review, the following recommendations are made on a chemical-specific basis at Outfall 003:

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Flow Rate						1,2
BOD <sub>5</sub>			45 mg/L	30 mg/L		1,3
TSS			45 mg/L	30 mg/L		1,3
pH	9.0 s.u.	6.0 s.u.				1,3
Ammonia Nitrogen	Variable		<b>108 mg/L</b>	<b>108 mg/L</b>		6,7
Bacteria						4
<i>E. Coli</i>				126 #/100 mL geometric mean		
Chloride						5
Phosphorus						2
TKN, Nitrate+Nitrite, and Total Nitrogen						8

Footnotes:

1. No changes from the current permit.
2. Monitoring only.
3. BOD<sub>5</sub>, TSS and pH limits are consistent with the minimums required in s. NR 210.05(1) for publicly owned treatment works in cases with high dilution.
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.
5. Monitoring at a frequency to ensure that 11 samples are available at the next permit issuance.
6. 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.
7. 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
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

8. As recommended in the Department's October 1, 2019 Guidance for Total Nitrogen Monitoring in Wastewater Permits, annual total nitrogen monitoring is recommended for all minor municipal permittees. Total Nitrogen is the sum of nitrate (NO<sub>3</sub>), nitrite (NO<sub>2</sub>), and total kjeldahl nitrogen (TKN) (all expressed as N).

No WET testing is required because information related to the discharge indicates low to no risk for toxicity.

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

Attachments (2) – Narrative, Map, and Ammonia Nitrogen Calculations

PREPARED BY: Zainah Masri, Sen. Water Resources Engineer – WY/3 *Zainah Masri*

APPROVED BY: *Diane Figiel* Date: 10/11/2024  
Diane Figiel, PE,  
Water Resources Engineer

E-cc: Logan Rubeck, Wastewater Engineer – Eau Claire/WCR  
Geisa Thielen, NR Basin Supervisor – Eau Claire/WCR  
Diane Figiel, Water Resources Engineer – WY/3  
Kari Fleming, NR Program Manager – WY/3

**Water Quality-Based Effluent Limitations for  
Lake Holcombe Sanitary District #1 Wastewater Treatment Facility**

**WPDES Permit No. WI-0028339-11-0**

Prepared by: Zainah Masri – WY/3

**PART 1 – BACKGROUND INFORMATION**

**Facility Description**

The Lake Holcombe Sanitary District (SD) #1 treats domestic wastewater from portions of the Town of Lake Holcombe. The treatment facility consists of a 3-celled aerated lagoon system with seasonal UV disinfection.

Attachment #2 is a map of the area showing the approximate location of Outfall 003.

**Existing Permit Limitations**

The current permit, which expired on September 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						1,3
BOD <sub>5</sub>			45 mg/L	30 mg/L		1,2
TSS			45 mg/L	30 mg/L		1,2
pH	9.0 s.u.	6.0 s.u.				1
Ammonia Nitrogen	Variable		<b>108 mg/L</b>	<b>108 mg/L</b>		4,5,6
Fecal Coliform May – September			<b>656#/100 mL geometric mean</b>	400#/100 mL geometric mean		5
Chloride						4
Phosphorus						3

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. BOD<sub>5</sub>, TSS and pH limits are consistent with the minimums required in s. NR 210.05(1) for publicly owned treatment works in cases with high dilution.
3. Monitoring only
4. Monitoring at a frequency to ensure that 11 samples are available at the next permit issuance.
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. The variable daily maximum ammonia nitrogen limit table corresponding to effluent pH values.

