# Permit Fact Sheet

## General Information

| | | | |
|---|---|---|---|
| Permit Number: | WI-0022772-10-2 *Permit Modification | | |
| Permittee Name: | City of Waupun | | |
| Address: | 817 South Madison Street | | |
| City/State/Zip: | Waupun WI 53963-0431 | | |
| Discharge Location: | SE ¼ of NW ¼ of Section 33, T14N_R15E – Lat: 43.6422º / 88.71553º W | | |
| Receiving Water: | South Branch of Rock River (Upper Rock River Watershed, UR12 – Upper Rock River Basin) in Fond du Lac County | | |
| Stream Flow ($Q_{7,10}$): | Annual 0.7 cfs; Jan 2.0 cfs; Feb 1.9 cfs; Mar 3.6 cfs; Apr 15 cfs; May 8.5 cfs; Jun 3.5 cfs; Jul 1.6 cfs; Aug 1.2 cfs; Sep 0.81; Oct 1.8 cfs; Nov 2.4 cfs; Dec 1.8 cfs | | |
| Stream Classification: | Warm Water Sport Fish, Non-public Water Supply | | |
| Design Flow | | Current Facility | Facility After Upgrade |
| | Daily Maximum | 7.87 MGD | 11.3 MGD |
| | Weekly Maximum | 5.56 MGD | 6.26 MGD |
| | Monthly Maximum | 5.205 MGD | 3.74 MGD |
| | Annual Average | 1.8 MGD | 2.14 MGD |
| Significant Industrial Loading? | No | | |
| Operator at Proper Grade? | Yes. The Waupun wastewater treatment plant's level of operation is Advanced and requires at least one operator certified at the Advanced Level in each of the following subclasses: A1 – Suspended Growth Processes; A2 – Attached Growth Processes; B – Solids Separation; C – Biological Solids/Sludge Handling, Processing, and Reuse; D – Disinfection; P – Total Phosphorus; L – Laboratory; and SS – Sanitary Sewage Collection System. Waupun has four operators certified at the advanced level for all required subclasses except SS. Subclass SS is a Basic Level subclass only. The permittee shall have at least one person obtain certification for Subclass SS before the end of the permit term. | | |
| Approved Pretreatment Program? | N/A | | |

## Facility Description

The Waupun Wastewater Treatment Facility was originally constructed in 1951, updated in 1970, 1982, and again in 2001. The facility initiated another major upgrade in 2021. The permittee submitted a 2020 facility plan for a facility upgrade that will increase the annual average design flow of the treatment facility from 1.8 MGD to 2.14 MGD. Construction of the facility upgrade will be completed by December 31, 2024, and this permit is based on the upgraded facility. The facility's preliminary and primary treatment includes influent pumping, fine screening, grit removal, and

primary settling. Secondary treatment is provided through a trickling filter and activated sludge, both of which are followed by secondary clarifiers. Phosphorus is removed through the addition of ferric chloride, which is fed prior to the secondary clarifiers. The facility's sand filters were demolished as a part of the current upgrades. Effluent from the secondary clarifiers will be pumped to a tertiary algal treatment process for low-level phosphorus removal followed by a membrane separation unit process to capture the algae. The effluent from the membrane process will flow to the existing chlorine contact basin for seasonal disinfection, followed by dechlorination and discharge to the Rock River. Algal sludge captured by the membrane separation unit will be centrifuged for thickening, then dried in a double drum dryer. Sludge from primary and secondary clarifiers is digested anaerobically and stored as liquid sludge or dewatered on a belt filter press. Digested sludge is seasonally applied to farm fields as a soil amendment.

When flows are greater than 2.76 MGD, a portion of the flow will bypass the tertiary algal treatment process. This is regulated as an "other bypass" under s. NR 205.07(1)(u)3., Wis. Adm. Code. When flows are greater than 5.5 MGD, a portion of the wastewater will bypass secondary treatment and the tertiary algal treatment process. This is regulated as "blending" under s. NR 210.12, Wis. Adm. Code. In both instances, the bypassed flow will rejoin the fully treated flow at the chlorine contact basin for seasonal disinfection. Sampling will occur and compliance with effluent limitations is required during all "Other Bypass" and "Blending" events. This permit language provides additional details for when prohibited actions such as bypassing can occur for this facility under specific conditions. The sludge outfalls will be finalized prior to discharge from the new sludge outfalls. When final sludge outfalls are activated, the permittee will work with the department to determine the appropriate timing for monitoring of List 1, 2, 3 and/or 4 based on timing and operations.

Permit Modification -1 completed for the following to items. Changes are highlighted in grey. The 'Other Bypass' reporting requirements and Land Application requirements were changed to reflect the reporting capacity of the Waupun system and as agreed upon with the department and the permittee. For Outfall 104, the 'Flow Rate' sample frequency and table note were changed and removing the parameter 'Time'. These changes reflect the reporting of when the 'Other Bypass' occurs at Waupun to the ABNR system. The permittee maintains records of daily flows to the ABNR and this data is available to the department upon request.

For Outfalls 005, 007 and 008 several typographical errors were corrected in the permit to improve clarity and consistency throughout the permit on when the requirements and testing for Lists 3 and 4 are required. The sample point descriptions were also updated to further clarify that upon initial start up the permittee is to notify the department. These actions are only required upon initial start up of the new Class A sludge system to review the final process and monitoring methodology to ensure Class A requirements are met. The due date for the sludge management plan has been extended to reflect timing of startup of the system.

Permit Modification -2 completed for the following to items. Changes are highlighted in green. The permit modification removed the Total Phosphorus mass limits set to become effective 1/1/2025 and added the Adaptive Management requirements to the Surface Water section and Compliance Schedules per the approved Adaptive Management Plan (WQT-2024-0026 – November 2024).

# Substantial Compliance Determination

After a desk top review of all discharge monitoring reports, land application reports, compliance schedule items, and a site visit on May 16, 2022, this facility has been found to be in substantial compliance with their current permit. There are no areas of concern. No need for Notices of Noncompliance in the last five years. No SSOs/TFOs in the last five years.

| 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 | 1.79 MGD<br>(Annual Avg. 2019 – 2021) | INFLUENT: 24-hr flow proportional composite influent samples shall be collected prior to the grit tanks and after influent screening. |
| 102 | N/A | FIELD BLANK: Mercury field blanks shall be collected using Clean Hands/Dirty Hands sample handling procedures. |
| 103 | New Sample Point | BLENDING: Sample point for reporting diverted flow from the primary clarifiers during high flow events. Wastewater flow bypasses the aeration basins, final clarifiers and tertiary algal treatment, and then receives disinfection prior to discharge. The permittee shall notify the Department when blending occurs. See "Blending" requirements in the Standard Requirements |
| 104 | New Sample Point | OTHER BYPASS In-Plant Diversion: Sample point for reported diverted flow which bypasses just the tertiary algal treatment process prior to disinfection. |
| 001 | N/A | EFFLUENT: 24-hr flow proportional effluent samples shall be collected after tertiary algal treatment for composite samples and at the bottom of the aeration steps for grab samples, prior to discharge to the South Branch of the Rock River. Sampling shall occur during all blending and other bypass events. |
| 602 | Inactivated – removed from permit | The flow of the South Branch of the Rock River at USGS Gauging Station # 05423500 at Waupun shall be recorded. This sample point is only active and recording of river flow required when the weekly average of the daily river flows is 90 cfs (cubic feet per second) or greater (for weekly average limits) or the daily river flow is 90 cfs or greater (for daily limits) and the permittee wants to show compliance with the less stringent weekly average or daily minimum alternative wet weather limits in this permit. |
| 601 | New Sample Point, added in Permit Modification -2 | In-stream Sampling Point 601: representative water samples shall be collected from the South Branch Rock River. Sample point 601 is located downstream of the Waupun WWTP Outfall, 43.64015, -88.70730. Sample point 601 correlates with the sample locations described in the approved AM Plan No. AM-2024-002 (November 8, 2024). |
| 603 | New Sample Point, added in Permit Modification -2 | In-stream Sampling Point 602: representative water samples shall be collected from South Branch Rock River. Sample point 602 is located at upstream of the Waupun WWTP Outfall, at 43.64157, -88.71993. Sample point 602 correlates with the sample locations described in the approved AM Plan No. AM-2024-002 (November 8, 2024). |
| 006 | Inactivated – removed from permit | WET WEATHER REPORTING: This sample point is for reporting analytical results for parameters with alternative wet weather limitations and is only active when the permittee wants to show compliance with the alternative wet weather limits contained in this |

