

Permit Fact Sheet

General Information

| | | |
|---|--|-----------|
| Permit Number: | WI-0061387-11-0 | |
| Permittee Name: | LAKELAND SANITARY DISTRICT # 1 | |
| Address: | P O Box 54 | |
| City/State/Zip: | BARRONETT WI 54813 | |
| Discharge Location: | 175 feet south of 30 th Ave (County Line Road) on the west side of the unnamed tributary to the Yellow River (inside the WWTF fence). Located in NE ¼ NW ¼ Section 4; T36N-R13W, Barron County | |
| Receiving Water: | An unnamed tributary (WBIC 3000242) to the Yellow River in the Yellow River Watershed in the Lower Chippewa River Drainage Basin in Barron County | |
| StreamFlow (Q _{7,10}): | 0.06 cfs at the discharge location | |
| Stream Classification: | <p>Unnamed tributary – Limited Forage Fish from facility outfall to Yellow River (NR 104.09(2) Wis, Adm. Code)</p> <p>Yellow River – Warm Water Sport Fish (WWSF) approximately 0.44 miles downstream of the outfall where the unnamed tributary meets the Yellow River.</p> <p>Both are non-public waters and within the ceded territory.</p> | |
| Wild Rice Impacts: <i>(no specific wild rice standards exist at this time)</i> | No impacts identified. The conclusion of no impact is based on no wild rice waters inventoried on the unnamed tributary and the Yellow River to Fox Lake. (Evaluation completed March 2017) | |
| Discharge Type: | Existing seasonal discharger (April, May, September and October) | |
| Design Flow(s) | Annual Average | 0.034 MGD |
| Significant Industrial Loading? | No | |
| Operator at Proper Grade? | Yes | |
| Approved Pretreatment Program? | N/A | |

Facility Description

Lakeland Sanitary District #1 owns and operates a domestic wastewater treatment system. The plant designed to treat 34,000 gallons per day, currently treats an average of 7,000 gallons per day (2019-2023 data). The facility consists of three stabilization lagoons operated one after another (in series). Within these ponds naturally occurring bacteria and organisms already present in the wastewater metabolize organic matter. The cleaned wastewater (effluent) is authorized to be discharged to an unnamed tributary to the Yellow River during the months of April, May, September, and October.

Substantial Compliance Determination

There have been some minor violations of effluent limits and late reporting. However, the department is working with the facility to take the necessary steps to correct their actions and prevent further violations.

After a desk top review by Carson Johnson, WDNR, of all Discharge Monitoring Reports, CMARs, and a site visit on 11/10/2022, Lakeland Sanitary District has been found to be in substantial compliance with their current permit.

Compliance determination entered by Carson Johnson on November 22, 2022.

| 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 | An average of 0.007 MGD (2019 – 2023 data) | Representative samples shall be taken from the raw wastewater pipe entering the lift station. |
| 001 | An average of 0.125 MGD during periods of discharge An average of 19 days of discharge each year. (2019 – 2023 data) | Representative samples shall be collected at the outlet end of the discharge manhole at Pond 3. The permittee is authorized to discharge to an unnamed tributary to the Yellow River, Barron County, during the months of April, May, September, and October annually. |
| 003 | Sludge has not been removed from the ponds. | Representative samples shall be collected from the accumulated sludge in Cell 1 at various locations and depths that are composited for analysis. |

1 Influent – Monitoring Requirements

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 | Weekly | Total Daily | |
| BOD5, Total | | mg/L | 2/Month | Grab | |
| Suspended Solids, Total | | mg/L | 2/Month | Grab | |

Changes from Previous Permit:

Effluent limitations and monitoring requirements were re-evaluated for the proposed permit term and no changes were required in this permit section. Sampling requirements and frequencies are the same as the previous permit.

Explanation of Limits and Monitoring Requirements

The parameters are standard for minor municipalities, as are monitoring and frequency requirements for municipal wastewater treatment plant. Tracking of influent and effluent BOD5, and Suspended Solids concentrations are required for percent removal requirements found in s. NR 210.05, Wis. Adm. Code.

2 Surface Water - Monitoring and Limitations

Sample Point Number: 001- EFFLUENT

| Monitoring Requirements and Limitations | | | | | |
|---|----------------------|-----------------|------------------|-------------|--|
| Parameter | Limit Type | Limit and Units | Sample Frequency | Sample Type | Notes |
| Flow Rate | | MGD | Daily | Estimated | |
| BOD5, Total | Daily Max | 30 mg/L | Weekly | Grab | |
| BOD5, Total | Monthly Avg | 15 mg/L | Weekly | Grab | |
| Suspended Solids, Total | Daily Max | 30 mg/L | Weekly | Grab | Limit is effective September - October until March 31, 2028 when it becomes the final limit for April – May as well. See the "Total Suspended Solids" schedule for more information. |
| Suspended Solids, Total | Weekly Avg | 45 mg/L | Weekly | Grab | INTERIM LIMIT April - May until March 31, 2028 when the final limits become effective. See the "Total Suspended Solids" schedule for more information. |
| Suspended Solids, Total | Monthly Avg | 30 mg/L | Weekly | Grab | INTERIM LIMIT April - May until March 31, 2028 when the final limits become effective. See the "Total Suspended Solids" schedule for more information. |
| Suspended Solids, Total | Monthly Avg | 20 mg/L | Weekly | Grab | Limit is effective September - October until March 31, 2028 when it becomes the final limit for April – May as well. See the "Total Suspended Solids" schedule for more information. |
| pH Field | Daily Max | 9.0 su | Weekly | Grab | |
| pH Field | Daily Min | 6.0 su | Weekly | Grab | |
| Dissolved Oxygen | Daily Min | 4.0 mg/L | Weekly | Grab | |
| Nitrogen, Ammonia (NH3-N) Total | Daily Max - Variable | mg/L | Weekly | Grab | Enter the daily ammonia result on the eDMR and compare to the Nitrogen, Ammonia Variable Limit column to determine |

| Monitoring Requirements and Limitations | | | | | |
|---|-------------|-----------------|------------------|-------------|--|
| Parameter | Limit Type | Limit and Units | Sample Frequency | Sample Type | Notes |
| | | | | | compliance. |
| Nitrogen, Ammonia Variable Limit | | mg/L | Weekly | See Table | Using the daily pH result look up the applicable ammonia limit in the "Ammonia Limitation" section in the permit and report the variable limit on the eDMR. |
| Phosphorus, Total | Monthly Avg | 1.0 mg/L | Weekly | Grab | INTERIM LIMIT through 3/31/2028. See the "MDV (Multi-Discharger Variance) Requirements" and Phosphorus schedules for more information. |
| Phosphorus, Total | Monthly Avg | 0.6 mg/L | Weekly | Grab | INTERIM MDV LIMIT begins 4/1/2028. See the "MDV (Multi-Discharger Variance) Requirements" and Phosphorus schedules for more information. |
| Phosphorus, Total | | lbs/month | Monthly | Calculated | Record the monthly total on the last day of the month on the eDMR. See the "MDV (Multi-Discharger Variance) Requirements" section for more information. |
| Phosphorus, Total | | lbs/yr | Annual | Calculated | Record the total for the months the MDV is effective over the calendar year on the annual eDMR. See the "MDV (Multi-Discharger Variance) Requirements" section for more information. |
| Nitrogen, Total Kjeldahl | | mg/L | Per Cycle | Grab | See the "Nitrogen Series Monitoring" section for testing schedule. |
| Nitrogen, Nitrite + Nitrate Total | | mg/L | Per Cycle | Grab | See the "Nitrogen Series Monitoring" section for testing schedule. |
| Nitrogen, Total | | mg/L | Per Cycle | Calculated | Total Nitrogen = Total Nitrogen Kjeldahl (mg/L) + Nitrite + Nitrate Nitrogen (mg/L). See the "Nitrogen |

| Monitoring Requirements and Limitations | | | | | |
|---|------------|-----------------|------------------|-------------|--|
| Parameter | Limit Type | Limit and Units | Sample Frequency | Sample Type | Notes |
| | | | | | Series Monitoring" section for testing schedule. |

Changes from Previous Permit

Effluent limitations and monitoring requirements were re-evaluated for the proposed 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.

- **BOD** – Limits based on Limited Forage Fish standards replace variance limits as described in s. NR 104.02(4)(c), Wis. Adm. Code.
- **Total Suspended Solids** – Limits based on Limited Forage Fish standards replace variance limits as described in s. NR 104.02(4)(c), Wis. Adm. Code as well as a schedule to meet the limits has been added to the permit.
- **Ammonia** – A variable daily maximum limit based on pH levels has been added to the permit.
- **Phosphorus MDV** - The permittee has applied for a multi-discharger variance (MDV) for phosphorus for a second permit term and the application has been approved by the Department.
- **Total Nitrogen Monitoring (TKN, N02+N03 and Total N)** - Annual monitoring in rotating discharge seasons throughout the permit term was added to the permit.

Explanation of Limits and Monitoring Requirements

More information on categorical and water quality-based limits (WQBEL) is found in the “Water Quality-Based Effluent Limitations for the Lakeland Sanitary District #1 (WI-0061387-11-0)” memo dated March 19, 2024.

Discharge season - The facility has been authorized to discharge on a fill-and-draw basis during the spring (April and May) and fall (October and November). *All samples shall be taken during normal operating conditions; therefore, monitoring is required only during periods of discharge.*

BOD₅ - The BOD₅ limits in the previous permit were variance limits as described in s. NR 104.02(4)(c), Wis. Adm. Code. These limits were applicable for stabilization pond facilities that discharge on a fill and draw basis to a Limited Forage Fish (LLF) community water. The limits were reevaluated because a flow limit, which is a condition of s. NR 104.02(4)(c)1, Wis. Adm. Code, had not been included in previous permit terms. The flow limit that fulfills the administrative code condition is 0.013 MGD. The facility was given the choice to maintain the variance limits with the addition of a new flow limit or to comply with the more stringent LFF effluent limits based on s. NR 104.02(3)5 Wis. Adm. Code (30 mg/L daily maximum limit and 15 mg/L monthly average). The facility chose the LFF limits. The facility can meet the update BOD₅ limits.

Total Suspended Solids (TSS) - The TSS limits in the previous permit were variance limits as described in s. NR 104.02(4)(c), Wis. Adm. Code. These limits were applicable for stabilization pond facilities that discharge on a fill and draw to a Limited Forage Fish (LLF) community water. The limits were reevaluated because a flow limit, which is a condition of s. NR 104.02(4)(c)1, Wis. Adm. Code, had not been included in the previous permit terms. The flow limit that would fulfill the administrative code condition would be 0.013 MGD. The facility was given the choice to maintain the variance limits with the addition of a new flow limit or to comply with the more stringent LFF effluent limits based on s. NR 104.02(3)5 Wis. Adm. Code (30 mg/L daily maximum and 20 mg/L monthly average). The facility chose the LFF limits but are unable to consistently meet the limits. Interim limits and a schedule have been included to give the facility time to comply with the final limits.

pH - Categorical limits for pH are required per ch. NR 210 (Subchapter II) Wis. Adm. Code.

Dissolved Oxygen - Categorical limits for Dissolved Oxygen for Limited Forage Fish (intermediate) conditions are found in NR 104.02(3)(a) and 210.05(2) Wis. Adm. Code.