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
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

**Receiving Water Information**

- Name: Chippewa River
- Waterbody Identification Code (WBIC): 2050000
- 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 based on minimum FERC flows at the Cornell Dam.
  - 7-Q<sub>10</sub> = 400 cfs (cubic feet per second)
  - 7-Q<sub>2</sub> = 400 cfs
  - 90-Q<sub>10</sub> = 400 cfs
  - Harmonic Mean Flow = 400 cfs
- Hardness = 44 mg/L as CaCO<sub>3</sub>. This value represents the geometric mean of 59 data points from 01/04/1996 to 06/06/2001 taken from the Chippewa River at the Holcombe Dam.
- % 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 Chippewa River at Winter is used for this evaluation. The numerical values are shown in the tables below. If no data is available, the background concentration is assumed to be negligible and a value of zero is used in the computations. Background data for calculating effluent limitations for ammonia nitrogen are described later.
- Multiple dischargers: There are several other dischargers to Chippewa River however they are not in the immediate vicinity and the mixing zones do not overlap. Therefore, the other dischargers do not impact this evaluation.
- Impaired water status: The Chippewa River is listed as an impaired for PCBs (mile 0.0 – 105.75) and Mercury (mile 58.84 – 60.05).

**Effluent Information**

- Design flow rate(s):
  - Annual average = 0.07 MGD (Million Gallons per Day)
  - For reference, the actual average flow from January 2019 to June 2024 was 0.03 MGD.
- Hardness = 122 mg/L as CaCO<sub>3</sub>. This value represents the geometric mean of data from October 2023 to February 2024 in the permit application.

Attachment #1

- 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 private wells.
- 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 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.

Sample Date	Copper µg/L	Sample Date	Copper µg/L	Sample Date	Copper µg/L
10/24/2023	7	12/5/2023	7	12/28/2023	9
10/30/2023	7	12/12/2023	6	1/1/2024	8
11/21/2023	7	12/19/2023	7	2/21/2024	11
11/27/2023	6	12/24/2023	7		
1-day P <sub>99</sub> = 11.4 µg/L					
4-day P <sub>99</sub> = 9.3 µg/L					

The following table presents the average concentrations and loadings at Outfall 003 from January 2019 to June 2024 for all parameters with limits in the current permit to meet the requirements of s. NR 201.03(6), Wis. Adm. Code:

**Parameter Averages with Limits**

	Average Measurement
BOD <sub>5</sub>	6.2 mg/L
TSS	3.9 mg/L
pH field	7.0 s.u.
Phosphorus	8.6 mg/L
Ammonia Nitrogen	12.1 mg/L
Fecal Coliform	43 #/100 mL
<i>E. Coli</i>	50#/100 mL

**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>).

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 Lake Holcombe SD and the limits are set based on two times the acute toxicity criteria.

The following tables list the calculated WQBELs for this discharge along with the results of effluent sampling for all 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 = 320 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.
Arsenic		340	679.6	135.9	1.0		
Cadmium	122	13.0	25.9	5.2	<2		
Chromium	122	2122	4243.9	849	<3		
Copper	122	18.7	37.4			11.4	11
Lead	122	130	259.1	51.8	<1		
Nickel	122	555	1110.3	222	<8		
Zinc	122	143	286.5	57.3	<8		
Chloride (mg/L)		757	1514.0			319.6	305

Attachment #1

\*\* 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 = 100 (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>
Arsenic		152.2		140676	28135.3	1.0	
Cadmium	44	1.29	0.01	1183.10	236.6	<2	
Chromium	44	67.44	0.50	61872	12374.4	<3	
Copper	44	5.13	0.75	4049.1			9.3
Lead	44	12.67	0.39	11350.6	2270.1	<1	
Nickel	44	26.06		24087	4817.4	<8	
Zinc	44	58.71	1.20	53157	10631.4	<8	
Chloride (mg/L)		395		365093			232.3

**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 = 100 cfs (¼ of Harmonic Mean), as specified in s. NR 106.06(4), Wis. Adm. Code.

SUBSTANCE	HTC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.
Cadmium	370	0.01	341976	68395.3	<2
Chromium (+3)	3818000	0.50	3528922396	705784479	<3
Lead	140	0.39	129040	25808.0	<1
Nickel	43000		39744286	7948857	<8

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

RECEIVING WATER FLOW = 100 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		12293.0	2458.60	1.0

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 not required.**

Chloride – Considering available effluent data from March 2023 to December 2023, the 1-day P<sub>99</sub> chloride concentration is 319.6 mg/L, and the 4-day P<sub>99</sub> of effluent data is 232.3 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 Lake Holcombe SD 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 the sample result is within expected analytical ranges and well below the 17 mg/kg level. The average concentration in the sludge from August 19, 2020 was 0.04 mg/kg. Therefore, **no mercury monitoring is recommended at Outfall 003.**

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 the lack of indirect dischargers contributing to the collection system, **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  
pH (s.u.) = that characteristic of the effluent.