| Sample Point Designation | | |
|---|---|---|
| **Sample Point Number** | **Discharge Flow, Units, and Averaging Period** | **Sample Point Location, Waste Type/sample Contents and Treatment Description (as applicable)** |
| | | permit. 24-hr flow proportional effluent samples shall be collected after tertiary algal treatment for composite samples and at the bottom of the aeration steps for grab samples, prior to discharge to the South Branch of the Rock River. |
| 003 | N/A<br>Outfall not used during current permit term. | Class B, Liquid, Anaerobically digested biosolids. Representative sludge samples shall be collected from the secondary digester discharge pump. This outfall will only be used if the permittee is unable to produce Class B cake sludge from Outfall 004. Outfall 003 is inactive. Contact DNR representative to activate this outfall and verify sampling requirements prior to land application or disposal. (Note: Land application from this outfall will require monitoring for Lists 1, 2, 3 and 4, and potentially Radium-226 depending upon duration of outfall use.). |
| 004 | 314 dry US Tons<br>(Annual Avg. 2019 – 2021) | Class B, Cake, Anaerobically digested dewatered biosolids. Representative sludge samples shall be collected after the belt press and monitored annually for Lists 1, 2, 3 and 4 and Radium-226, and once per permit term for PCBs. |
| 005 | N/A<br>New Outfall | Class A, Dried Cake algae sludge. Sample point for dried algae treatment process monitoring. The temperature of algae sludge in the dryer shall be monitored continuously. Total solids of the algae sludge shall be monitored during sludge dryer operation per the approved Sludge Management Plan. Pathogen testing is required immediately after the sludge treatment process and shall satisfy the Class A Sludge: Fecal Coliform Density Requirement. Pathogen testing is required immediately after the sludge treatment process and shall satisfy the Class A Sludge: Fecal Coliform Density Requirement. Pathogen testing shall be performed on no less than 7 discrete samples to be collected and reported individually throughout the calendar year, not as a geometric mean. Each pathogen control sample shall meet the pathogen limit to prove effective pathogen treatment. This sample point is intended for meeting pathogen density requirements of the Class A dryer. If this sample point is used as an outfall for distribution in place of Outfall 007, Lists 1 and 3 requirements shall be met. If used additionally for land application, List 2 requirements shall be monitored. Use of this sample point as an outfall shall be clearly communicated in the sludge management plan.<br><br>Notify the Department 30 days prior to when the permittee is ready to begin initial distribution of Class A Dried Cake algae sludge. In this notification shall notify the department's biosolids coordinator and compliance engineer for the facility. Also provided In the notification, the permittee shall collect and provide continuous temperature monitoring data, percent solids and pathogen data |

| Sample Point Designation | | |
|---|---|---|
| **Sample Point Number** | **Discharge Flow, Units, and Averaging Period** | **Sample Point Location, Waste Type/sample Contents and Treatment Description (as applicable)** |
| | | during the course of a typical startup, operation, and shutdown of the heating drying equipment. During the inspection, the permittee will have heat drying equipment operational instructions available for review. |
| 007 | N/A<br>New Outfall | Class A, Dried algae cake for distribution. When dried algae is stored prior to distribution, this outfall shall be used for distribution of dried algae (cake). Representative samples shall be monitored for Lists 1, 3 and 4. Nutrient monitoring (List 2) is optional and recommended to be monitored no less than annually. If material is land applied from this outfall, monitoring shall include List 2. Pathogen control monitoring is required if the dried algae sludge is not bagged and sealed immediately upon generating. Pathogen testing is required immediately after the sludge treatment process and shall satisfy the Class A Sludge: Fecal Coliform Density Requirement. Pathogen testing shall be performed on no less than 7 discrete samples to be collected and reported individually throughout the calendar year, not as a geometric mean. Each pathogen control sample shall meet the pathogen limit to prove effective pathogen treatment. Vector attraction reduction requirements shall be satisfied by Drying Without Primary Solids and shall be performed at the same time Fecal Coliforms are monitored. This outfall is inactive for distribution. This outfall shall be utilized when dried sludge (dried algae) is stored after the algae dryer and when Sample Point 005 is used only for pathogen monitoring. If storage is not used prior to bagging, distribution or land application, this outfall can remain inactive. Permittee shall determine need for this outfall, communicate to DNR representative the permittee's use and clearly communicate the use in the sludge management plan.<br><br>Notify the Department 30 days prior to when the permittee is ready to begin initial distribution of Class A Dried Cake algae sludge. In this notification shall notify the department's biosolids coordinator and compliance engineer for the facility. Also provided in the notification, the permittee shall collect and provide continuous temperature monitoring data, percent solids and pathogen data during the course of a typical startup, operation, and shutdown of the heating drying equipment. During the inspection, the permittee will have heat drying equipment operational instructions available for review. |
| 008 | N/A<br>New Outfall | Class B, Liquid, Thickened algae for land application. Representative samples shall be collected from dewatered algae storage. Monitoring will include Lists 1, 2, 3 and 4 prior to land application. This outfall will only be used if the permittee is unable to produce Class A dried algae cake at Outfalls 005 and 007. This outfall is inactive for land application. Contact DNR representative |

| Sample Point Designation | | |
|---|---|---|
| **Sample Point Number** | **Discharge Flow, Units, and Averaging Period** | **Sample Point Location, Waste Type/sample Contents and Treatment Description (as applicable)** |
| | | to activate this outfall and verify sampling requirements prior to Class B land application. |

# 1 Influent - Proposed Monitoring

## Sample Point Number: 701- INFLUENT

| Monitoring Requirements | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Flow Rate | | MGD | Daily | Continuous | |
| $BOD_5$, Total | | mg/L | 5/Week | 24-Hr Flow Prop Comp | |
| Suspended Solids, Total | | mg/L | 5/Week | 24-Hr Flow Prop Comp | |
| Mercury, Total Recoverable | | ng/L | Quarterly | 24-Hr Flow Prop Comp | See 'Mercury Monitoring' section of the permit. |

## Changes from Previous Permit:

The monitoring frequencies for $BOD_5$ and TSS have been increased from 3/Week to 5/Week.

## Explanation of Limits and Monitoring Requirements

**Flow, $BOD_5$ and Total Suspended Solids –** Monitoring of influent flow, $BOD_5$ and total suspended solids (TSS) is required by s. NR 210.04(2), Wis. Adm. Code, to assess wastewater strengths and volumes and to demonstrate the percent removal requirement for $BOD_5$ and TSS in s. NR 210.05(1)(a) and (b), Wis. Adm. Code, and in the Standard Requirements section of the permit.

**Mercury**: Mercury monitoring frequency was determined to be appropriate, meeting the data quality requirements in ss. NR 106.145(9) and (10), Wis. Adm. Code. This monitoring frequency is consistent with the mercury field blank and effluent sample frequencies contained in this permit. Influent sampling frequency is based upon size of facility.

**Monitoring Frequency Evaluation:** Influent monitoring frequencies for $BOD_5$ and TSS are set equal to effluent monitoring frequencies to demonstrate the percent removal requirement for those parameters. See "Monitoring Frequency Evaluation" for Sample Point/Outfall 001. Section NR 106.145(3)(a)2, Wis. Adm. Code, specifies that major municipal dischargers with an average flow rate greater than or equal to one million gallons per day shall monitor influent for mercury quarterly.

# 2 In-plant - Proposed Monitoring

## Sample Point Number: 102- MERCURY FIELD BLANK

| Monitoring Requirements | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Mercury, Total Recoverable | | ng/L | Quarterly | Blank | See 'Mercury Monitoring' section of the permit. |

## Changes from Previous Permit:

None.

## Explanation of Monitoring Requirements

**Mercury**: Requirements for mercury field blanks are found in s. NR 106.145(9)(c), Wis. Adm. Code.

**Monitoring Frequency Evaluation:** Section NR 106.145(9), Wis. Adm. Code, specifies that at least one mercury field blank shall be collected at each site for each day a mercury sample is collected. A single mercury field blank may be used for each "set" of samples. See permit section 2.2.1.1.

## Sample Point Number: 103 - BLENDING

| Monitoring Requirements | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Flow Rate | | MGD | Per Occurrence | Continuous | See "Blending Flow" section of the permit. |
| Time | | hours | Per Occurrence | Calculated | Report the total duration of blending within a given day (12:00am - 11:59pm) in which blending occurs. See "Blending Flow" section of the permit. |

## Changes from Previous Permit:

This is a new sample point.

## Explanation Monitoring Requirements

The Department previously determined that the facility is able to practice blending pursuant to s. NR 210.12, Wis. Adm. Code. This sample point was added to track the volume of wastewater that bypasses the aeration basins, final clarifiers and tertiary algal treatment and the duration of the blending event pursuant s. NR 210.12(6), Wis. Adm. Code. Additionally, the permittee is required to notify the department when blending occurs.