Ammonia – Using current acute and chronic ammonia toxicity criteria found in Tables 2C and 4B of NR 105 Wis. Adm. Code and limit calculating procedures (Subchapter IV of 106, Wis. Adm. Code ammonia limitations were calculated for the facility. Based on a reasonable potential analysis it was found ammonia limits are needed to ensure toxic conditions in the receiving water do not occur. Daily maximum limits expressed as a single limit or as a variable limit based on effluent pH were calculated. Expression as a variable limit was chosen. Sample results for pH shall be used to calculate the daily variable limit. Total ammonia (NH3-N) sampling shall occur on the same day pH levels are monitored. The applicable variable limit shall be recorded on the Electronic Discharge Monitoring Report (eDMR) in the Ammonia Variable Limit column. Report the effluent ammonia sample result in the ‘Nitrogen, Ammonia (NH3-N) Total’ column. Compare the variable daily maximum ammonia limit to the reported ammonia result, record the number of exceedances in the box to the right of the ‘Limit in Effect’ ‘Daily Max’ row in the ‘Summary’ tables at the end of the eDMR.

Daily Maximum Ammonia Nitrogen Limits

| 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 |

Phosphorus – Phosphorus requirements are based on the Phosphorus Rules as detailed in NR 102 (water quality standards) and NR 217, Wis. Adm. Code (effluent standards and limitations for phosphorus). Chapter NR 217 of the Wis. Adm. Code addresses point source dischargers of phosphorus to surface waters. Currently in NR 217 Wis. Adm. Code there are three types of limit calculations used to determine if a phosphorus limit is needed: a technology based effluent limit (TBEL), a water quality-based effluent limit (WQBEL) determined by stream criteria and a WQBEL based on a Total Daily Maximum Daily Load (TMDL) allocation.

In the case of Lakeland Sanitary District #1:

- A TBEL of 1.0 mg/L is needed if a facility discharges more than the threshold of 150 pounds per month (s. NR 217.04(1)(a)1 Wis. Adm. Code). The facility currently meets a limit of 1 mg/L as part of the phosphorus MDV which meets the TBEL. A TBEL is not required during this permit term.
- Based on the size and classification of the stream, the categorical water quality criterion for the unnamed tributary to the Yellow River is 75 ug/L. This criterion and instream background phosphorus data are used to calculate the stream criteria based WQBELs. *The calculated WQBELs are .23 mg/L (monthly average), 0.076 mg/L (6-month average and 43 lb/yr annual total).*

The facility is unable to meet the final WQBEL limits, for this permit term. The permittee has consequently applied for their second Multi-Discharger Variance (MDV) for phosphorus as provided for in s. 283.16, Wis. Stats., and as 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. *As a result, the interim effluent limit for total phosphorus is 1.0 mg/L as an average monthly limit, with an interim MDV limit of 0.6 mg/L as an average*

monthly limit effective at the end of the Phosphorus Multi-Discharger Variance Interim Limit (0.6 mg/L) Schedule.

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 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.

- The facility lies within the boundaries of the Tainter Lake and Lake Menomin total maximum daily load (TMDL) area. The TMDL was developed to address phosphorus water quality impairments. The Tainter Lake and Lake Menomin TMDL for total phosphorus was approved by the U.S. Environmental Protection Agency on September 14 2012. More information about the TMDL can be found at <https://dnr.wisconsin.gov/topic/TMDLs/TMDLReports.html>

Based on current criteria, the approved TMDL Waste Load Allocation (WLA) for Total Phosphorus is 46 lbs per year, which equates to 0.13 lbs/day monthly average. The WQBEL mass limit of 43 lb/yr is more restrictive therefore the TMDL limit is not required this permit term.

Nitrogen Series - (nitrate + nitrite, total Kjeldahl nitrogen and total nitrogen) – In 2011, the Upper Mississippi River Basin Association (UMRBA) completed the report "Upper Mississippi River Nutrient Monitoring, Occurrence, and Local Impacts: A Clean Water Act Perspective". Among the many recommendations of this report was that the states should expand their NPDES discharge monitoring requirements to include both phosphorus and nitrogen as they have important impacts on the mainstem upper Mississippi River as well as in the Gulf of Mexico. Consequently, the department developed the "Guidance for Total Nitrogen Monitoring in WPDES Permits" document dated October 2019, where annual effluent monitoring for total nitrogen (total nitrogen = total Kjeldahl + (nitrite+nitrate)) is required for municipal and industrial facilities discharging to surface waters. Section 283.55(1)(e) Wis. Stats. 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 s. NR 200.065 (1)(h) Wis. Adm. Code allows for this monitoring to be collected during the permit term. The schedule for this facility is as follows:

- **2025** April – May
- **2026** September – October
- **2027** April – May
- **2028** September – October

Nitrogen Series monitoring shall continue after the permit expiration date (until the permit is reissued) in accordance with the monitoring requirements specified in the last full calendar year of this permit. For example, the next test would be required September through October 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.

Sampling Frequencies - The "[Monitoring Frequencies for Individual Wastewater Permits](#)" guidance document (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 fairness and consistency in permits issued across the state. Guidance and requirements in administrative code were considered when determining the appropriate monitoring frequencies for pollutants that have final effluent limits in effect during this permit term. The department has determined at this time that the facility meets the guidance and no changes in the monitoring frequency is required this permit term.

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 | Sludge is not anticipated to be removed this permit term. If removal is needed see the land application and schedule sections of the permit for more information. | | | |
| 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? All water supply is provided by private wells. The nearest communities to the North (Shell Lake) and South (Cumberland) are below 2 pCi/liter. If yes, special monitoring and recycling conditions will be included in the permit to track any potential problems in land applying sludge from this facility | | | | | | |
| Is a priority pollutant scan required? No Priority pollutant scans are required once every 10 years at facilities with design flows between 5 MGD and 40 MGD, and once every 5 years if design flow is greater than 40 MGD. | | | | | | |

Sample Point Number: 003- SLUDGE

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

| Monitoring Requirements and Limitations | | | | | |
|--|-------------------|------------------------|-------------------------|--------------------|--|
| Parameter | Limit Type | Limit and Units | Sample Frequency | Sample Type | Notes |
| Mercury Dry Wt | High Quality | 17 mg/kg | Once | Composite | |
| Molybdenum Dry Wt | Ceiling | 75 mg/kg | Once | Composite | |
| Nickel Dry Wt | Ceiling | 420 mg/kg | Once | Composite | |
| Nickel Dry Wt | High Quality | 420 mg/kg | Once | Composite | |
| Selenium Dry Wt | Ceiling | 100 mg/kg | Once | Composite | |
| Selenium Dry Wt | High Quality | 100 mg/kg | Once | Composite | |
| Zinc Dry Wt | Ceiling | 7,500 mg/kg | Once | Composite | |
| Zinc Dry Wt | High Quality | 2,800 mg/kg | Once | Composite | |
| Nitrogen, Total Kjeldahl | | Percent | Per Application | Composite | |
| Nitrogen, Ammonia (NH3-N) Total | | Percent | Per Application | Composite | |
| Phosphorus, Total | | Percent | Per Application | Composite | |
| Phosphorus, Water Extractable | | % of Tot P | Per Application | Composite | |
| Potassium, Total Recoverable | | Percent | Per Application | Composite | |
| 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:

Effluent limitations and monitoring requirements were re-evaluated for the proposed 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).

- List 1 (Metals) and PFOA+PFOS monitoring is required during the second full year of the permit term (2026).
- It is recommended that List 2 (Nutrients) monitoring occur with the List 1 monitoring.
- Due to changes within the land application forms, the 3400-049 (“Characteristics Report”), 3400-052 (“Other Methods of Disposal”) and 3400-055 (Annual Land Application”) will need to be submitted each year.

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) Wis. Adm. Code. Requirements for pathogens are specified in s. NR 204.07(6) and in s. NR 204.07(7) Wis. Adm. Code for vector attraction requirements.

List 2 Nutrient monitoring – Monitoring for list 2 (nutrients) is highly recommended at the same time as the monitoring of List 1 (metals) in year 2 of the permit (2026). Results will assist in the determination of the acres needed for land application of sludge should it be necessary. The number of acres needed is also required for the Sludge Management Schedule (see schedules for more information).

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.

Water Extractable Phosphorus- Water extractable phosphorus (WEP) is the coefficient for determining plant available phosphorus from measured total phosphorus. In Wisconsin, the Penn State Method is utilized and is expressed in percent. While a total P may be significant, the WEP may show that only a small percentage of the P is available to plants because of factors such as treatment processes and chemical addition that “tie-up” phosphorus limiting the amount of phosphorus that is plant available. As part of the Wisconsin’s nutrient management plan (NMP) requirements, the accounting of all fertilizers must be included over the NMP cycle. The fertilizer value of the waste needs to be communicated to the farmer and accounted for in the NMP.

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

Sludge analysis during the second year of the permit term has been included. There are check boxes available on the electronic forms to identify if desludging didn’t occur.

- Sludge characteristics report (3400-049) – at the top of the form check “yes” or “no” in the box identifying if any land application occurred that year. Complete the form if required or identify the year samples will be or have been taken in the comments section.
- 3400-052 (“Other Methods of Disposal”) and 3400-055 (“Annual Land Application”) - The reports are technically 2 separate forms that are now combined in one location but separated onto two different tabs. If you answer “No” to both listed questions the forms are complete. If you need to answer “Yes” to either question the corresponding form tabs will go from gray to blue indicating information can be entered on the report.

4 Schedules

4.1 Effluent Limitations for Total Suspended Solids

The permittee shall comply with surface water limitations for Total Suspended Solids as specified. If a submittal is required, a timely submittal fulfills the notification.

| Required Action | Due Date |
|---|------------|
| <p>Operational Evaluation Report: The permittee shall prepare and submit an Operational Evaluation Report to the Department for review and approval. The report shall include an evaluation of collected effluent data and proposed operational improvements that will optimize efficacy of the treatment plan to the extent possible enabling compliance with the final Total Suspended Solids limitations. The report shall include a plan and schedule for implementation of the operational improvements. These improvements shall occur as soon as possible. The report shall state whether the operational improvements are expected to result in compliance with the final Total Suspended Solids limitations.</p> <p>If the Operational Evaluation Report concludes that the operational improvements are expected to result in compliance with the final Total Suspended Solids limitations, the permittee shall comply with the final limitations by June 30, 2026 and the permittee is not required to comply with subsequent milestones identified below in this compliance schedule ('Submit Facility Plan', 'Final Plans and Specifications', 'Treatment Plant Upgrade to Meet Limitations', 'Construction Upgrade Progress Report', 'Complete Construction', 'Achieve Compliance').</p> <p>FACILITY PLAN - If the Operational Evaluation Report concludes that operational improvements alone are not expected to result in compliance with the final Total Suspended Solid limitations, the permittee shall initiate development of a facility plan for meeting final limitations and comply with the remaining required actions in this schedule of compliance.</p> | 06/30/2025 |
| <p>Submit Facility Plan: If the Operational Evaluation Report concluded that the permittee cannot achieve final Total Suspended Solids limitations with operational improvements alone, the permittee shall submit a Facility Plan per s. NR 110.09, Wis. Adm. Code. The permittee may submit an abbreviated facility plan if the Department determines that the modifications are minor.</p> | 06/30/2026 |
| <p>Final Plans and Specifications: The permittee shall submit final construction plans to the Department for approval pursuant to ch. NR 108, Wis. Adm. Code, specifying treatment plant upgrades that must be constructed to achieve compliance with Total Suspended Solids limitations and a schedule for completing construction of the upgrades by the complete construction date specified below.</p> | 12/31/2026 |
| <p>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.</p> | 03/31/2027 |
| <p>Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades.</p> | 09/30/2027 |
| <p>Achieve Compliance: The permittee shall achieve compliance with final Total Suspended Solids limitations.</p> | 03/31/2028 |