Attachment #1

The effluent pH data was examined as part of this evaluation. A total of 1974 sample results were reported from January 2019 to June 2024. The maximum reported value was 8.20 s.u. (Standard pH Units). The effluent pH was 7.80 s.u. or less 99% of the time. The 1-day P<sub>99</sub>, calculated in accordance with s. NR 106.05(5), Wis. Adm. Code, is 7.46 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 7.5 s.u. Therefore, a value of 8.20 s.u. is believed to represent the maximum reasonably expected pH, and therefore most appropriate for determining daily maximum limitations for ammonia nitrogen. Substituting a value of 8.20 s.u. into the equation above yields an ATC = 5.73 mg/L.

**Daily Maximum Ammonia Nitrogen Effluent Limitations Calculation Method**

In accordance with s. NR 106.32(2), Wis. Adm. Code daily maximum ammonia limitations are calculated using the 1-Q<sub>10</sub> 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<sub>10</sub> (estimated as 80 % of 7-Q<sub>10</sub>) and the 2×ATC approach are shown below.

**Daily Maximum Ammonia Nitrogen Determination**

	Ammonia Nitrogen Limit mg/L
2×ATC	11.45
1-Q <sub>10</sub>	16808.6

The 2×ATC method yields the most stringent limits for Lake Holcombe SD. Presented below is a table of daily maximum limitations corresponding to various effluent pH values. This table is included in the existing permit.

**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 ≤ pH ≤ 6.1	108	7.0 < pH ≤ 7.1	66	8.0 < pH ≤ 8.1	14
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

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

Attachment #1

Weekly and monthly average limits are not included in the current permit but are being evaluated here to consider reasonable potential for the need for more restrictive limits. **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 #2.

**Effluent Data**

	Ammonia Nitrogen mg/L
1-day P <sub>99</sub>	88.6
4-day P <sub>99</sub>	47.9
30-day P <sub>99</sub>	24.2
Mean	14.6
Std	18.6
Sample size	281
Range	0.10-70.8

The permit currently has daily maximum limits year-round and weekly and monthly 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.

**Final Ammonia Nitrogen Limits**

	Daily Maximum mg/L	Weekly Average mg/L	Monthly Average mg/L
Year round	Variable	108 mg/L	108 mg/L

**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.

Attachment #1

*E. coli* monitoring is recommended at the same frequency that fecal coliform monitoring is required in the current permit. Because the Lake Holcombe Sanitary District #1 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**

Lake Holcombe Sanitary District #1 has monitored effluent *E. coli* during May 2023 and a total of five results are available. A geometric mean of 126 counts/100 mL was not exceeded, with a maximum monthly geometric mean of less than 100 counts/100 mL. Effluent data has not exceeded 410 counts/100 mL. The maximum reported value was 100 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.

Because Lake Holcombe Sanitary District #1 does not currently have an existing technology-based limit, the need for this limit in the reissued permit is evaluated. The data demonstrates that the annual monthly average phosphorus loading is less than 150 lbs/month, which is the threshold for municipalities in accordance to s. NR 217.04(1)(a)1, Wis. Adm. Code, and therefore no technology-based limit is required.

**Annual Average Mass Total Phosphorus Loading**

Month	Average Phosphorus Concentration (mg/L)	Total Effluent Flow (Million Gallons)	Calculated Mass (lbs/month)
January 2023	10.9	1.9	174.5
February 2023	11.3	1.3	122.4
March 2023	10.9	0.98	90.1
April 2023	9.2	4.2	325.9
May 2023	6.5	2.5	136.6
June 2023	5.7	1.4	68.2
July 2023	6.8	1.5	83.8
August 2023	5.9	1.3	64.2
September 2023	5.9	1.4	68.9
October 2023	5.7	1.5	70.4
November 2023	5.6	0.86	40.0
December 2023	5.7	1.0	47.6
<b>Average</b>			<b>108</b>

Total P (lbs/month) = Monthly average (mg/L) × total flow (MG/month) × 8.34 (lbs/gallon)  
 Where total flow is the sum of the actual (not design) flow (in MGD) for that month

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

**Water Quality-Based Effluent Limits (WQBEL)**

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

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 0.100 mg/L applies for the Chippewa River.