## Sample Point Number: 104 - OTHER BYPASS

| Monitoring Requirements | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Flow Rate | | MGD | Daily | Calculated | Calculate and report flow in daily increments on the eDMR. Flow shall be calculated by the difference between plant effluent flow and the sum of the following: blending flow and tertiary effluent flow. See Other Bypass Requirements section. |

## Changes from Previous Permit:

This is a new sample point.

Flow Rate sample frequency changed from 'Per Occurrence' to 'Daily'. Flow Rate table note updated.

Time parameter removed.

## Explanation of Limits and Monitoring Requirements

The Department has previously approved plans for the partial bypass (defined as an 'Other Bypass" in s. NR 205.07(1)(u)3, Wis. Adm. Code) of wastewater around the tertiary algal treatment process prior to disinfection under wastewater flows greater than 2.76 MGD. This sample point was added to track the volume of wastewater that bypasses tertiary algal treatment and the duration of the 'Other Bypass' event. Flow is calculated for this Outfall.

Permit modification -1 was completed to update the 'Flow Rate' sample frequency to 'Daily' and alter the table note to reflect that Waupun will calculate the total daily flow for Sampling Point 104 each day for the previous 24-hour period. The 'Time" parameter was completely removed. While Waupun has real time flow data of water sent to the ABNR the time data do not correlate directly with the flow data that will be reported for Sampling Point 104. Waupun will maintain the time data onsite in accordance with record retention requirements of the WPDES permit but will not be required to submit 'Time' on the eDMR. Additional language was included at section 2.2.3.1 to further define how the permittee will report duration.

# 3 Surface Water - Proposed Monitoring and Limitations

## Sample Point Number: 001- EFFLUENT

| Monitoring Requirements and Effluent Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Flow Rate | | MGD | Daily | Continuous | |
| $BOD_5$, Total | Weekly Avg | 14 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective November through April. |

| Monitoring Requirements and Effluent Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| $BOD_5$, Total | Monthly Avg | 14 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective November through April. |
| $BOD_5$, Total | Weekly Avg | 10 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective May through August, and October. |
| $BOD_5$, Total | Monthly Avg | 10 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective May through August, and October. |
| $BOD_5$, Total | Weekly Avg | 7.9 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective September. |
| $BOD_5$, Total | Monthly Avg | 7.9 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective September. |
| $BOD_5$, Total | Weekly Avg | 250 lbs/day | 5/Week | Calculated | Limit effective November through April. |
| $BOD_5$, Total | Weekly Avg | 178 lbs/day | 5/Week | Calculated | Limit effective May through August, and October. |
| $BOD_5$, Total | Weekly Avg | 122 lbs/day | 5/Week | Calculated | Limit effective September. |
| Suspended Solids, Total | Weekly Avg | 14 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective November through April. |
| Suspended Solids, Total | Monthly Avg | 14 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective November through April. |
| Suspended Solids, Total | Weekly Avg | 10 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective May through October. |
| Suspended Solids, Total | Monthly Avg | 10 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective May through October. |
| Suspended Solids, Total | Weekly Avg | 413 lbs/day | 5/Week | Calculated | Limit effective January, March and December. |
| Suspended Solids, Total | Monthly Avg | 293 lbs/day | 5/Week | Calculated | Limit effective January, March and December. |
| Suspended Solids, Total | Weekly Avg | 460 lbs/day | 5/Week | Calculated | Limit effective February. |
| Suspended Solids, Total | Monthly Avg | 326 lbs/day | 5/Week | Calculated | Limit effective February. |
| Suspended Solids, Total | Weekly Avg | 366 lbs/day | 5/Week | Calculated | Limit effective April. |

| Monitoring Requirements and Effluent Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Suspended Solids, Total | Monthly Avg | 259 lbs/day | 5/Week | Calculated | Limit effective April. |
| Suspended Solids, Total | Weekly Avg | 330 lbs/day | 5/Week | Calculated | Limit effective May. |
| Suspended Solids, Total | Monthly Avg | 234 lbs/day | 5/Week | Calculated | Limit effective May. |
| Suspended Solids, Total | Weekly Avg | 295 lbs/day | 5/Week | Calculated | Limit effective June. |
| Suspended Solids, Total | Monthly Avg | 209 lbs/day | 5/Week | Calculated | Limit effective June. |
| Suspended Solids, Total | Weekly Avg | 201 lbs/day | 5/Week | Calculated | Limit effective July. |
| Suspended Solids, Total | Monthly Avg | 143 lbs/day | 5/Week | Calculated | Limit effective July. |
| Suspended Solids, Total | Weekly Avg | 177 lbs/day | 5/Week | Calculated | Limit effective August. |
| Suspended Solids, Total | Monthly Avg | 126 lbs/day | 5/Week | Calculated | Limit effective August. |
| Suspended Solids, Total | Weekly Avg | 236 lbs/day | 5/Week | Calculated | Limit effective September. |
| Suspended Solids, Total | Monthly Avg | 167 lbs/day | 5/Week | Calculated | Limit effective September. |
| Suspended Solids, Total | Weekly Avg | 271 lbs/day | 5/Week | Calculated | Limit effective October. |
| Suspended Solids, Total | Monthly Avg | 192 lbs/day | 5/Week | Calculated | Limit effective October. |
| Suspended Solids, Total | Weekly Avg | 342 lbs/day | 5/Week | Calculated | Limit effective November. |
| Suspended Solids, Total | Monthly Avg | 243 lbs/day | 5/Week | Calculated | Limit effective November. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Daily Max | 9.8 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective year-round. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Weekly Avg | 9.8 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective November through April. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Weekly Avg | 13 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective May. |

| Monitoring Requirements and Effluent Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Nitrogen, Ammonia ($NH_3$-N) Total | Weekly Avg | 5.9 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective June. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Weekly Avg | 3.8 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective July. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Weekly Avg | 3.7 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective August. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Weekly Avg | 5.0 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective September. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Weekly Avg | 14 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective October. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Monthly Avg | 11 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective December through February. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Monthly Avg | 9.8 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective March and April. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Monthly Avg | 9.1 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective May. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Monthly Avg | 4.5 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective June. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Monthly Avg | 2.9 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective July. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Monthly Avg | 2.4 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective August. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Monthly Avg | 3.1 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective September. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Monthly Avg | 8.7 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective October. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Monthly Avg | 12 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective November. |
| Chlorine, Total Residual | Daily Max | 22 µg/L | 5/Week | Grab | Limit effective May through September. |
| Chlorine, Total Residual | Weekly Avg | 8.6 µg/L | Daily | Grab | Limit effective May through September. |
| Chlorine, Total Residual | Monthly Avg | 8.6 µg/L | Daily | Grab | Limit effective May through September. |
| E. coli | Geometric Mean - Monthly | 126 #/100 ml | 2/Week | Grab | Limit effective May through September. |

| Monitoring Requirements and Effluent Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| E. coli | % Exceedance | 10 Percent | Monthly | Calculated | Limit effective May through September. See 'E. coli Percent Limit' section of the permit. Enter the result on the DMR on the last day of the month. |
| pH Field | Daily Min | 6.0 su | Daily | Grab | |
| pH Field | Daily Max | 8.1 su | Daily | Grab | |
| Dissolved Oxygen | Daily Min | 7.0 mg/L | Daily | Grab | Limit effective September through June. |
| Dissolved Oxygen | Daily Min | 8.0 mg/L | Daily | Grab | Limit effective July. |
| Dissolved Oxygen | Daily Min | 8.5 mg/L | Daily | Grab | Limit effective August. |
| Phosphorus, Total | Monthly Avg | 1.0 mg/L | 5/Week | 24-Hr Flow Prop Comp | |
| Phosphorus, Total | 6-Month Avg | 0.6 mg/L | 5/Week | 24-Hr Flow Prop Comp | This is an Adaptive Management interim limit that will go into effect May 1, 2025. An interim limit of 0.5 mg/L may be effective during future permit terms. See schedules and effluent requirements. |
| Phosphorus, Total | | lbs/day | 5/Week | Calculated | Calculate the daily mass discharge of phosphorus in lbs/day on the same days phosphorus sampling occurs. |
| ~~Phosphorus, Total~~ | ~~Monthly Avg~~ | ~~1.18 lbs/day~~ | ~~5/Week~~ | ~~Calculated~~ | ~~Limit effective January beginning January 2025.~~ |
| ~~Phosphorus, Total~~ | ~~Monthly Avg~~ | ~~1.57 lbs/day~~ | ~~5/Week~~ | ~~Calculated~~ | ~~Limit effective February beginning February 2025.~~ |
| ~~Phosphorus, Total~~ | ~~Monthly Avg~~ | ~~1.47 lbs/day~~ | ~~5/Week~~ | ~~Calculated~~ | ~~Limit effective March beginning March 2025.~~ |
| ~~Phosphorus, Total~~ | ~~Monthly Avg~~ | ~~1.51 lbs/day~~ | ~~5/Week~~ | ~~Calculated~~ | ~~Limit effective April beginning April 2025.~~ |
| ~~Phosphorus, Total~~ | ~~Monthly Avg~~ | ~~1.44 lbs/day~~ | ~~5/Week~~ | ~~Calculated~~ | ~~Limit effective May beginning May 2025.~~ |
| ~~Phosphorus, Total~~ | ~~Monthly Avg~~ | ~~1.42 lbs/day~~ | ~~5/Week~~ | ~~Calculated~~ | ~~Limit effective June beginning June 2025.~~ |