4.2 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 |
|---|------------|
| Treatment/Compliance Alternatives Report: Submit a report on effluent quality with conclusions regarding phosphorus limit compliance. If the limit can't be met, detail available phosphorus optimizations and alternatives. If needed, identify the selected alternative. Include costs and feasibility of each option. | 06/30/2025 |
| Action Plan: Submit an action plan for complying with the specified interim MDV effluent limit. If construction is required, include plans and specifications with the submittal. | 06/30/2026 |
| Installation/Implementation: The permittee shall initiate installation or implementation of projects needed to comply with the specified interim MDV effluent limit as specified in the submitted action plan. If construction is needed the permittee shall obtain approval of the final construction plans and schedule from the Department pursuant to s. 281.41, Stats., prior to initiating activities defined as construction under ch. NR 108, Wis. Adm. Code. Upon approval of the final construction plans and schedule by the Department pursuant to s. 281.41, Stats., the permittee shall construct the treatment plant upgrades in accordance with the approved plans and specifications. | 03/31/2027 |
| Complete Installation/ Implementation of Treatment Option: Complete actions identified in the action plan. | 09/30/2027 |
| Achieve Compliance: Achieve compliance with the specified interim MDV effluent limit. The phosphorus limit shall be met on or before this date. | 03/31/2028 |

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. | 06/30/2025 |
| Progress Report #2: Submit a progress report on optimizing removal of phosphorus. | 06/30/2026 |
| Progress Report #3: Submit a progress report on optimizing removal of phosphorus. | 06/30/2027 |
| Progress Report #4: Submit a progress report on optimizing removal of phosphorus. | 06/30/2028 |
| Progress Report #5: Submit a progress report on optimizing removal of phosphorus. | 06/30/2029 |

4.4 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 | 03/01/2025 |

| | |
|---|------------|
| <p>value) times (\$64.75 per pound)] or \$640,000, whichever is less. See the payment calculation steps in the Surface Water section.</p> <p>The permittee shall submit Form 3200-151 to the Department by March 1 of each calendar year indicating total amount remitted to the participating counties to verify that the correct payment was made. The first payment verification form is due by the specified Due Date.</p> <p>Note: The applicable Target Value is 0.2 mg/L as defined by s. 283.16(1)(h), Wis. Stats. The "per pound" value is \$50.00 adjusted for CPI.</p> | |
| <p>Annual Verification of Payment #2: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.</p> | 03/01/2026 |
| <p>Annual Verification of Payment #3: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.</p> | 03/01/2027 |
| <p>Annual Verification of Payment #4: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.</p> | 03/01/2028 |
| <p>Annual Verification of Payment #5: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.</p> | 03/01/2029 |
| <p>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.</p> | |
| <p>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.</p> | |

4.5 Sludge Management Plan

A management plan is required for the land application system.

| Required Action | Due Date |
|---|----------|
| <p>Sludge Management Plan Submittal: Submit a Sludge Management Plan: The permittee shall submit a management plan for approval if removal of sludge will occur during this permit term. The plan shall demonstrate compliance with ch. NR 204, Wis. Adm. Code and at minimum address 1) How and where is sludge sampled; 2) Available sludge storage details and location(s); 3) How will the sludge be removed with details on volume, characterization and how will the treatment plant continue to function during the drawdown; 4) Describe the type of transportation and spreading vehicles and loading and unloading practices; 5) Identify approved land application sites, apply for needed sites, site limitations, total acres needed and vegetative cover management; 6) Specify record keeping procedures including site loading; 7) Address contingency plans for adverse weather and odor/nuisance abatement; and 8) Include any other pertinent information such as other disposal options that may be used or specifications of any pretreatment processes</p> <p>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.</p> <p>The plan is due at least 60 days prior to desludging.</p> | |

Explanation of Schedules

Effluent Limitations for Total Suspended Solids - A schedule is included in the permit to provide time for the permittee to investigate options for meeting effluent Total Suspended Solids effluent limits while coming into compliance with the limits as soon as reasonably possible.

Phosphorus Multi-Discharger Variance Interim Limit (0.6 mg/L) - Subsection 283.16(6), Wis. Stats., establishes required interim phosphorus effluent limits that must be met for multi-discharger variance (MDV) eligibility. The schedule above provides the permittee with four years to comply with that limit.

Phosphorus Schedule – Continued Optimization - 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.

Phosphorus Payment per Pound to County: 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 \$64.75 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).

Sludge Management Plan - If the lagoons are to be de-sludged during this permit term a management plan is needed to show compliance with ch NR 204, Wis. Adm. Code. There are outlines available to assist in plan development.

Attachments:

Water Flow Schematic created April 2013

“Water Quality-Based Effluent Limitations for the Lakeland Sanitary District #1 (WI-0061387-11-0)” memo dated March 19, 2024.

MDV Conditional Approval

MDV Evaluation Checklist

Expiration Date:

June 30, 2029

Justification Of Any Waivers From Permit Application Requirements

A decision has been made not to require effluent monitoring for metals in the application because:

1. The low design flow (34,000 gallons per day) and low actual flows (an average of 7,000 gallons per day) from this facility.
2. The wastewater is all domestic with no industrial contributors to the collection system.

3. The metals in the sludge are well below high quality sludge limits which correlates to low metal concentrations in the effluent.
4. Based on the total points accumulated on the WET checklist and Chapter 1.3 of the WET Guidance Document there is little likelihood the effluent is toxic.
5. The sanitary district does not have a public water supply system and does not have any control over corrosivity in the influent wastewater.

Prepared By: Sheri A. Snowbank Wastewater Specialist

Date: April 9, 2024

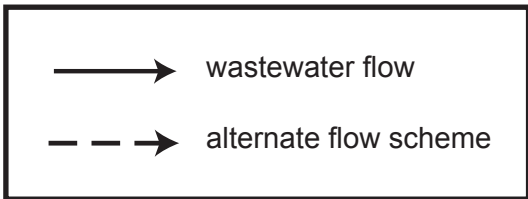
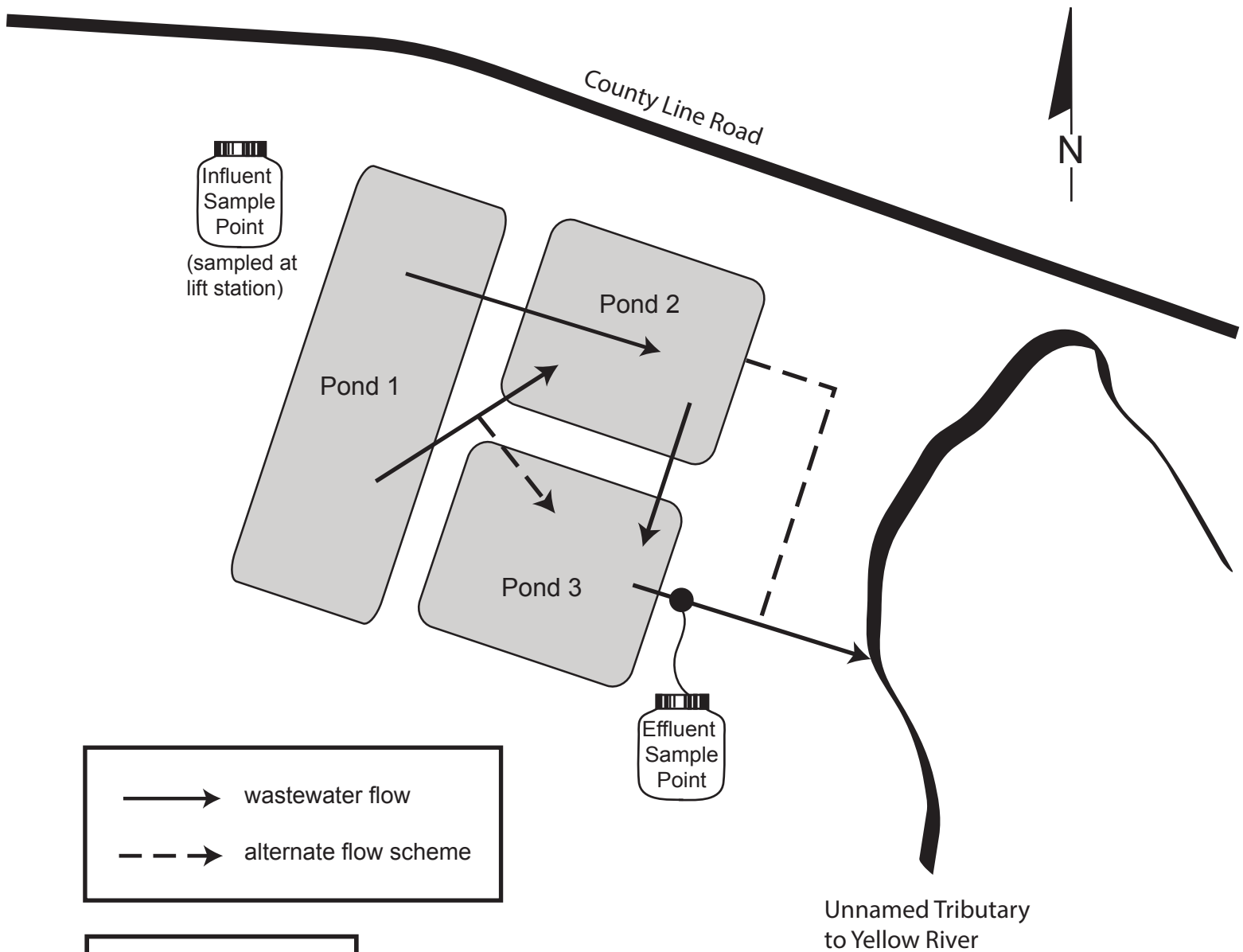
Date updated based on Factcheck comments: No comments received (5/14/24)

Date updated based on public notice comments:

Notice of reissuance was published in the Cumberland Advocate, PO Box 637, Cumberland, WI 54829-0637.

Lakeland Sanitary District No. 1 Wastewater Treatment Plant

The Lakeland Sanitary District wastewater facility is designed to treat 11,500 gallons per day. The three stabilization ponds are operated in series, with discharges permitted to an unnamed tributary to the Yellow River each spring and fall.



| |
|---|
| Flow: 0.0115 MGD BOD: 19.6 lb/day Constructed: 1976 |
|---|

CORRESPONDENCE/MEMORANDUM

DATE: March 19, 2024

TO: Sheri Snowbank – NOR/Spooner Service Center

FROM: Michael Polkinghorn – NOR/Rhineland Service Center



SUBJECT: Water Quality-Based Effluent Limitations for the Lakeland Sanitary District #1
 WPDES Permit No. WI-0061387-11-0

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 Lakeland Sanitary District #1 in Barron County. This municipal wastewater treatment facility (WWTF) discharges to an unnamed tributary to the Yellow River, located in the Yellow River Watershed in the Lower Chippewa River Basin. This discharge is included in the Tainter Lake/Lake Menomin total maximum daily load report as approved by EPA. The evaluation of the permit recommendations is discussed in more detail in the attached report.