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

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

Where:

WQC = 0.100 mg/L for the Chippewa River

Qs = 100% of the 7-Q<sub>2</sub> of 400 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 = 0.07 = 0.108 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 on September 5, 2019, resulted in a WQBEL of 188 mg/L using a background concentration of 0.049 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:

Attachment #1

SWIMS ID	093051
Station Name	Monitoring station at NSP Holcombe Dam Tailrace
Waterbody	Chippewa River
Sample Count	8
First Sample	05/04/2000
Last Sample	06/06/2001
Mean	0.048 mg/L
Median	0.045 mg/L

Substituting a median value of 0.045 mg/L into the limit calculation equation above, the calculated limit is 203 mg/L.

**Effluent Data**

The following table summarizes effluent total phosphorus monitoring data from April 2022 to December 2023.

**Total Phosphorus Effluent Data**

	Phosphorus mg/L
1-day P <sub>99</sub>	15.4
4-day P <sub>99</sub>	11.7
30-day P <sub>99</sub>	9.63
Mean	8.59
Std	2.34
Sample size	88
Range	2.73 - 11.5

**Reasonable Potential Determination**

**The Lake Holcombe Sanitary District #1 effluent discharge does not have 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 less than the calculated WQBEL. Therefore, a WQBEL is not required, but monitoring throughout the permit term is recommended.**

## **PART 5 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR THERMAL**

Surface water quality standards for temperature took effect on October 1, 2010. These regulations are detailed in chs. NR 102 (Subchapter II – Water Quality Standards for Temperature) and NR 106 (Subchapter V – Effluent Limitations for Temperature) of the Wisconsin Administrative Code. Daily maximum and weekly average temperature criteria are available for the 12 different months of the year depending on the receiving water classification.

Due to the amount of upstream flow available for dilution in the limit calculation ( $Q_s:Q_e >20:1$ ), the lowest calculated limitation is 120° F (s. NR 106.55(6)(a), Wis. Adm. Code). For lagoon systems of domestic waste, there is no reasonable potential for the discharge to exceed this limit. Therefore, **temperature limits or monitoring are not recommended.**