| Monitoring Requirements and Effluent Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| ~~Phosphorus, Total~~ | ~~Monthly Avg~~ | ~~1.24 lbs/day~~ | ~~5/Week~~ | ~~Calculated~~ | ~~Limit effective July beginning July 2025.~~ |
| ~~Phosphorus, Total~~ | ~~Monthly Avg~~ | ~~1.01 lbs/day~~ | ~~5/Week~~ | ~~Calculated~~ | ~~Limit effective August beginning August 2025.~~ |
| ~~Phosphorus, Total~~ | ~~Monthly Avg~~ | ~~1.02 lbs/day~~ | ~~5/Week~~ | ~~Calculated~~ | ~~Limit effective September beginning September 2025.~~ |
| ~~Phosphorus, Total~~ | ~~Monthly Avg~~ | ~~1.03 lbs/day~~ | ~~5/Week~~ | ~~Calculated~~ | ~~Limit effective October beginning October 2025.~~ |
| ~~Phosphorus, Total~~ | ~~Monthly Avg~~ | ~~1.10 lbs/day~~ | ~~5/Week~~ | ~~Calculated~~ | ~~Limit effective November beginning November 2025.~~ |
| ~~Phosphorus, Total~~ | ~~Monthly Avg~~ | ~~1.09 lbs/day~~ | ~~5/Week~~ | ~~Calculated~~ | ~~Limit effective December beginning December 2025.~~ |
| Chloride | Weekly Avg | 495 mg/L | 4/Month | 24-Hr Flow Prop Comp | This is an interim limit effective through June 30, 2028. See 'Chloride WQBELs Compliance' in the schedules section |
| Chloride | Weekly Avg | 472 mg/L | 4/Month | 24-Hr Flow Prop Comp | Limit effective beginning July 1,2028. See 'Chloride WQBELs Compliance' in the schedules section. |
| Chloride | Monthly Avg | 472 mg/L | 4/Month | 24-Hr Flow Prop Comp | Limit effective beginning July 1, 2028. See 'Chloride WQBELs Compliance' in the schedules section. |
| Chloride | Weekly Avg | 7,420 lbs/day | 4/Month | Calculated | This is an interim limit effective through June 30, 2028. See 'Chloride WQBELs Compliance' in the schedules section. |
| Chloride | Weekly Avg - Variable | lbs/day | 4/Month | Calculated | Limits effective July 1, 2028. Report the chloride mass result in the Chloride Weekly Average Mass column on the DMR. Compare to the Variable Chloride Mass Limitation table below to determine compliance. See 'Chloride WQBELs Compliance' in the schedules section. |

| Monitoring Requirements and Effluent Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Chloride, Variable Limit | | lbs/day | 4/Month | Calculated | Limits effective July 1, 2028. Look up the variable chloride mass limit from the 'Variable Chloride Mass Limitation' table below and report the variable limit in the Chloride Variable Limit column on the DMR. See 'Chloride WQBELs Compliance' in the schedules section. |
| PFOS | | ng/L | 1/ 2 Months | Grab | Monitoring only. See 'PFOS/PFOA Minimization Plan Determination of Need' in the schedules section. |
| PFOA | | ng/L | 1/ 2 Months | Grab | Monitoring only. See 'PFOS/PFOA Minimization Plan Determination of Need' in the schedules section. |
| Mercury, Total Recoverable | | ng/L | Quarterly | Grab | See the 'Mercury Monitoring' section of the permit. |
| Temperature Maximum | | deg F | 3/Week | Continuous | Monitoring during calendar year 2027. See the 'Effluent Temperature Monitoring' section of the permit. |
| Acute WET | | $TU_a$ | See Listed Qtr(s) | 24-Hr Flow Prop Comp | See the 'Whole Effluent Toxicity (WET) Testing' section of the permit for testing dates and WET requirements. |
| Chronic WET | | TUc | See Listed Qtr(s) | 24-Hr Flow Prop Comp | See the 'Whole Effluent Toxicity (WET) Testing' section of the permit for testing dates and WET requirements. |
| Nitrogen, Total Kjeldahl | | mg/L | Quarterly | 24-Hr Flow Prop Comp | Monitoring Only |
| Nitrogen, Nitrite + Nitrate Total | | mg/L | Quarterly | 24-Hr Flow Prop Comp | Monitoring Only |

| Monitoring Requirements and Effluent Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Nitrogen, Total | | mg/L | Quarterly | Calculated | Monitoring Only - Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen. |

## Changes from Previous Permit

- Weekly and monthly average $BOD_5$ limits for September have been reduced from 8.1 mg/L to 7.9 mg/L.
- Weekly average $BOD_5$ mass limits of 178 lbs/day effective May through August, and October and 250 lbs/day for November through April have been added.
- Monthly average mass limits (lbs/day) for total suspended solids derived from the Upper and Lower Rock River Total Maximum Daily Load Wasteload Allocation given during the previous permit pursuant to a compliance schedule are effective beginning at the effective date of the permit.
- The daily maximum ammonia limit has been reduced from 14 mg/L to 9.8 mg/L and is effective year-round.
- The current permit did not have weekly average ammonia limits for November through April or monthly average ammonia limits for March and April. Weekly and monthly average limits for those months are set equal to the daily maximum limit of 9.8 mg/L.
- Weekly and monthly average ammonia limits were re-evaluated and except for the weekly average limit for October (14 mg/L) and the monthly average limit for January (11 mg/L) will all become more restrictive (lower).
- The daily maximum total residual chlorine limit will decrease from 23 ug/L to 22 ug/L. A monthly average chlorine limit has been included in the proposed limit and set equal to the existing weekly average chlorine limit of 8.6 ug/L.
- Fecal coliform monitoring and limits have been replaced with *Escherichia coli (E. coli)* monitoring and limits. *E. coli* monitoring is required from May through September annually. *E. coli* limits of 126 #/100 ml as a monthly geometric mean and 410 #/100 ml as a daily maximum that may not be exceeded more than 10 percent of the time in any calendar month will apply.
- ~~Phosphorus mass limits derived from the Rock River total maximum daily load (TMDL) wasteload allocation will go into effect January 1, 2025 per a compliance schedule.~~
- Permit Modification -2: Adaptive Management requirements added to permit.
- The permittee is unable to meet these more stringent chloride limits immediately and a compliance schedule is included in the proposed permit that provides the permittee approximately 4 ½ years to comply with new/more stringent limits. The weekly average chloride limits from the current permit of 495 mg/L and 7,420 lbs/day have been carried over into the proposed permit as interim limits that apply on the permit effective date through June 31, 2028. The new chloride limits stated above become effective July 1, 2028.
- PFOS and PFOA monitoring is required once every two months in accordance with s. NR 106.98(2)(b), Wis. Adm. Code.

## Explanation of Limits and Monitoring Requirements

**Monitoring Frequency Evaluation -** Monitoring frequencies for a permitted sewage treatment works are evaluated on a case-by-case basis pursuant s. NR 210.04, Wis. Adm. Code. Appropriate monitoring is evaluated based on the size and

type of facility, the ability to characterize effluent quality and variability, to detect events of noncompliance, and to ensure fairness and consistency in permits issued across the state, along with recommendations provided in the *Monitoring Frequencies for Individual Wastewater Permits guidance (April 12, 2021).* Monitoring frequencies for flows, emerging contaminants, and pollutants with final effluent limits have been evaluated for this facility and will be reflected in the proposed permit.