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

| Parameter | Daily Maximum | Daily Minimum | Weekly Average | Monthly Average | Six-Month Average | Annual Total | Footnotes |
|--|----------------------------|---------------|----------------|-----------------|-------------------|--------------|-----------|
| Flow Rate | | | | | | | 1 |
| BOD ₅ | | | | | | | 1 |
| TSS | | | | | | | 1 |
| pH | 9.0 s.u. | 6.0 s.u. | | | | | 2 |
| Dissolved Oxygen | | 4.0 mg/L | | | | | 2 |
| Ammonia Nitrogen | 2.1 mg/L or Variable | | | | | | 3 |
| Phosphorus | | | | | | | 4 |
| LCA Interim Limit | | | | 1.0 mg/L | | | |
| HAC Interim Limit | | | | 0.6 mg/L | | | |
| Final | | | | 0.23 mg/L | 0.076 mg/L | 43 lbs/yr | |
| TKN, Nitrate+Nitrite, and Total Nitrogen | | | | | | | 5 |

Footnotes:

1. Based on effluent BOD₅ and TSS data during the current permit term, the variance limits as described in s. NR 104.02(4)(c), Wis. Adm. Code, can be justified on the basis of effluent TSS during April – May. If Lakeland SD #1 wishes to pursue this option, the following limits are recommended:

Option 1 Limits

| Parameter | Daily Maximum | Daily Minimum | Weekly Average | Monthly Average |
|-----------|---------------|---------------|----------------|-----------------|
| Flow rate | | | | |

| Parameter | Daily Maximum | Daily Minimum | Weekly Average | Monthly Average |
|---------------------|---------------|---------------|----------------|-----------------|
| April – May | 0.013 MGD | | | |
| BOD ₅ | | | | |
| April – May | | | 45 mg/L | 30 mg/L |
| September – October | 30 mg/L | | | 15 mg/L |
| TSS | | | | |
| April – May | | | 45 mg/L | 30 mg/L |
| September – October | 30 mg/L | | | 20 mg/L |

If Lakeland SD #1 determines the flow rate limit is not feasible with the operation of the facility during April – May, the following limits are recommended with a compliance schedule for TSS:

Option 2 Limits

| Parameter | Daily Maximum | Daily Minimum | Weekly Average | Monthly Average |
|---------------------|---------------|---------------|----------------|-----------------|
| Flow rate | | | | |
| BOD ₅ | 30 mg/L | | | 15 mg/L |
| TSS | | | | |
| Interim | | | | |
| April – May | | | 45 mg/L | 30 mg/L |
| September – October | 30 mg/L | | | 20 mg/L |
| Final | 30 mg/L | | | 20 mg/L |

- No changes from the current permit.
- 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 of 2.1 mg/L. These limits apply year round.

Daily Maximum Ammonia Nitrogen Limits

| 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 |

- 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 are updated at 0.23 mg/L as a monthly average and 0.076 mg/L as a 6-month average. The final mass limit of 43 lbs/yr as an annual total is required because Fox Lake is approx. 0.44 mi downstream.

5. 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 (NO₃), nitrite (NO₂), 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. Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Codes, are not required due to the non-continuous nature of the discharge.

Please consult the attached report for details regarding the above recommendations. If there are any questions or comments, please contact Michael Polkinghorn at (715) 360-3379 or Michael.Polkinghorn@wisconsin.gov and Diane Figiel at Diane.Figiel@wisconsin.gov.

Attachments (3) – Narrative, discharge area map, & thermal table.

PREPARED BY: Michael A. Polkinghorn – Water Resources Engineer

E-cc: Carson Johnson, Wastewater Engineer – NOR/Spooner Service Center
Michelle BalkLudwig, Regional Wastewater Supervisor – NOR/Spooner Service Center
Diane Figiel, Water Resources Engineer – WY/3
Nathaniel Willis, Wastewater Engineer – WY/3

**Water Quality-Based Effluent Limitations for
Lakeland Sanitary District #1**

WPDES Permit No. WI-0061387-11-0

Prepared by: Michael A. Polkinghorn

PART 1 – BACKGROUND INFORMATION

Facility Description

Lakeland Sanitary District #1 (Lakeland SD #1) owns and operates a domestic wastewater treatment system. Treatment consists of three stabilization lagoons operated in series. Effluent discharged on a noncontinuous basis via Outfall 001 during April – May and September – October to the west bank of an unnamed tributary (UT) to the Yellow River, approx. 175 ft south of 30th Ave.

Attachment #2 is a discharge area map of Outfall 001.

Existing Permit Limitations

The current permit, expired on 09/30/2023, includes the following effluent limitations and monitoring requirements.

| Parameter | Daily Maximum | Daily Minimum | Weekly Average | Monthly Average | Six-Month Average | Annual Total | Footnotes |
|------------------|---------------|---------------|----------------|-----------------|-------------------|-------------------------|-----------|
| Flow Rate | | | | | | | 1 |
| BOD ₅ | | | 45 mg/L | 30 mg/L | | | 2 |
| TSS | | | 45 mg/L | 30 mg/L | | | 2 |
| pH | 9.0 s.u. | 6.0 s.u. | | | | | 2 |
| Dissolved Oxygen | | 4.0 mg/L | | | | | 2 |
| Phosphorus | | | | | | | 3 |
| LCA Interim | | | | 2.6 mg/L | | | |
| MDV Interim | | | | 1.0 mg/L | | | |
| Final | | | | 0.225 mg/L | 0.075 mg/L | 8.2 lbs/yr 46 lbs/yr | |
| Ammonia Nitrogen | | | | | | | 1 |

Footnotes:

1. Monitoring only.
2. These are variance limits as described in s. NR 104.02(4)(c), Wis. Adm. Code, applicable to fill and draw or domestic waste stabilization pond facilities discharging to a Limited Aquatic Life (LAL) or Limited Forage Fish (LFF) community receiving water. In absence of this variance, limits based on the LAL or LFF community of the receiving water as described in s. NR 104.02(3)(a) or (b), Wis. Adm. Code, shall apply.
3. The Limit Currently Achievable (LCA) interim limit was effective through 09/30/2020. The Multi-Discharger Variance (MDV) interim limit is currently effective starting from 10/01/2020.

Receiving Water Information

- Name: UT to the Yellow River
- Waterbody Identification Code (WBIC)
 - UT: 3000242
 - Yellow River: 2096100
- Classification used in accordance with chs. NR 102 and 104, Wis. Adm. Code:
 - UT: LFF community as described on Table 7, Row 18, of s. NR 104.09(2), Wis. Adm. Code, from Outfall 001 to Yellow River.
 - Yellow River: Warm Water Sport Fish (WWSF) community. This is approx. 0.44 mi downstream of Outfall 001.
 - All surface waterbodies are considered non-public water supplies. Limits based on the protection of downstream surface waterbodies' water quality will be considered when appropriate.
- Low flows used in accordance with chs. NR 106 and 217, Wis. Adm. Code:
 - Low flows for the UT were historically treated as zero in previous limit evaluations but are redetermined to reevaluate limits for conventional pollutants and other substances. The drainage area ratio is used to estimate the low flows of the UT at Outfall 001. The drainage area of the UT at Outfall 001 is approx. 565.99 acres or 0.88 mi² using the Purdue Watershed Delineation tool. Therefore, the multiplier ratio for an upstream estimation is approx. 0.82. The adjusted low flows for the UT are below:
 - 7-Q₁₀ = 0.06 cfs
 - 7-Q₂ = 0.13 cfs
 - The following 7-Q₁₀ and 7-Q₂ values are from the “Streams Natural Communities” layer in Surface Water Data Viewer for the UT at the confluence with the Yellow River:
 - 7-Q₁₀ = 0.07 cfs cubic feet per second (cfs)
 - 7-Q₂ = 0.16 cfs
 - Drainage area = 2.78 km² = 1.07 mi²
 - The following 7-Q₁₀ and 7-Q₂ values are from the “Streams Natural Communities” layer in Surface Water Data Viewer for the Yellow River at the confluence with the UT:
 - 7-Q₁₀ = 0.14 cfs
 - 7-Q₂ = 0.29 cfs
- % of low flow used to calculate limits in accordance with s. NR 106.06(4)(c)5., Wis. Adm. Code: 25%.
- Multiple dischargers: None.
- Impaired water status: There are no known impairments to the UT, Yellow River, or other surface waterbodies within a reasonable distance downstream of Outfall 001. Outfall 001 is included in the Tainter Lake/Lake Menomin total maximum daily load (TL/LM TMDL) report to address phosphorus water quality impairments inside the TMDL area.

Effluent Information

- Flow rate(s):
 - Maximum monthly average = 0.186 million gallons per day (MGD)
 - Annual average design = 0.0115 MGD
 - The maximum monthly average flow of 0.186 MGD, excluding days discharge did not occur, is used in place of the annual average design flow to account for the seasonal nature of the discharge. For reference, the actual average flow from October 2018 – January 2024 was

Attachment #1

0.123 MGD excluding days discharge did not occur. This flow becomes 0.00677 MGD including days discharge did not occur.

- 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 no industrial contributors. Water supply from wells.
- Total phosphorus wasteload allocation (WLA): 46 lbs/year = 0.13 lbs/day (see Table 5 of the TMDL report document, “*Phosphorus Total Maximum Daily Loads (TMDLs) Tainter Lake and Lake Menomin Dunn County, Wisconsin, May 2012*”, page 15”).
- Additives: None.
- Effluent characterization: This facility is categorized as a minor municipality and received instructions in the application notification letter that exempt it from standard monitoring requirements. Monitoring for ammonia nitrogen was required during the current permit term.

The following table presents the average concentrations and loadings at Outfall 001 from October 2018 – January 2024 for all parameters with limits in the current permit to meet the requirements of s. NR 201.03(6), Wis. Adm. Code:

| Parameter | Average Measurement* |
|------------------|----------------------|
| BOD ₅ | 9 mg/L |
| TSS | 14 mg/L |
| pH field | 7.9 s.u. |
| Dissolved Oxygen | 6.5 mg/L |
| Phosphorus | 0.99 mg/L |

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

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

Mercury – The permit application did not require monitoring for mercury because Lakeland SD #1 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).” Lakeland SD #1 was not required to sample sludge data during the current permit term. It is not expected that there are exceedances of the high-quality mercury concentration based on similar municipal treatment plants and the lack of industries. **Therefore, mercury monitoring is not recommended during the reissued permit term.**

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 during the reissued permit term.** 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 CONVENTIONAL POLLUTANTS**

The BOD₅ and TSS limits in the current permit are variance limits as described in s. NR 104.02(4)(c), Wis. Adm. Code, applicable to fill and draw or domestic waste stabilization pond facilities discharging to a LAL or LFF community receiving water. These current variance limits are reevaluated at this time because the lack of an effluent flow rate may not allow the receiving water condition as described in s. NR 104.02(4)(c)1, Wis. Adm. Code, to be met.