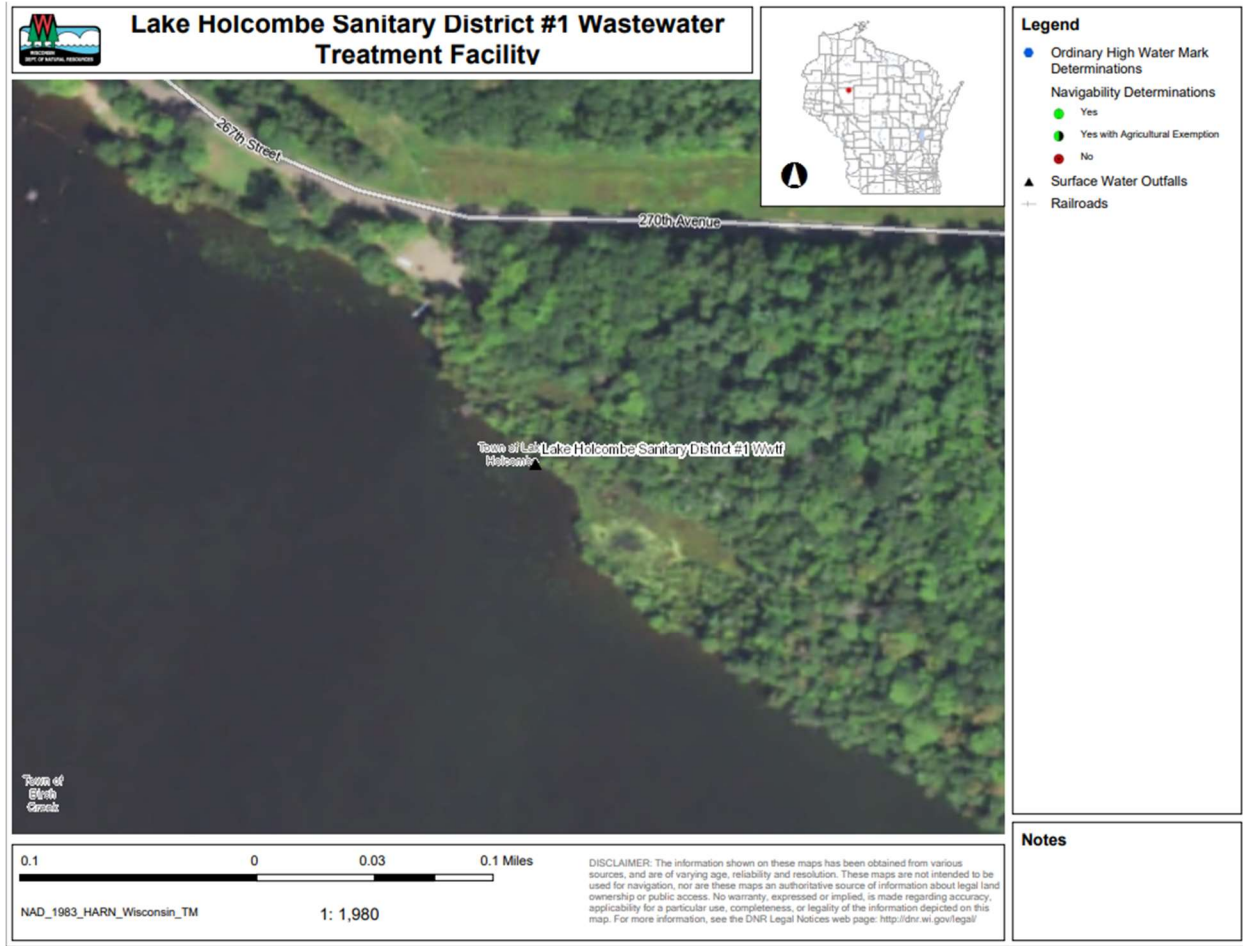
## **PART 6 – WHOLE EFFLUENT TOXICITY (WET)**

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)*.

Chronic testing is usually not recommended where the ratio of the 7-Q<sub>10</sub> to the effluent flow exceeds 100:1 and acute testing is not typically recommended if the ratio exceeds 1000:1. For the Lake Holcombe Sanitary District #1 that ratio is approximately 3636:1. With this amount of dilution, there is believed to be little potential for acute or chronic toxicity effects in the Chippewa River associated with the discharge from the Lake Holcombe SD so the need for acute and chronic WET testing will not be considered further. **No acute or chronic WET testing is recommended.**

Attachment #2

Site Map:



Attachment #2

Ammonia Nitrogen Calculations from WQBEL dated September 5, 2019

		Spring	Summer	Winter
		April & May	June – Sept.	Oct. - March
<b>Effluent Flow</b>	Qe (MGD)	0.07	0.07	0.07
<b>Background Information</b>	7-Q <sub>10</sub> (cfs)	400	400	400
	7-Q <sub>2</sub> (cfs)	400	400	400
	Ammonia (mg/L)	0.07	0.04	0.08
	Temperature (°C)	16	24	11
	pH (s.u.)	7.5	7.5	7.5
	% of Flow used	50	100	25
	Reference Weekly Flow (cfs)	200	400	100
	Reference Monthly Flow (cfs)	170	340	85
<b>Criteria mg/L</b>	4-day Chronic			
	Early Life Stages Present	10.20	5.96	10.91
	Early Life Stages Absent	10.20	5.96	13.59
	30-day Chronic			
	Early Life Stages Present	4.08	2.39	4.36
Early Life Stages Absent	4.08	2.39	5.44	
<b>Effluent Limitations mg/L</b>	Weekly Average			
	Early Life Stages Present	18724	21879	10010
	Early Life Stages Absent	18724	21879	12487
	Monthly Average			
	Early Life Stages Present	6301	7364	3366
Early Life Stages Absent	6301	7364	4209	