There is a need to demonstrate compliance with new equipment brought online through the facility upgrade, including removal of the facility's granular media filtration process, and the addition of a tertiary algae-based phosphorus treatment process. After evaluation, an increase in sampling frequencies is warranted to capture variable flow, changes in treatment due to facility upgrade, and to align with sampling frequencies of similarly sized facilities with similar effluent quality throughout the state. Daily monitoring of effluent flow is required pursuant s. NR 210.04(4),Wis. Adm. Code, and monitoring for PFOS/PFOA will be required once per two months pursuant s. NR 106.98(2)(b), Wis. Adm. Code. The monitoring frequencies for $BOD_5$, Total Suspended Solids (TSS), Ammonia and Total Phosphorus will be increased from 3/Week to 5/Week and monitoring for pH Field and Dissolved Oxygen will be increased from 5/Week to Daily. Chlorine was at Daily and will remain at Daily.

**Categorical Limits**

**pH –** The categorical limits for pH of 6.0 s.u. (standard pH units) as a daily minimum and 8.1 s.u. as a daily maximum are established in s. NR 210.05, Wis. Adm. Code, for surface water classified as fish and aquatic life in s. NR 102.04 (3), Wis. Adm. Code. See limit memo for explanation of pH limits for this permit.

**Water Quality Based Limits and WET Requirements and Disinfection**

Refer to the WQBEL memo for the detailed calculations, prepared by the Water Quality Bureau dated December 22, 2021 (rev. January 26, 2022 and April 7, 2022).

**$BOD_5$** – Weekly average BOD5 limitations were re-evaluated for facility planning purposes using monthly low flows (7-Q10), the design flow of the upgraded treatment facility (2.14 MGD) and the 26-pound method. Due to the increased design flows for the upgraded facility all of the calculated weekly average $BOD_5$ concentration limits except for September are less restrictive than those in the current permit so the more restrictive limits in the current permit are retained. The calculated weekly average concentration limit for September decreased from 8.1 mg/L to 7.9 mg/L. For publicly owned treatment works ss. NR 106 and NR 205, Wis. Adm. Code, (expression of limits) require that whenever a weekly average limit is required in a permit, a monthly average concentration limit also be included set equal to the weekly average limit of 7.9 mg/L unless a more stringent limit is required to protect water quality. Weekly average $BOD_5$ mass limits are also required and except for the month of September were calculated using the weekly average concentration limit (mg/L) × design flow (2.14 MGD) × a conversion factor (8.34). The current weekly average mass limit for September of 122 lbs/day is more stringent than the weekly average mass limit calculated for facility planning and is carried over from the current permit.

**TSS –** The weekly and monthly average TSS concentration limits for permit reissuance and for facility planning purposes for the upgraded treatment facility remain unchanged from the previous permit. TSS mass discharge limits calculated consistent with the Upper and Lower Rock River Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) apply on the permit effective date.

> **Note:** Alternative wet weather weekly average **$BOD_5$** and **TSS** limits that previously applied when weekly average flows of the Rock River were greater than or equal to 90 cfs and wastewater flows at the Waupun treatment plant were less than 12 MGD for every day of the week have been removed from the proposed permit. See additional explanation in the River Flow Monitoring and Wet Weather Limit Requirements section below.

**Ammonia –** Current acute and chronic ammonia toxicity criteria for the protection of aquatic life are included in Tables 2C and 4B of ch. NR 105, Wis. Adm. Code. Subchapter IV of ch. NR 106, Wis. Adm. Code establishes the procedure for calculating water quality based effluent limitations (WQBELs) for ammonia.

Ammonia limits were reevaluated for facility planning purposes in the December 22, 2021 (rev. January 26, 2022 and April 7, 2022) WQBEL memo based on the new design flow of 2.14 MGD for Waupun's upgraded treatment facility.

Since the design flow of the Waupun treatment plant increased and there was no change in monthly low flows in the Rock River there was relatively less available dilution. See WQBEL for additional information on ammonia limit changes and additional limits needed pursuant to expression of limits regulations.

**Disinfection/Chlorine –** Waupun is required to disinfect its effluent to protect recreational uses in the South Branch of the Rock River downstream of the permittees surface water outfall (001) during the recreational period of May through September annually and uses a chlorination/dechlorination process for disinfection. Since chlorine is used for disinfection chlorine discharge limits are needed to assure the dechlorination process is working effectively. Chlorine limits apply from May 1 through September 30 annually. The daily maximum chlorine limit in the previous permit of 38 ug/L was reevaluated and decreased to 22 ug/L. The weekly average chlorine limit in the current permit of 8.6 ug/L is retained. The current permit does not have a monthly average limit; however, since a weekly average limit is needed to protect water quality chs. NR 106 and 205, Wis. Adm. Code (expression of limits) require that a monthly average limit also be included and set equal to the weekly average limit of 8.6 ug/L.

**Bacteria – Fecal Coliform/*E. coli* –** Revisions to bacteria surface water quality criteria to protect recreational uses and accompanying *E. coli* WPDES permit implementation procedures became effective May 1, 2020. The new rule requires that WPDES permits for facilities with required disinfection include monitoring for *E. coli* while facilities are disinfecting during the recreation period (May through September) and establishes effluent limitations for *E. coli* specified in s. NR 210.06 (2), Wis. Adm Code. Waupun is able to comply with the *E. coli* limitations of 126 #/100 ml as a monthly geometric mean and 410 #/100 ml as a daily maximum that may not be exceeded more than 10 percent of the time in any calendar month. The limitations for *E. coli* are effective the first disinfection season after permit reissuance from May through September annually beginning May 2024.

**Dissolved Oxygen (DO) –** Waupun had previously requested daily minimum DO limits of 7.0 mg/L for September through June, 8.0 mg/L for July and 8.5 mg/L for August to obtain higher $BOD_5$ effluent limits (effluent DO is a variable used in the $BOD_5$ 26-pound rule calculations). These limits are carried over in the proposed permit. Alternative wet weather limits have been removed, see WQBEL memo for additional information.

**Total Phosphorus** –Revisions to the administrative rules for phosphorus discharges took effect on December 1, 2010. Details may be found at: https://dnr.wisconsin.gov/topic/Wastewater/Phosphorus.

The Waupun wastewater treatment facility discharges to the South Branch of the Rock River, which is phosphorus impaired (303d listed). The Department has developed a Total Maximum Daily Load (TMDL) for the Upper and Lower Rock River Basins to address phosphorus and TSS impairments in the TMDL action area. The US EPA approved the Rock River TMDL on September 28, 2011. The document, along with the referenced appendices can be found at: https://dnr.wisconsin.gov/topic/TMDLs/RockRiver/index.html.

The TMDL-derived total phosphorus mass limits are water quality based effluent limits (WQBELs) and are expressed as monthly average limits. Waupun was not able to meet the TMDL-derived WQBELs for phosphorus using its existing treatment system. However, the treatment facility upgrade added an algae-based tertiary phosphorus removal system that is capable of meeting the stringent phosphorus TMDL-derived WQBELs in this permit. ~~A compliance schedule is included in the permit (see the Schedules section) that requires the permittee to comply with the phosphorus WQBELs as soon as possible but no later than January 1, 2025. See the monitoring table under Sample Point Number: 001-EFFLUENT above for the TMDL-derived phosphorus limits~~.

An Adaptive Management Interim limit of 0.6 mg/L expressed as a 6-month average (averaging period of May through October and November through April) becomes effective 5/1/2025.

**Adaptive Management for Total Phosphorus Compliance** – Waupun requested and the Department approved a plan to implement a watershed adaptive management approach under s. NR 217.18, Wis. Adm. Code and s. 283.13(7) Wis. Stats. as a means for Waupun to achieve compliance with the phosphorus water quality standard in s. NR 102.06, Wis. Adm. Code. The phosphorus limitations and conditions in this permit reflect the approved Adaptive Management (AM) Plan WQT-2024-0026 (November 2024). The permittee shall design and implement the actions identified in the approved AM Plan No. WQT-2024-0026 in accordance with the goals and measures identified. The goal of the AM plan is to reduce phosphorus loadings within the watershed action area by at a minimum 2,210 lbs/yr by the end of this permit term. In

addition, annual progress reports are required. See Schedules section for more details. The Department may terminate the AM option based on the reasons enumerated in NR 217.18(3)(e)2, Wis. Adm. Code.

The permit contains an interim adaptive management phosphorus limit of 0.6 mg/L expressed as a six-month seasonal average and a compliance schedule for meeting the limit starting May 1, 2025. The averaging periods for the six-month average limit are May through October and November through April. Compliance with the 0.6 mg/L six-month interim limit is evaluated at the end of each six-month period on April 30 and October 31 annually. The 1.0 mg/L monthly average phosphorus limit in effect for the duration of the reissued permit.

Surface water monitoring requirements are included in the proposed permit in support of the goals and measures of the Adaptive Management Plan and are discussed in more detail in following subsections of this fact sheet. Sampling is required on the day(s) each week as outlined in the approved Adaptive Management Plan.