The designated use of the immediate receiving water (UT) is an LFF community. **In absence of the current variance, the following effluent limits are required to protect the LFF community water quality standards as described in s. NR 104.02(3)(a), Wis. Adm. Code:**

LFF Community Conventional Pollutant Limits

| Parameter | Daily Maximum | Daily Minimum | Weekly Average | Monthly Average |
|------------------|---------------|---------------|----------------|-----------------|
| BOD ₅ | 30 mg/L | | | 15 mg/L |
| TSS | 30 mg/L | | | 20 mg/L |
| Dissolved Oxygen | | 4.0 mg/L | | |
| pH | 9.0 s.u. | 6.0 s.u. | | |

BOD₅ & DO

In establishing BOD₅ limitations, the primary intent is to prevent a lowering of dissolved oxygen levels in the receiving water below water quality standards as specified in ss. NR 102.04(4)(a) and (b), Wis. Adm. Codes. The 26-lb method (13-lb method for cold water community streams) is the most frequently used approach for calculating BOD₅ limits when resources are not available to develop a detailed water quality model. This simplified model was developed in the 1970's by the Wisconsin Committee on Water Pollution on the Fox, Wisconsin, Oconto, and Flambeau Rivers. Further studies throughout the 1970's proved this model to be relatively accurate. The model has since then been used by the Department on many occasions when resources are not available to perform a site-specific model. The "26" value stems from the following equation:

$$\frac{26 \text{ lbs/day}}{\text{ft}^3/\text{sec}} * \frac{1 \text{ day}}{86,400 \text{ sec}} * \frac{454,000 \text{ mg}}{\text{lbs}} * \frac{1 \text{ ft}^3}{28.32 \text{ L}} = 4.8 = 2.4 * 2 \text{ mg/L}$$

The 4.8 mg/L has been calculated by taking 2.4 mg/L which is the number one receives when converting 26 lbs of BOD/day/cfs into mg/L, multiplied by 2.0 which is the change in the DO level for warm water community streams. Because the UT is a LFF community at the point of discharge, the multiplier becomes 9.6 mg/L (2.4 × 4). A typical background DO level for Wisconsin waters is 7 mg/L, so a 4 mg/L decrease is allowed to meet the 3 mg/L standard for LFF community streams. The above relationship is temperature dependent and an appropriate temperature correction factor is applied. The 26-lb method is based on a typical 24°C summer value for warm water streams. Adjustments for temperature are made

using the following equation:

$$k_t = k_{24} (0.967^{(T-24)})$$

Where $k_{24} = 26$ lbs of BOD/day/cfs

Calculations based on Full Assimilative Capacity at 7-Q₁₀ Conditions:

$$WA\ Limit\ \left(\frac{mg}{L}\right) = 2.4 * (DO_e - DO_{std}) * \frac{7Q_{10} + Q_e * (1 - f)}{Q_e} * 0.967^{T-24}$$

Where:

Q_e = effluent flow = 0.7 MGD

DO_{stream} = background dissolved oxygen = 7 mg/L

DO_{eff} = 4.0 mg/L

DO_{std} = dissolved oxygen criteria from s. NR 102.04(4), Wis. Adm. Code = 3 mg/L

7-Q₁₀ = 0.06 cfs

f = 0

DO_o = Initial mixed river DO = $\frac{DO_{eff} * Q_e + DO_{stream} * (7 - Q_{10} - Q_e * f)}{Q_e * (1 - f) + 7 - Q_{10}}$ = 4.5 mg/L

T = Receiving water temperatures from s. NR 102.25, Wis. Adm. Code.

The table below shows the calculated weekly average BOD₅ QBELs during April – May and September – October. Monthly receiving water temperatures are from s. NR 102.25, Wis. Adm. Code, and are averaged over discharge periods:

Calculated Weekly Average BOD₅ QBELs

| Parameter | April – May | Sept. – Oct. |
|------------------------------------|-------------|--------------|
| Effluent Flow (MGD) | 0.186 | 0.186 |
| River Flow 7-Q ₁₀ (cfs) | 0.06 | 0.06 |
| River Temperature (°F) | 55 | 59 |
| River Temperature (°C) | 13 | 15 |
| Effluent DO (mg/L) | 4.0 | 4.0 |
| Background DO (mg/L) | 7.0 | 7.0 |
| Mix DO (mg/L) | 4.5 | 4.5 |
| DO Criterion (mg/L) | 3.0 | 3.0 |
| f | 0 | 0 |
| Concentration Limits (mg/L) | 6.3 | 5.8 |

The weekly average BOD₅ QBELs in the table above are less than 45 mg/L, which is the maximum weekly average BOD₅ limit given to municipal facilities discharging to a warm or cold water community surface water. Therefore, the maximum monthly average flow rate of 0.186 MGD does not meet the receiving water condition as described in s. NR 104.02(4)(c)1, Wis. Adm. Code. An effluent flowrate can be found to meet the conditions of the variance via an iterative calculation process by setting the limit equal to 45 mg/L. For April – May and September – October, these effluent flows are 0.013 and 0.012 MGD respectively. **The Lakeland SD #1 would need to have the effluent flowrate limits of 0.013 and**

0.012 MGD during April – May and September – October respectively during the reissued permit term to keep the existing BOD₅ and TSS limits.

The following table summarizes effluent BOD₅ monitoring data from October 2018 – October 2023.

BOD₅ Effluent Data

| Sample Date | Weekly Avg. (mg/L) | Monthly Avg. (mg/L) |
|-------------|--------------------|---------------------|
| 10/09/2018 | 7 | 7 |
| 05/07/2019 | 10 | 10 |
| 10/07/2019 | 4 | 4 |
| 05/05/2020 | 11 | 11 |
| 10/19/2020 | 9 | 9 |
| 05/04/2021 | 22 | 22 |
| 10/19/2021 | 2 | 2 |
| 05/23/2022 | 5 | 5 |
| 10/04/2022 | 2 | 2 |
| 05/02/2023 | 14 | 15 |
| 05/08/2023 | 16 | |
| 10/10/2023 | 2 | 2 |

Lakeland SD #1 has an effluent BOD₅ monitoring frequency of weekly in the current permit where each sample is equivalent to a representative weekly average. This samples further serve as a monthly average based on the length of discharge per discharge season with the exception of May 2023. A review of this effluent data show the 30 mg/L daily maximum limit would not have been exceeded during the current permit term. The 15 mg/L monthly average limit would have been exceeded once during the current permit term. **Therefore, the variance limits as described in s. NR 104.02(4)(c), Wis. Adm. Code, do not appear to be needed on the basis of effluent BOD₅ concentrations.**

TSS

The following table summarizes effluent TSS monitoring data from October 2018 – October 2023.

TSS Effluent Data

| Sample Date | Weekly Avg. (mg/L) | Monthly Avg. (mg/L) |
|-------------|--------------------|---------------------|
| 10/09/2018 | 4 | 4 |
| 05/07/2019 | 10 | 10 |
| 10/07/2019 | 3 | 3 |
| 05/05/2020 | 25 | 25 |
| 10/19/2020 | 6 | 6 |
| 05/04/2021 | 32 | 32 |
| 10/19/2021 | 3 | 3 |
| 05/23/2022 | 7 | 7 |
| 10/04/2022 | 2 | 2 |
| 05/02/2023 | 22 | 34 |
| 05/08/2023 | 46 | |
| 10/10/2023 | 3 | 3 |

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Lakeland SD #1 has an effluent TSS monitoring frequency of weekly in the current permit where each sample is equivalent to a representative weekly average. This samples further serve as a monthly average based on the length of discharge per discharge season with the exception of May 2023. A review of this effluent data show the 30 mg/L daily maximum limit would have been exceeded twice during the current permit term. The 20 mg/L monthly average limit would have also been exceeded twice during the current permit term. **Therefore, the variance limits as described in s. NR 104.02(4)(c), Wis. Adm. Code, can be justified on the basis of effluent TSS during April - May. The flow rate limit of 0.013 MGD would be needed during April – May with the current BOD₅/TSS limits.**

If Lakeland SD #1 determines the flow rate limit is not feasible with the operation of the facility during April – May, an interim limit is required when a compliance schedule is needed in the permit to meet the TSS limits as described in s. NR 104.02(3)(a), Wis. Adm. Code. The interim limit should reflect a concentration that the facility is able to meet without investing in additional “temporary” treatment, but also should prevent backsliding from current conditions. **Therefore, the current TSS limits of 45 mg/L as a weekly average and 30 mg/L as a monthly average are recommended to serve as the interim limits for a potential compliance schedule.**

Conclusions & Recommendations

Based on effluent BOD₅ and TSS data during the current permit term, the variance limits as described in s. NR 104.02(4)(c), Wis. Adm. Code, can be justified on the basis of effluent TSS during April – May. If Lakeland SD #1 wishes to pursue this option, the following limits are recommended:

Option 1 Limits

| Parameter | Daily Maximum | Daily Minimum | Weekly Average | Monthly Average |
|--|---------------|---------------|----------------|--------------------|
| Flow rate April – May | 0.013 MGD | | | |
| BOD ₅ April – May September – October | 30 mg/L | | 45 mg/L | 30 mg/L 15 mg/L |
| TSS April – May September – October | 30 mg/L | | 45 mg/L | 30 mg/L 20 mg/L |
| Dissolved Oxygen | | 4.0 mg/L | | |
| pH | 9.0 s.u. | 6.0 s.u. | | |

If Lakeland SD #1 determines the flow rate limit is not feasible with the operation of the facility during April – May, the following limits are recommended with a compliance schedule for TSS:

Option 2 Limits

| Parameter | Daily Maximum | Daily Minimum | Weekly Average | Monthly Average |
|------------------|---------------|---------------|----------------|-----------------|
| Flow rate | | | | |
| BOD ₅ | 30 mg/L | | | 15 mg/L |
| TSS | | | | |

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| Parameter | Daily Maximum | Daily Minimum | Weekly Average | Monthly Average |
|---|---------------|---------------|----------------|--------------------|
| Interim April – May September – October | 30 mg/L | | 45 mg/L | 30 mg/L 20 mg/L |
| Final | 30 mg/L | | | 20 mg/L |
| Dissolved Oxygen | | 4.0 mg/L | | |
| pH | 9.0 s.u. | 6.0 s.u. | | |

**PART 4 – 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. Given the fact that Lakeland SD #1 does not currently have ammonia nitrogen limits, the need for limits is evaluated at this time.

Daily Maximum Limits based on Acute Toxicity Criteria (ATC)

Daily maximum limitations are based on acute toxicity criteria (ATC) in ch. NR 105, Wis. Adm. Code, which are a function of the effluent pH and the receiving water classification. The 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 an LFF community, and
pH (s.u.) = that characteristic of the effluent.

The effluent pH data was examined as part of this evaluation. A total of 12 sample results were reported from October 2018 – October 2023. The maximum reported value was 8.8 s.u. (Standard pH Units). The 1-day P₉₉, calculated in accordance with s. NR 106.05(5), Wis. Adm. Code, is 10.2 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 10.0 s.u. Effluent pH values above 9.0 s.u. are not considered appropriate for use since the facility must comply with the daily maximum pH limit of 9.0 s.u. The effluent pH samples also did not reach a value of 9.0 s.u. Therefore, a value of 8.8 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 8.8 s.u. into the equation above yields an ATC = 1.84 mg/L.

Acute Limits based on 1-Q₁₀

Daily maximum effluent limitations for toxic substances are based on the 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-Q₁₀ 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.

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

Where:

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

Q_s = average minimum 1-day flow which occurs once in 10 years (1-day Q₁₀)
 if the 1-day Q₁₀ flow data is not available = 80% of the average minimum 7-day flow
 which occurs once in 10 years (7-day Q₁₀).

Q_e = 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_s = 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-Q₁₀ method of limit calculation produces the most stringent daily maximum limitations and should be used while making reasonable potential determinations. The calculated daily maximum ammonia nitrogen effluent limits using the mass balance approach with the 1-Q₁₀ (estimated as 80 % of 7-Q₁₀) and the 2×ATC approach are shown below.

Daily Maximum Ammonia Nitrogen Determination

| Method | Ammonia Nitrogen Limit (mg/L) |
|-------------------|-------------------------------|
| 2×ATC | 3.7 |
| 1-Q ₁₀ | 2.1 |

The 1-Q₁₀ method yields the most stringent limits for Lakeland SD #1.

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 – LFF Community

| 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 | 63 | 7.0 < pH ≤ 7.1 | 38 | 8.0 < pH ≤ 8.1 | 8.1 |
| 6.1 < pH ≤ 6.2 | 62 | 7.1 < pH ≤ 7.2 | 34 | 8.1 < pH ≤ 8.2 | 6.6 |
| 6.2 < pH ≤ 6.3 | 60 | 7.2 < pH ≤ 7.3 | 30 | 8.2 < pH ≤ 8.3 | 5.5 |
| 6.3 < pH ≤ 6.4 | 59 | 7.3 < pH ≤ 7.4 | 27 | 8.3 < pH ≤ 8.4 | 4.5 |
| 6.4 < pH ≤ 6.5 | 57 | 7.4 < pH ≤ 7.5 | 23 | 8.4 < pH ≤ 8.5 | 3.7 |
| 6.5 < pH ≤ 6.6 | 54 | 7.5 < pH ≤ 7.6 | 20 | 8.5 < pH ≤ 8.6 | 3.1 |
| 6.6 < pH ≤ 6.7 | 52 | 7.6 < pH ≤ 7.7 | 17 | 8.6 < pH ≤ 8.7 | 2.6 |
| 6.7 < pH ≤ 6.8 | 49 | 7.7 < pH ≤ 7.8 | 14 | 8.7 < pH ≤ 8.8 | 2.1 |
| 6.8 < pH ≤ 6.9 | 45 | 7.8 < pH ≤ 7.9 | 12 | 8.8 < pH ≤ 8.9 | 1.8 |
| 6.9 < pH ≤ 7.0 | 42 | 7.9 < pH ≤ 8.0 | 9.7 | 8.9 < pH ≤ 9.0 | 1.5 |

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

The ammonia limit calculation also warrants evaluation of weekly and monthly average limits based on chronic toxicity criteria (CTC) for ammonia, because those limits relate to the assimilative capacity of the receiving water. Therefore, limits based on the UT will be reevaluated at this time.

The Department must establish limits to protect downstream uses, according to s. NR 106.32(1)(b), Wis. Adm. Code, so weekly and monthly average limits for the Yellow River will also be evaluated at this time. Ammonia decay may be considered when determining limits at the outfall to protect the downstream classification, according to s. NR 106.32(4)(c), Wis. Adm. Code. Where the calculated limits are more restrictive based on downstream uses, ammonia decay can be considered to determine if these more restrictive limits are needed or if the ammonia will decay before it reaches the point of the classification change. The classification changes to a WWSF community at the Yellow River at approx. 0.44 mi downstream of Outfall 001. At this distance the amount of ammonia decay occurring in the UT is expected to be negligible. Therefore, the weekly and monthly average limits for the Yellow River will be calculated as if the discharge was located at the Yellow River.

LFF Community (UT)

The 30-day CTC for ammonia in waters classified as a LFF community is calculated by the following equation, according to subchapter IV of NR 106, Wis. Adm. Code.

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

Where:

pH = the pH (s.u.) of the receiving water,

E = 1.0,

C = the minimum of 3.09 or $3.73 \times 10^{(0.028 \times (25 - T))}$ – (Early Life Stages Present), or

C = $3.73 \times 10^{(0.028 \times (25 - T))}$ – (Early Life Stages Absent), and

T = the temperature (°C) of the receiving water – (Early Life Stages Present), or

T = the maximum of the actual temperature (°C) and 7 - (Early Life Stages Absent)

The 4-day criterion is equal to the 30-day criterion multiplied by 2.5. The 4-day criteria are used in a mass-balance equation with the 7-Q₁₀ (4-Q₃, if available) to derive weekly average limitations. And the 30-day criteria are used with the 30-Q₅ (estimated as 85% of the 7-Q₂ if the 30-Q₅ 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 °C, 25% of the flow is used if the Temperature < 11 °C, and 50% of the flow is used if the Temperature ≥ 11 °C but < 16 °C.

Section NR 106.32 (3), Wis. Adm. Code, provides 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 °C, during the winter and spring months. Burbot, an early spawning species, are not believed to be present in the UT based the footnote as described in. s. NR 106.32(3)(a)4, Wis. Adm. Code. So “ELS Absent” criteria apply from October – April, and “ELS Present” criteria will apply from May – September for a LFF community.

The “default” basin assumed values are used for temperature and background ammonia concentrations, because minimum ambient data is available. The statewide average pH value of 7.5 s.u. is used due to lack of receiving water pH or hardness data. These values are shown in the table below, with the resulting criteria and effluent limitations.

Weekly and Monthly Ammonia Nitrogen Limits – LFF Community

| | | April – May | Sept. – Oct. |
|----------------------------------|------------------------------|-------------|--------------|
| Effluent Flow | Qe (MGD) | 0.186 | 0.186 |
| Background Information | 7-Q ₁₀ (cfs) | 0.06 | 0.06 |
| | 7-Q ₂ (cfs) | 0.13 | 0.13 |
| | Ammonia (mg/L) | 0.07 | 0.03 |
| | Average Temperature (°C) | 13 | 15 |
| | Maximum Temperature (°C) | 15 | 17 |
| | pH (s.u.) | 7.5 | 7.5 |
| | % of Flow used | 50 | 50 |
| | Reference Weekly Flow (cfs) | 0.03 | 0.03 |
| | Reference Monthly Flow (cfs) | 0.06 | 0.06 |
| Criteria mg/L | 4-day Chronic | | |
| | Early Life Stages Present | 13.85 | |
| | Early Life Stages Absent | | 27.60 |
| | 30-day Chronic | | |
| | Early Life Stages Present | 5.54 | |
| | Early Life Stages Absent | | 11.04 |
| Effluent Limitations mg/L | Weekly Average | | |
| | Early Life Stages Present | 15 | |
| | Early Life Stages Absent | | 30 |
| | Monthly Average | | |
| | Early Life Stages Present | 6.6 | |
| | Early Life Stages Absent | | 13 |

WWSF Community (Yellow River)

The 30-day chronic toxicity criterion (CTC) for ammonia in waters classified as a WWSF community is calculated by the following equation, according to subchapter IV of NR 106, Wis. Adm. Code.

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

Where:

pH = the pH (s.u.) 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 (°C) of the receiving water – (Early Life Stages Present), or

T = the maximum of the actual temperature (°C) and 7 - (Early Life Stages Absent)

The 4-day criterion is equal to the 30-day criterion multiplied by 2.5. The 4-day criteria are used in a mass-balance equation with the 7-Q₁₀ (4-Q₃, if available) to derive weekly average limitations. And the 30-day criteria are used with the 30-Q₅ (estimated as 85% of the 7-Q₂ if the 30-Q₅ 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 °C, 25% of the flow is used if the Temperature < 11 °C, and 50% of the flow is used if the Temperature ≥ 11 °C but < 16 °C.

Section NR 106.32 (3), Wis. Adm. Code, provides 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 °C, during the winter and spring months. Burbot, an early spawning species, are not believed to be present in the Yellow River

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based on raw fish data in the Fisheries Management Information System. So “ELS Absent” criteria apply from October – March, and “ELS Present” criteria will apply from April – September for a WWSF community.

The “default” basin assumed values are used for temperature and background ammonia concentrations, because minimum ambient data is available. The statewide average pH value of 7.5 s.u. is used due to lack of receiving water pH or hardness data. These values are shown in the table below, with the resulting criteria and effluent limitations.

Weekly and Monthly Ammonia Nitrogen Limits – WWSF Community

| | | April – May | Sept. – Oct. |
|----------------------------------|------------------------------|-------------|--------------|
| Effluent Flow | Qe (MGD) | 0.186 | 0.186 |
| Background Information | 7-Q ₁₀ (cfs) | 0.06 | 0.06 |
| | 7-Q ₂ (cfs) | 0.13 | 0.13 |
| | Ammonia (mg/L) | 0.07 | 0.03 |
| | Average Temperature (°C) | 12 | 13 |
| | Maximum Temperature (°C) | 14 | 16 |
| | pH (s.u.) | 7.5 | 7.5 |
| | % of Flow used | 50 | 50 |
| | Reference Weekly Flow (cfs) | 0.03 | 0.03 |
| | Reference Monthly Flow (cfs) | 0.06 | 0.06 |
| Criteria mg/L | 4-day Chronic | | |
| | Early Life Stages Present | 10.58 | |
| | Early Life Stages Absent | | 9.16 |
| | 30-day Chronic | | |
| | Early Life Stages Present | 4.23 | |
| Early Life Stages Absent | | 3.67 | |
| Effluent Limitations mg/L | Weekly Average | | |
| | Early Life Stages Present | 12 | |
| | Early Life Stages Absent | | 10 |
| | Monthly Average | | |
| | Early Life Stages Present | 5.0 | |
| Early Life Stages Absent | | 4.4 | |

Upon comparison of the calculated weekly and monthly average ammonia nitrogen limits, the limits based on the Yellow River are more stringent than the UT. Therefore, the Yellow River limits are most applicable to Outfall 001.

Effluent Data

The following table evaluates the statistics based upon ammonia data reported from October 2018 – October 2023, with those results being compared to the calculated limits to determine the need to include ammonia limits in the Lakeland SD #1 permit for the respective month ranges. That need is determined by calculating 99th upper percentile (or P₉₉) values for ammonia during each of the month ranges and comparing the daily maximum values to the daily maximum limit.

Ammonia Nitrogen Effluent Data

| Sample Date | Conc. (mg/L) |
|-------------|--------------|
| 10/09/2018 | 1.4 |

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| | |
|------------------------|------------|
| 05/07/2019 | 5.2 |
| 10/07/2019 | 0.7 |
| 05/05/2020 | 1.2 |
| 10/19/2020 | 3.3 |
| 05/04/2021 | 0.2 |
| 10/19/2021 | 1.8 |
| 05/23/2022 | 2.2 |
| 10/04/2022 | 1.8 |
| 05/02/2023 | 7.3 |
| 05/08/2023 | 2.7 |
| 10/10/2023 | 0.8 |
| 1-day P ₉₉ | 10.2 |
| 4-day P ₉₉ | 5.7 |
| 30-day P ₉₉ | 3.4 |
| Mean | 2.4 |
| Std | 2.1 |
| Sample size | 12 |
| Range | <0.1 - 7.3 |

Based on this comparison, **daily maximum limits are recommended year round during the reissued permit term. Lakeland SD 1 shall notify the Department if the single limit of 2.1 mg/L or the variable daily maximum ammonia nitrogen limits based on effluent pH are preferred.**

PART 5 – 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.