**Chloride –** Acute and chronic chloride toxicity criteria for the protection of aquatic life are included in Tables 1 and 5 of ch. NR 105, Wis. Adm. Code. Subchapter VII of ch. NR 106 establishes the procedure for calculating water quality based effluent limitations (WQBELs) for chloride.

Weekly average chloride limits of 495 mg/L and 7,420 lbs/day went into effect July 1, 2020. The chronic chloride concentration limit, considering new background data for the receiving water as well as the increased facility annual average design flow of 2.14 MGD (from 1.8 MGD), is calculated to be 472 mg/L as a weekly average. The chronic chloride mass limit, based on the concentration limit of 472 mg/L and the facility annual average design flow of 2.14 MGD, is 8,420 lbs/day, after rouding (= 472 mg/L x 2.14 MGD x 8.34). However, the previous chronic chloride mass limit of 7,420 lbs/day as a weekly average is retained since it was effective in the previous permit, and the limit cannot be relaxed (i.e., increased) without a demonstration of need made in accordance with ch. NR 207, Wis. Adm. Code. Additionally, a wet weather limit of 24,600 lbs/day, after rounding (= 472 mg/L x 6.26 MGD x 8.34), is required in accordance with s. NR 106.07(9), Wis. Adm. Code. The wet weather mass limit applies when the dry weather mass limit is exceeded and the facility demonstrates to the Department the exceedance occurred during a wet weather event. Since no wet weather mass limit was previously in effect, ch. NR 207, Wis. Adm. Code, does not apply. Regulations related to the expression of limits require that a monthly average concentration limit also be included in the permit and set equal to the weekly average concentration limit of 472 mg/L.

It is unknown if Waupun can comply with the new/more stringent chloride limits immediately. However, s. NR 106.117, Wis. Adm. Code, allows the department to grant a compliance schedule of up to five years to comply with new or more stringent limits in a reissued permit. The department proposes to include a compliance schedule for meeting chloride limits that focuses on chloride source reduction. Due to the uncertainty of the effectiveness of source reduction measures, the department has included a compliance schedule of approximately 4 ½ years that requires Waupun to comply with the final chloride limits as soon as possible but no later than July 1, 2028. Since a compliance schedule is proposed, interim limits (concentration and mass) are also required for the period prior to complying with the final limits. The weekly average limits of 495 mg/L and 7,420 lbs/day, which are currently effective, are proposed as interim limits and will apply from the permit effective date through June 30, 2028.

**PFOS and PFOA** – NR 106 Subchapter VIII – Permit Requirements for PFOS and PFOA became effective on August 1, 2022. The new rule requires WPDES permits for major municipal dischargers with an average flow rate greater than 1 MGD but less than 5 MGD, at a minimum sample effluent once every two-months for PFOS and PFOA pursuant s. NR 106.98(2)(b), Wis. Adm. Code.

A sample frequency of 1/2 months means one sample is taken during any two-month period. Examples of 1/2 month sample would be every other month (Jan, March, May, etc.) or back-to-back months with a break in between (February & March, May & June, Aug & Sept, etc.). DMR Short Forms will be generated for the following time periods: January-February, March-April, May-June, July-August, September-October, and November-December. At a minimum one sample result will be present on each form.

The initial determination of the need for sampling shall be conducted for up to two years in order to determine if the permitted discharge has the reasonable potential to cause or contribute to an exceedance of the PFOS or PFOA standards under s. NR 102.04(8)(d)1, Wis. Adm. Code.

**Mercury –** Requirements for mercury are included in s. NR 106.145, Wis. Adm. Code. In accordance with s. NR 106.06 (6), Wis. Adm. Code, the WQBEL for total recoverable mercury is set equal to the most stringent criterion of 1.3 ng/L based on wildlife criterion. Quarterly monitoring of Waupun's effluent for total recoverable mercury was conducted during the previous permit term and an analysis of those results show that there is no reasonable potential for Waupun to exceed the WQBEL for mercury and a limit is not necessary. Continued quarterly influent, field blank and effluent mercury monitoring is required.

**Thermal –** Requirements for Temperature are included in NR 102 Subchapter II Water Quality Standards for Temperature and NR 106 Subchapter V Effluent Limitations for Temperature. Thermal discharges must meet the Public Health criterion of 120º F and the Fish and Aquatic Life criteria that are established to protect aquatic communities from lethal and sub-lethal thermal effects. Temperature data from previous permit terms was evaluated and the only temperature limit required was a weekly average limit of 54º for the month of November. However, the permittee submitted a dissipative cooling (DC) request to the Department on February 2, 2014 and this request showed thermal data 15-20 feet downstream of the outfall were similar to thermal conditions upstream of the outfall during the month of November and therefore, no temperature limits are recommended at this time,

Changes in operation once the treatment facility is upgraded could preclude the conclusions of prior studies done on heat dissipation in the receiving water and may require an updated demonstration. The permit requires maximum effluent temperature monitoring three times per week during calendar year 2027 to determine the need for temperature limits at the next permit reissuance.

**Whole Effluent Toxicity –** Whole effluent toxicity (WET) testing requirements and limits are determined in accordance with ss. NR 106.08 and NR 106.09, Wis. Adm. Code, as revised August 2016. (See the current version of the Whole Effluent Toxicity Program Guidance Document and checklist and WET information, guidance, and test methods at http://dnr.wi.gov/topic/wastewater/wet.html). According to s. NR 106.08, Wis. Adm. Code, WET reasonable potential is determined by multiplying the highest toxicity value that has been measured in the effluent by a safety factor, to predict the likelihood (95% probability) of toxicity occurring in the effluent above the applicable WET limit. Reasonable potential for a chronic WET limit was shown using the procedures in s. NR 106.08, Wis. Adm. Code, and representative data from 2006-2020. The calculated chronic limit is 1.2 Toxic Unit - Chronic (TUc), which is calculated by dividing 100 by the instream waste concentration (IWC) (1.2 = 100/83). The IWC for the upgraded facility is calculated to be 83%, which is higher than the IWC calculated in 2016 (80%). This due to the increased annual design flow rate from 1.8 MGD to 2.14 MGD. A chronic wet test shall be considered positive if the TUc is greater than 1.2 for either species. A minimum of annual acute and chronic WET monitoring is recommended because Waupun is a major municipal discharger with a design flow greater than 1.0 MGD.

**Total Nitrogen Monitoring (NO2+NO3, TKN and Total N) –** Total Nitrogen Monitoring (NO2+NO3, TKN and Total N): The Department has included effluent monitoring for Total Nitrogen in the permit through the authority under s. 283.55(1)(e), Wis. Stats., which allows the department to require the permittee to submit information necessary to identify the type and quantity of any pollutants discharged from the point source, and through s. NR 200.065(1)(h), Wis. Adm. Code, which allows for this monitoring to be collected during the permit term. Quarterly effluent monitoring for Total Nitrogen is included in the permit because of the potential for higher nitrogen loading resulting from higher flows (major facilities), higher concentrations, or both. More information on the justification to include total nitrogen monitoring in wastewater permits can be found in the "Guidance for Total Nitrogen Monitoring in Wastewater Permits" dated October 1, 2019.

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

## Sample Point Number:601- South Branch Rock River - Downstream and 602- South Branch Rock River - Upstream

| Monitoring Requirements and Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Flow River | | cfs | Monthly | Measure | Provide an estimate of river flow for each day that in-stream phosphorus monitoring is performed May 1 through October 31 annually. |
| Flow River | | cfs | Per Occurrence | Measure | Voluntary river flow estimates for each day that in-stream phosphorus monitoring is performed November 1 through April 30 annually. |
| Phosphorus, Total | | mg/L | Monthly | Grab | Collect samples monthly May 1 through October 31 annually. See permit sections for sampling and reporting requirements. |
| Phosphorus, Total | | mg/L | Per Occurrence | Grab | Voluntary monitoring November 1 through April 30 annually. See permit sections for sampling and reporting requirements. |
| Phosphorus, Total | | lbs/month | Monthly | Calculated | Calculate and report total monthly phosphorus loads for the months of May through October annually. See permit section for calculation of total monthly loads. |
| Phosphorus, Total | | lbs/month | Per Occurrence | Calculated | Calculated total phosphorus loads may also be reported for the months of November through April, as data is available. See Permit section for calculation of total monthly loads. |

### Changes from Previous Permit

Downstream and Upstream surface water monitoring was not required during the previous permit term. Monitoring is included as part of the approved Adaptive Management Plan requirements.