It is recognized Lakeland SD 1 potentially has a detention time of at least 180 days, in which the resulting discharged effluent is thought to not pose a risk to human and animal health, as described in s. NR 210.06(3)(h), Wis. Adm. Code.

The maximum 180-day rolling average flowrate for the facility is 0.014 MGD (October 2018 – January 2024) including days discharge did not occur. The volumetric capacity of the lagoons is approx. 7.8 MG, calculated based on dimensions provided by the facility. Therefore, the estimated shortest detention time for the facility is approximately $7.8 \text{ MG} / 0.014 \text{ MGD} = 541$ days and is significantly greater than the 180-day minimum. This detention time is essentially providing disinfection where additional disinfection

treatment is not expected to be needed. **Therefore, bacteria limits or monitoring are not recommended during the reissued permit term.**

PART 6 – 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.

Lakeland SD #1 currently has a monthly average limit of 1.0 mg/L as part of the phosphorus MDV, which is as stringent as the technology-based limit. **Therefore, a technology-based limit for phosphorus is not recommended during the reissued permit term.**

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.

The Tainter Lake/Lake Menomin TMDL report was written to ensure that phosphorus water quality criteria are attained in Tainter Lake and Lake Menomin and are not necessarily protective of phosphorus water quality of other surface waterbodies in the TMDL area. Therefore, the need for a phosphorus WQBEL as described in s. NR 217.13, Wis. Adm. Code, must be considered in addition to any limits required by the TMDL report.

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 UT.

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 UT.

Qs = 100% of the 7-Q₂ of 0.13 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 = 0.186 MGD = 0.287 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

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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.

The previous limit evaluation (January 2018) resulted in a WQBEL of 0.075 mg/L because the low flows in the UT were treated as zero. 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.

A review of all available in stream total phosphorus data stored in the Surface Water Integrated Monitoring System database shows there is no updated background phosphorus data for the UT upstream of Outfall 001. Therefore, background phosphorus data of similar surface waterbodies will be used. An estimate of the background phosphorus concentration of 0.0735 mg/L is based on the median phosphorus concentration (n = 6, May 2018 – October 2018) of the Unnamed Granite Lake Inlet 200 yards above Granite Lake (SWIMS ID: 10022924). Substituting a median value of 0.0735 mg/L into the limit calculation equation above, the calculated limit is 0.076 mg/L.

The facility may opt to sample the receiving water upstream of the Outfall 001 since there are no background phosphorus data available for the UT. The WQBEL may be amended if background phosphorus stream data, collected during the period of May – October and with regards to other stipulations laid out in s. NR 217.13(2)(d), Wis. Adm. Code, is submitted to the Department that shows the upstream concentration of total phosphorus is in fact less than the applicable criterion. For informational purposes only, the following table shows a range of limits based on possible background concentrations. This calculation is based on effluent flow 0.186 MGD and stream flow (7-Q₂) of 0.13 cfs at the criterion of 0.075 mg/L in accordance with s. NR 217.13(2), Wis. Adm. Code.

Total Phosphorus Background Concentrations & Limits

| Upstream 'Concentrations' mg/L | Corresponding P Limit mg/L |
|-----------------------------------|-------------------------------|
| 0.02 | 0.10 |
| 0.03 | 0.096 |
| 0.04 | 0.091 |
| 0.05 | 0.086 |
| 0.06 | 0.082 |
| 0.07 | 0.077 |
| > = 0.075 | 0.075 |

Fox Lake (WBIC: 2101900), approx. 1.2 mi downstream of Outfall 001, is considered for downstream protection with respect to phosphorus water quality standards because it has a more stringent phosphorus criterion than the UT. Fox Lake has a stratified deep seepage lake hydrology as determined in the “Lake Natural Communities” layer in Surface Water Data Viewer, where the phosphorus criterion of 0.020 mg/L as described in s. NR 102.06(4)(b)4, Wis. Adm. Code, applies. Because the downstream water is an inland lake, the effluent limit will be set equal to the criterion of 0.020 mg/L as described in s. NR 217.13(3), Wis. Adm. Code.

The checklist to consider downstream protection for phosphorus limit decisions was utilized for Lakeland SD #1 for Fox Lake. Fox Lake is currently not impaired for total phosphorus and background phosphorus samples are not available to determine if Fox Lake’s phosphorus water quality criterion is attained.

Therefore, downstream phosphorus protections for Fox Lake cannot be determined at this time.

Effluent Data

The following table summarizes effluent total phosphorus monitoring data from October 2018 – October 2023 for informational purposes.

Total Phosphorus Effluent Data

| Sample Date | Conc. (mg/L) |
|------------------------|--------------|
| 10/09/2018 | 0.32 |
| 05/07/2019 | 1.3 |
| 10/07/2019 | 0.93 |
| 05/05/2020 | 0.98 |
| 10/19/2020 | 0.15 |
| 05/04/2021 | 1.17 |
| 10/19/2021 | 1.9 |
| 05/23/2022 | 1.24 |
| 10/04/2022 | 0.62 |
| 05/02/2023 | 1.48 |
| 05/08/2023 | 1.12 |
| 10/10/2023 | 0.65 |
| 1-day P ₉₉ | 2.65 |
| 4-day P ₉₉ | 1.70 |
| 30-day P ₉₉ | 1.22 |
| Mean | 0.99 |
| Std | 0.49 |
| Sample size | 12 |
| Range | 0.15 - 1.9 |

Reasonable potential is not evaluated for the need of the phosphorus WQBEL in the permit because Lakeland SD #1 is already under a phosphorus MDV plan to meet the phosphorus WQBELs in the future.

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 0.076 mg/L may be expressed as a 6-month average.** If a concentration limitation expressed as a six-month average is included in the permit, **a monthly average concentration limitation of 0.23 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 upstream of an inland lake (Fox Lake). This final mass limit shall be $0.076 \text{ mg/L} \times 0.186 \text{ MGD} \times 8.34 \times 365 \text{ days/yr} = 43 \text{ lbs/yr}$ **expressed as an annual total** as described in s. NR 217.14(1)(c) Wis. Adm. Code. Although this is an increase from the previously calculated annual total limit of 8.2 lbs/yr, this does not meet the definition of an increased discharge in ch. NR 207, Wis. Adm. Code, because there is a

compliance schedule and the limit was not in effect; therefore, antidegradation does not need to be considered.

TMDL Limit

The TL/LM TMDL expresses WLAs for TP as maximum annual loads (pounds per year) and maximum daily loads (pounds per day), which equal the maximum annual loads divided by the number of days in the year. For Lakeland SD #1, these phosphorus WLAs are 46 lbs/yr and 0.13 lbs/day.

For the reasons explained in the April 30, 2012 paper entitled *Justification for Use of Monthly, Growing Season and Annual Average Periods for Expression of WPDES Permit Limits for Phosphorus Discharges in Wisconsin*, WDNR has determined that the phosphorus WQBELs set equal to WLAs would not be consistent with the assumptions and requirements of the TMDL. Therefore, limits given to facilities included in the TL/LM TMDL are given monthly average mass limits since the TL/LM TMDL WLAs are derived on an effluent concentration of 1 mg/L or greater. The exception is for noncontinuous dischargers the WLA may be expressed directly as an annual total. Because Lakeland SD #1 is a noncontinuous discharger, phosphorus limits will be set equal to the WLA as a maximum annual total during time periods when the discharge occurs. Therefore, the annual total limit of 46 lbs/yr would be recommended.

Because the annual total limit based on Fox Lake is more stringent, the TMDL limit is not recommended during the reissued permit term.

Multi-Discharge Variance Interim Limit

With the permit application, Lakeland SD #1 has re-applied for the phosphorus MDV. Conditions of the phosphorus MDV require the facility to comply with an interim phosphorus limit in lieu of meeting the final WQBEL. Section 283.16(6)1, Wis. Stats. **requires an interim limit of 0.6 mg/L as a monthly average for the second permit term under the MDV.** However, if 0.6 mg/L does not represent the highest attainable condition, a more stringent limit should be met by the end of the permit term pursuant s. 283.16 (7), Wis. Stats. A compliance schedule may be appropriate to meet this interim limit but shall be no later than the end of the reissued permit.

The effluent data indicates that 4-day P₉₉ value of 1.7 mg/L is the level currently achievable (LCA) for the discharge based on effluent phosphorus data from October 2018 – October 2023. This is less stringent than the effective interim limit of 1.0 mg/L. **Therefore, the monthly average limit of 1.0 mg/L is recommended and should not be exceeded during the compliance schedule.**

PART 7 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR THERMAL

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

In accordance with s. NR 106.53(2)(b), Wis. Adm. Code, the highest daily maximum flow rate for a calendar month is used to determine the acute (daily maximum) effluent limitation. In accordance with s. NR 106.53(2)(c), Wis. Adm. Code, the highest 7-day rolling average flow rate for a calendar month is used to determine the sub-lethal (weekly average) effluent limitation. Downstream impacts with respect to

Attachment #1

the WWSF community of the Yellow River approx. 0.44 mi downstream are also considered with weekly average temperature limits. These values were based off actual flow reported from October 2018 – October 2023.

The heat loss equation as described by s. NR 106.55(5), Wis. Adm. Code, is used for discharges to storm sewer/storm water conveyance channels where the default cooling rate is estimated as 1 °F per 400 ft and is used to estimate the given cooling over the 0.44 mi between Outfall 001 and the classification change. This is considered conservative for open-channel flow especially during the winter months where the heat loss is expected to be more significant than estimated.

In this case the weekly average limits of the UT are more stringent than the cooling adjusted weekly average limits of the Yellow River. Therefore, downstream impacts for the Yellow River with respect to temperature are not needed. The following daily maximum effluent limitations are representative of the thermal water quality protection of the UT LFF community. The complete temperature limit calculation is included as attachment #3. The limits are shown in the table below:

Monthly Temperature Limits

| Month | Calculated Effluent Limit | |
|-------|------------------------------------|-----------------------------------|
| | Weekly Average Effluent Limitation | Daily Maximum Effluent Limitation |
| | (°F) | (°F) |
| MAY | 71 | 86 |
| OCT | 63 | 84 |

This facility provides hydraulic detention times of approx. 541 days as a worst case scenario, elevated effluent temperatures are unlikely, and discharge temperatures are expected to be similar to ambient conditions. The facility uses a fill and draw method of operation with effluent discharges occurring only during the cool weather periods in spring and fall when ambient temperatures are less than 63 °F.

Therefore, temperature limits or monitoring are not recommended during the reissued permit term.