### Explanation of Limits and Monitoring Requirements

As part of the Adaptive Management Plan requirements, downstream monitoring for river flow rate, in-stream phosphorus concentration and total monthly in-stream phosphorus loads is required during the months of May through October. Monitoring for these same parameters is voluntary during the months of November through April. When voluntary monitoring is completed, results must be reported on the monthly eDMR. The in-stream phosphorus concentration and river flow rate are used to calculate the total monthly loading of phosphorus in the South Branch Rock River on a monthly basis. This monitoring will allow the permittee to demonstrate reductions in phosphorus loading for each month of the year.

## River Flow Monitoring & Wet Weather Concentration Limit Requirements – removed from permit

### Sample Point Number: 602- SOUTH BRANCH ROCK RIVER

### Changes from Previous Permit & Explanation of Monitoring Requirements

River flow monitoring, Sample Point 602, has been removed from the proposed permit because the alternative wet weather limits for $BOD_5$, TSS and DO based on the flow of the Rock River and the effluent flow rate of the Waupun treatment plant have been removed from the proposed permit.

### Sample Point Number: 006- EFFLUENT - WET WEATHER – removed from permit

Alternative wet weather concentration limitations for sample point 006, for $BOD_5$, TSS and DO based on the flow rate of the Rock River and the effluent flow rate of the Waupun treatment plant have been removed from the proposed permit for several reasons: The permittee has shown the ability to consistently comply with the concentration limitations during wet weather conditions; mass limitations for $BOD_5$ and TSS are controlling over (more stringent than) the alternative wet weather concentration limitations; and, there is no precedent for providing relief from TSS and $BOD_5$ or DO concentration limitations during wet weather conditions (i.e., no other permittee in the state has been granted alternative wet weather limitations for these parameters). Additionally, several other operational actions have been approved for the permittee related to wet weather events, blending and other bypass.

## Land Application - Proposed 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 | Anaerobic Digestion & Fecal | Volatile Solids Reduction | Land Application | Outfall Not Currently Used |

| 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)** |
| | | | Coliform | | | |
| 004 | B | Cake | Anaerobic Digestion & Fecal Coliform | Volatile Solids Reduction | Land Application | 275 dry U.S. tons |
| 005 | A | Cake | Fecal Coliform | Drying Without Primary Solids | Distributed or Land Applied | New Sample Point/Outfall |
| 007 | A | Cake | Heat Drying & Fecal Coliform | Drying Without Primary Solids | Distributed or Land Application | New Outfall |
| 008 | B | Liquid | Fecal Coliform | Volatile Solids Reduction | Land Application | New Outfall |
| 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? **Current data has shown water supply levels below 2 pCi/liter. However, sludge data has indicated radium is present in the sludge. Therefore, radium sampling remains to ensure compliance with the land application requirements of s. NR 204.07(3)(n), Wis. Adm. Code.**<br>If yes, special monitoring and recycling conditions will be included in the permit to track any potential problems in landapplying sludge from this facility. | | | | | | |
| Is a priority pollutant scan required? **No.**<br>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- CLASS B LIQUID SLUDGE; 004- CLASS B CAKE SLUDGE

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

| Monitoring Requirements and Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Arsenic Dry Wt | Ceiling | 75 mg/kg | Annual | Composite | |
| Arsenic Dry Wt | High Quality | 41 mg/kg | Annual | Composite | |
| Cadmium Dry Wt | Ceiling | 85 mg/kg | Annual | Composite | |
| Cadmium Dry Wt | High Quality | 39 mg/kg | Annual | Composite | |
| Copper Dry Wt | Ceiling | 4,300 mg/kg | Annual | Composite | |
| Copper Dry Wt | High Quality | 1,500 mg/kg | Annual | Composite | |
| Lead Dry Wt | Ceiling | 840 mg/kg | Annual | Composite | |
| Lead Dry Wt | High Quality | 300 mg/kg | Annual | Composite | |
| Mercury Dry Wt | Ceiling | 57 mg/kg | Annual | Composite | |
| Mercury Dry Wt | High Quality | 17 mg/kg | Annual | Composite | |
| Molybdenum Dry Wt | Ceiling | 75 mg/kg | Annual | Composite | |
| Nickel Dry Wt | Ceiling | 420 mg/kg | Annual | Composite | |
| Nickel Dry Wt | High Quality | 420 mg/kg | Annual | Composite | |
| Selenium Dry Wt | Ceiling | 100 mg/kg | Annual | Composite | |
| Selenium Dry Wt | High Quality | 100 mg/kg | Annual | Composite | |
| Zinc Dry Wt | Ceiling | 7,500 mg/kg | Annual | Composite | |
| Zinc Dry Wt | High Quality | 2,800 mg/kg | Annual | Composite | |
| Nitrogen, Total Kjeldahl | | Percent | Annual | Composite | |
| Nitrogen, Ammonium (NH4-N) Total | | Percent | Annual | Composite | |
| Phosphorus, Total | | Percent | Annual | Composite | |
| Phosphorus, Water Extractable | | % of Tot P | Annual | Composite | |
| Potassium, Total Recoverable | | Percent | Annual | Composite | |
| Radium 226 Dry Wt | | pCi/g | Annual | Composite | Monitoring required at Outfall 004 only. |
| PCB Total Dry Wt | Ceiling | 50 mg/kg | Once | Composite | Monitor Outfall 004 in calendar year 2025. |
| PCB Total Dry Wt | High Quality | 10 mg/kg | Once | Composite | Monitor Outfall 004 in calendar year 2025. |
| PFOA + PFOS | | µg/kg | Annual | Calculated | Report the sum of PFOA |

| Monitoring Requirements and Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| | | | | | and PFOS. See PFAS Permit Sections for more information. |
| PFAS Dry Wt | | | Annual | Grab | Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS Permit Sections for more information. |

## Changes from Previous Permit & Explanation of Limits and Monitoring Requirements

Outfall 004 is an existing outfall with the same monitoring and limitations as in the current permit. Outfall 003 has been added as a contingency for spreading Class B liquid sludge if the permittee were to be unable to produce Class B cake sludge (e.g., the facility's belt filter press is down for repair or maintenance). Radium sampling included to meet the requirements of s. NR 204.07(3)(n), Wis. Adm. Code.

PFAS – Annual monitoring is included in the permit pursuant Municipal s. NR 204.06(2)(b)9, Wis. Adm. Code.

# New Algae Sludge Outfalls – 005, 007 and 008

Permit modification -1 was completed to add clarification to the requirements for Class A Sludge.

Several areas were changed to clarify that Lists 3 and 4 are required when Class A sludge is land applied **or distributed.** The permit language in several places did not include "or distributed" in error. To avoid confusion this was updated in the 'Other Sludge Requirements, 'List 3 Pathogen Control for Class A Sludge" and 'List 4 Vector Attraction Reduction" Tables.

The sample point descriptions (Sampling Point 005 and 007) included language requiring the permittee notify the department upon distribution of sludge. The word 'initial' has been added for clarification that this requirement is to finalize approvals of the Class A sludge process and only required upon initial startup.

The language at section 4.2.2.2 was updated to reflect that the heating system was listed as "Algae Microwave Dryer" however, the dryer is a double drum dryer.

The Daily Log for Class A Sludge at section 4.2.5.2 of the permit was changed to read "Name of Entity Receiving Sludge" for clarification purposes.

The permittee has constructed major upgrades to its treatment facility (construction complete December 31, 2024) that include the installation of an algae-based advanced biological nutrient removal treatment process. Effluent from the secondary clarifiers will be pumped to a tertiary algal treatment process for low-level phosphorus removal followed by a membrane separation unit process to capture the algae. Algal sludge will be centrifuged for thickening, then dried on a double drum dryer to produce a Class A, Exceptional Quality sludge (cake) for beneficial reuse, land application or distribution.

The United States Environmental Protection Agency (USEPA) developed 40 CFR 503 relating to the treatment and use of sewage sludge, commonly referred to as biosolids, when treated. 40 CFR 503 only pertains to sewage sludge requirements when the sewage sludge is land applied, surface disposed or incinerated. However, this is not the case with respect to the requirements of ch. NR 204, Wis. Adm. Code. The State of Wisconsin is a delegated entity for implementing 40 CFR 503 and delegated entities such as the State of Wisconsin may have more stringent requirements for sewage sludge than required by USEPA. Algae solids generated during the treatment of domestic sewage is treated as sewage sludge pursuant to the definition of sewage sludge in Wisconsin Administrative Code:

> Section NR 204.03(55), Wis. Adm. Code: "Sewage sludge" or "sludge" or "biosolids" means the solid, semi-solid or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes scum or solids removed in primary, secondary or advanced wastewater treatment processes and material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of a sewage sludge incinerator or grit and screenings generated during preliminary treatment of domestic sewage in a treatment works. (emphasis added)

**PFAS:** Annual monitoring is included in the permit pursuant municipal s. NR 204.06(2)(b)9, Wis. Adm. Code. 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.