PART 8 – WHOLE EFFLUENT TOXICITY (WET)

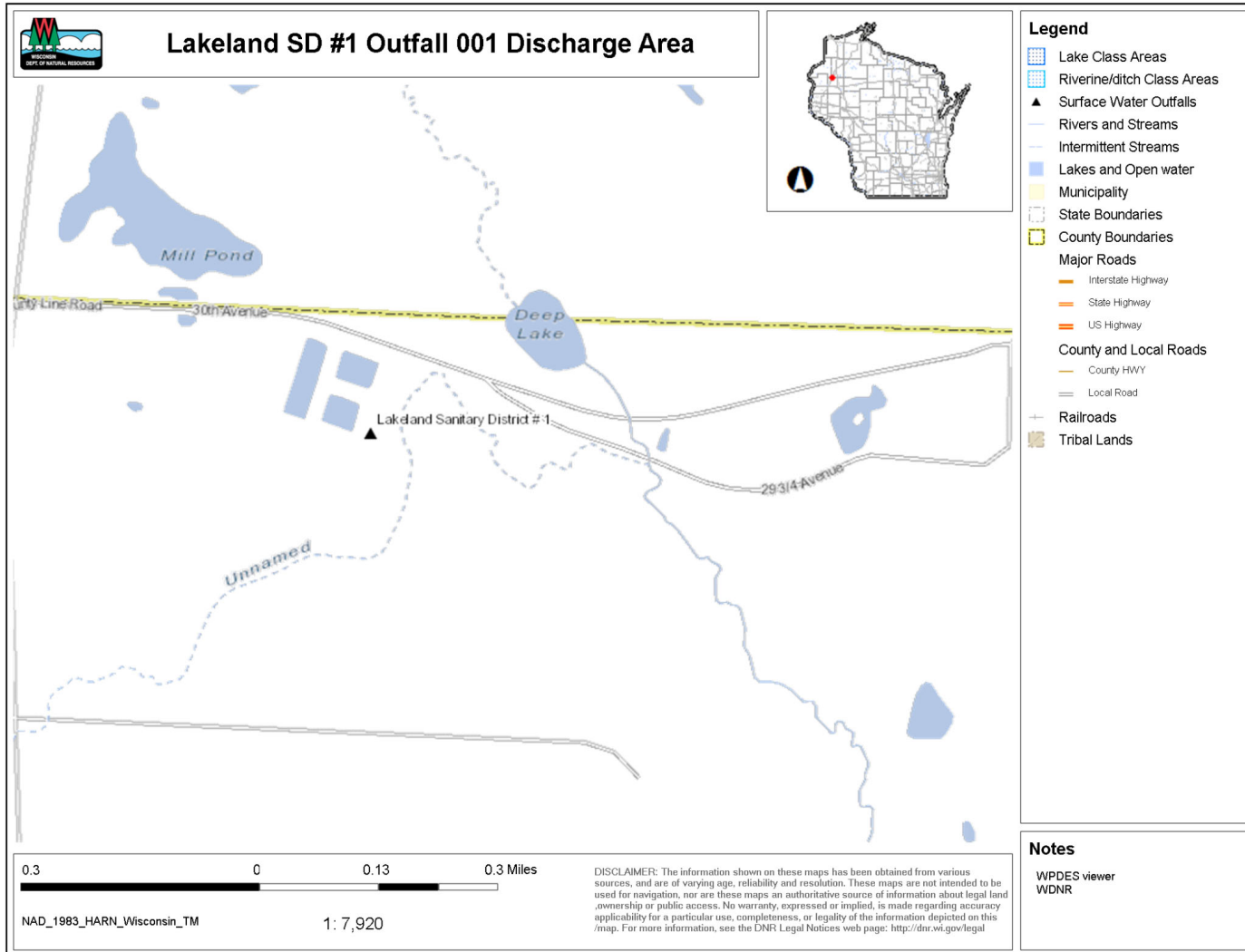
WET testing is used to measure, predict, and control the discharge of toxic materials that may be harmful to aquatic life. In WET tests, organisms are exposed to a series of effluent concentrations for a given time and effects are recorded. Decisions below related to the selection of representative data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

Attachment #1

domestic wastewater, with no history of WET failures and no toxic compounds detected at levels of concern. **Therefore, WET testing is not recommended during the reissued permit term.**

Attachment #2



Temperature Limits for Receiving Waters with Unidirectional Flow

(calculation using default ambient temperature data)

| | | | | | | | |
|-------------------------------------|----------------|---|-------------------------------|-------------------|----|-------------------|----------|
| Facility: | Lakeland SD #1 | 7-Q₁₀: | 0.06 cfs | Temp Dates | | Flow Dates | |
| Outfall(s): | 001 | Dilution: | 25% | Start: | NA | | 10/01/18 |
| Date Prepared: | 2/19/2024 | f: | 0 | End: | NA | | 10/31/23 |
| Design Flow (Q_e): | 0.186 MGD | Stream type: | Limited forage fish community | | | | |
| Storm Sewer Dist. | 0 ft | Q_s:Q_e ratio: | 0.0 :1 | | | | |
| | | Calculation Needed? | YES | | | | |

| Month | Water Quality Criteria | | | Receiving Water Flow Rate (Q _s) (cfs) | Representative Highest Effluent Flow Rate (Q _e) | | f | Representative Highest Monthly Effluent Temperature | | Calculated Effluent Limit | |
|-------|----------------------------------|------------------------|-------------------|--|---|---|---|---|-----------------------|--|---|
| | T _a (default) (°F) | Sub-Lethal WQC (°F) | Acute WQC (°F) | | 7-day Rolling Average (Q _{esl}) (MGD) | Daily Maximum Flow Rate (Q _{ea}) (MGD) | | Weekly Average (°F) | Daily Maximum (°F) | Weekly Average Effluent Limitation (°F) | Daily Maximum Effluent Limitation (°F) |
| MAY | 59 | 70 | 84 | 0.06 | 0.130 | 0.130 | 0 | | | 71 | 86 |
| OCT | 55 | 63 | 83 | 0.06 | 0.186 | 0.186 | 0 | | | 63 | 84 |

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

Lakeland Sanitary District #1

| | |
|---|-------------------------|
| WPDES Permit Number WI- 0 0 6 1 3 8 7 | County Barron |
|---|-------------------------|

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

| | | | | |
|---|----------------------|---|--|---|
| 7. What is the current effluent level achievable? | | | | |
| Outfall Number(s) 001 | Conc. (mg/L) 1.00 | Method for calculation: <input checked="" type="radio"/> 30-day P99 <input type="radio"/> Other, specify: | Does this concur with application? <input checked="" type="radio"/> Yes <input type="radio"/> No, why not: | 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, consistent with s. 283.16 (6)(a)2., Wis. Stats.
 Target Value = 0.2 mg/L

Provide Rationale:

Limited effluent phosphorus data from the past three years indicate that roughly 1.0 mg/L is achieved, but values as low as 0.62 mg/L have been observed. The interim limit may be increased beyond 0.6 mg/L if the provisions of s. 283.16(6)(am) Wis. Stats. are followed.

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.

| | | |
|---|---|---|
| <p>9. <i>For Industries Only-</i> Where does the phosphorus in the effluent come from? (check all that apply)</p> | <p><input type="checkbox"/> Process <input type="checkbox"/> Additive Usage <input type="checkbox"/> Water supply</p> <p><i>Can intake credits be given or can the facility use an alternative water supply?</i></p> <p><input type="radio"/> Not feasible <input type="radio"/> Possibly, but further analysis needed <input type="radio"/> Not evaluated at this time</p> | <p><i>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.</i></p> |
| <p>10. Has this facility optimized?</p> | <p><input type="radio"/> Yes <input checked="" type="radio"/> In progress <input type="radio"/> No</p> | <p><i>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.</i></p> |
| <p>11. Has a facility plan/compliance alternative plan been completed for the facility?</p> | <p><input checked="" type="radio"/> Yes <input type="radio"/> In progress <input type="radio"/> No</p> | <p><i>See Q15 on municipal form & Q17 on industrial form.</i></p> |
| <p>12. What is the projected cost for complying with phosphorus?</p> <p style="text-align: right;">Source:</p> | <p>\$ <u>6,340,000.00</u></p> <p>MDV Application - initial estimate from 2017 updated via inflation factor. See notes below.</p> | <p><i>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.</i></p> |

Comments on planning efforts:

Lakeland SD#1 submitted a final compliance alternatives plan in December 2017, followed by an amendment in March 2018 after the Department requested additional information. Spray irrigation, regionalization, tertiary filtration, and watershed approaches are evaluated. Optimization of chemical addition occurred following construction. Watershed approaches, WQT and AM, due to personnel constraints neither are deemed viable at this time. The lowest cost viable compliance option, ultrafiltration, was provided a site-specific cost estimate and is used in the economic demonstration below.

| | | |
|---|---|---|
| <p>13. Are adaptive management and water quality trading viable?</p> | <p><input type="radio"/> Yes <input type="radio"/> Perhaps. Additional analysis required. <input checked="" type="radio"/> No</p> | <p><i>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.</i></p> |
| <p>14. Has the point source met the appropriate primary screener?</p> | <p><input checked="" type="radio"/> Yes <input type="radio"/> No. STOP- facility not eligible.</p> | <p><i>See Q4 of this form in addition to the "eligibility" guidance in Section 2.01 of the MDV Implementation Guidance.</i></p> |

Comments on economic demonstration:

The MDV application cites 2017 costs and updated these to present-day dollars. However, no supporting documentation was provided and it is not clear how costs roughly tripled between 2017 and 2023. Absent specific methods and supporting documentation, general inflation (CPI) must be used. Capital costs were initially estimated at \$988,000, which would inflate to \$1,237,352 between January 2017 and May 2023. Annual O&M was initially estimated at \$63,000 would inflate to \$78,900. Assuming a CWFPP loan at 2.1% interest for 20 years, annual payments on capital costs would be \$75,820. With O&M, increased costs would total to \$154,720. At a 76% residential use rate, this cost becomes \$117,587. Divided amongst 55 customer households, the per-user rate increase would be \$2,137.95 annually. Existing rates are \$348/yr, so future rates would be \$2,485.95/yr. This value is 3.86% of Lakeland's \$64,423 median household income. In Barron County with a secondary indicator score of 6, sewer rates at 1% of MHI meets the primary screener. The applicant meets the primary screener.

15. What watershed option was selected?

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

Section 4. Watershed Plan Review

16. MDV Plan Number:

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

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

- Yes
- No

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

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

19. What is the annual offset required?

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

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:

\$ 62.65

See "Payment Calculator" document at

[\\central\water\WQWT_PROJECTS\WY_CW_Phosphorus\MDV.](#)

Section 6. Determination

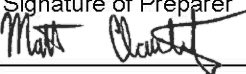
Based on the available information, the MDV application is:

- Approved
- Request for more information
- Denied

Save

Additional Justification (if needed):

Note that this facility needs MDV coverage for all months of the year, rather than a subset of months as indicated on the application.

| Certification | |
|---|--|
| Preparer Name Matt Claucherty | Title Water Resources Management Specialist |
| Signature of Preparer  | Date 6/27/2023 |

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.



6/27/2023

Timothy Nickell
785 30th Ave
Barronett, WI 54813

Subject: Conditional approval of a multi-discharger phosphorus variance
Receiving Stream: Tributary to the Yellow River in Barron County
Permittee: Lakeland Sanitary District #1, WPDES WI-0061387

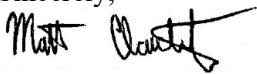
Dear Mr. Nickell:

In accordance with s. 283.16 of the Wisconsin Statutes, you have requested coverage under Wisconsin's multi-discharger phosphorus variance for the Lakeland Sanitary District #1 Wastewater Treatment Facility in an application dated 3/14/2023. 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.

Sincerely,



Matt Claucherty, MDV Point Source Coordinator
Bureau of Water Quality

e-cc Sheri Snowbank, WDNR
Carson Johnson, WDNR
Tim Elkins, EPA Region 5
Micah Bennett, EPA Region 5