## Sample Point Number: 005- CLASS A DRIED ALGAE SAMPLE PT

| Monitoring Requirements and Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Temperature | Daily Min | 80 deg C | Continuous | Continuous | See section 4.2.2.3 of the permit for monitoring and reporting requirements. |
| Solids, Total | Daily Min | 90 Percent | Per Batch | Grab | See section 4.2.2.3 of the permit for sample collection, monitoring and reporting requirements. |
| Fecal Coliform | Daily Max | 1,000 MPN/g TS | Per Batch | Grab | Monitor immediately after the treatment process. See section 4.2.2.4 of the permit for Fecal Coliform Density Requirement. |

| Monitoring Requirements and Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| PFOA + PFOS | | µg/kg | Annual | Calculated | Report the sum of PFOA and PFOS. See PFAS Permit Sections for more information. |
| PFAS Dry Wt | | | Annual | Grab | Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS Permit Sections for more information. |

## Changes from Previous Permit & Explanation of Limits and Monitoring Requirements

Sample Point 005 is a new sample point and is provided for dried algae treatment process control monitoring and demonstrating that pathogen (Fecal Coliform) density requirements have been met immediately after the Class A treatment process (Heat Drying) is complete. Outfall 007 is a new sample point and is provided for pathogen (Fecal Coliform) retesting if the dried algae is stored such as in an algae hopper or other algae storage unit prior to distribution.

Flexibility in this permit allows the permittee to utilize either Outfall 005 or Outfall 007 for monitoring and reporting metals (List 1) and meeting vector attraction reduction requirements (List 4). If land applying from either Outfall 005 or Outfall 007, nutrients (List 2) shall be monitored and pathogen control (List 3) requirements shall be met prior to distribution, land application or disposal. The details for meeting the monitoring requirements of ch. NR 204, Wis. Adm. Code, and this permit shall be described in the sludge management plan.

**PFAS:** Annual monitoring is included in the permit pursuant s. NR 204.06(2)(b)9, Wis. Adm. Code. 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.

## Sample Point Number: 005- CLASS A DRIED ALGAE CAKE; 007 - CLASS A DRIED ALGAE FROM STORAGE

| Monitoring Requirements and Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Solids, Total | | Percent | Annual | Composite | |
| Fecal Coliform | Daily Max | 1,000 MPN/g TS | Annual | Multiple Grab | Outfall 005 – Monitor if stored prior to bagging or distribution. See section |

| Monitoring Requirements and Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| | | | | | 4.2.2.4 above for Fecal Coliform Density Requirements. |
| Arsenic Dry Wt | Ceiling | 75 mg/kg | Annual | Composite | |
| Arsenic Dry Wt | High Quality | 41 mg/kg | Annual | Composite | |
| Cadmium Dry Wt | Ceiling | 85 mg/kg | Annual | Composite | |
| Cadmium Dry Wt | High Quality | 39 mg/kg | Annual | Composite | |
| Copper Dry Wt | Ceiling | 4,300 mg/kg | Annual | Composite | |
| Copper Dry Wt | High Quality | 1,500 mg/kg | Annual | Composite | |
| Lead Dry Wt | Ceiling | 840 mg/kg | Annual | Composite | |
| Lead Dry Wt | High Quality | 300 mg/kg | Annual | Composite | |
| Mercury Dry Wt | Ceiling | 57 mg/kg | Annual | Composite | |
| Mercury Dry Wt | High Quality | 17 mg/kg | Annual | Composite | |
| Molybdenum Dry Wt | Ceiling | 75 mg/kg | Annual | Composite | |
| Nickel Dry Wt | Ceiling | 420 mg/kg | Annual | Composite | |
| Nickel Dry Wt | High Quality | 420 mg/kg | Annual | Composite | |
| Selenium Dry Wt | Ceiling | 100 mg/kg | Annual | Composite | |
| Selenium Dry Wt | High Quality | 100 mg/kg | Annual | Composite | |
| Zinc Dry Wt | Ceiling | 7,500 mg/kg | Annual | Composite | |
| Zinc Dry Wt | High Quality | 2,800 mg/kg | Annual | Composite | |
| Nitrogen, Total Kjeldahl | | Percent | Annual | Composite | Monitoring is optional for this outfall unless sludge from one or both outfalls is land applied. |
| Nitrogen, Ammonium (NH4-N) Total | | Percent | Annual | Composite | Monitoring is optional for this outfall unless sludge from one or both outfalls is land applied. |
| Phosphorus, Total | | Percent | Annual | Composite | Monitoring is optional for this outfall unless sludge from one or both outfalls is land applied. |
| Phosphorus, Water Extractable | | % of Tot P | Annual | Composite | Monitoring is optional for this outfall unless sludge from one or both outfalls is |

| Monitoring Requirements and Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| | | | | | land applied. |
| Potassium, Total Recoverable | | Percent | Annual | Composite | Monitoring is optional for this outfall unless sludge from one or both outfalls is land applied. |
| PFOA + PFOS | | µg/kg | Annual | Calculated | Report the sum of PFOA and PFOS. See PFAS Permit Sections for more information. |
| PFAS Dry Wt | | | Annual | Grab | Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS Permit Sections for more information. |

## Changes from Previous Permit & Explanation of Limits and Monitoring Requirements:

Outfall 007 was added to the permit to allow the permittee to distribute Class A dried algae sludge (cake) for beneficial reuse. In addition to the monitoring and limits required in the table above pathogen (Fecal Coliform) control monitoring is required if the dried algae sludge is not bagged and sealed immediately upon generating. Vector attraction reduction is achieved by Drying Without Primary Solids and shall be performed at the same time Fecal Coliforms are monitored. Annual PFAS monitoring is included in the permit pursuant Municipal s. NR 204.06(2)(b)9, Wis. Adm. Code.

**PFAS:** Annual monitoring is included in the permit pursuant municipal s. NR 204.06(2)(b)9, Wis. Adm. Code. 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.

## Sample Point Number: 008- CLASS B ALGAE LAND APPLICATION

| Monitoring Requirements and Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Solids, Total | | Percent | Annual | Composite | |
| Arsenic Dry Wt | Ceiling | 75 mg/kg | Annual | Composite | |
| Arsenic Dry Wt | High Quality | 41 mg/kg | Annual | Composite | |

| Monitoring Requirements and Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Cadmium Dry Wt | Ceiling | 85 mg/kg | Annual | Composite | |
| Cadmium Dry Wt | High Quality | 39 mg/kg | Annual | Composite | |
| Copper Dry Wt | Ceiling | 4,300 mg/kg | Annual | Composite | |
| Copper Dry Wt | High Quality | 1,500 mg/kg | Annual | Composite | |
| Lead Dry Wt | Ceiling | 840 mg/kg | Annual | Composite | |
| Lead Dry Wt | High Quality | 300 mg/kg | Annual | Composite | |
| Mercury Dry Wt | Ceiling | 57 mg/kg | Annual | Composite | |
| Mercury Dry Wt | High Quality | 17 mg/kg | Annual | Composite | |
| Molybdenum Dry Wt | Ceiling | 75 mg/kg | Annual | Composite | |
| Nickel Dry Wt | Ceiling | 420 mg/kg | Annual | Composite | |
| Nickel Dry Wt | High Quality | 420 mg/kg | Annual | Composite | |
| Selenium Dry Wt | Ceiling | 100 mg/kg | Annual | Composite | |
| Selenium Dry Wt | High Quality | 100 mg/kg | Annual | Composite | |
| Zinc Dry Wt | Ceiling | 7,500 mg/kg | Annual | Composite | |
| Zinc Dry Wt | High Quality | 2,800 mg/kg | Annual | Composite | |
| Nitrogen, Total Kjeldahl | | Percent | Annual | Composite | |
| Nitrogen, Ammonium (NH4-N) Total | | Percent | Annual | Composite | |
| Phosphorus, Total | | Percent | Annual | Composite | |
| Phosphorus, Water Extractable | | % of Tot P | Annual | Composite | |
| Potassium, Total Recoverable | | Percent | Annual | Composite | |
| PFOA + PFOS | | µg/kg | Annual | Calculated | Report the sum of PFOA and PFOS. See PFAS Permit Sections for more information. |
| PFAS Dry Wt | | | Annual | Grab | Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS Permit Sections for more information. |

## Changes from Previous Permit & Explanation of Limits and Monitoring Requirements

Outfall 008 was added to the permit to allow the permittee to land apply Class B liquid thickened algae sludge if the permittee is unable to produce Class A dried algae cake at Outfall 005. This outfall is inactive for distribution and the permittee must contact the Department to activate the outfalls and verify sampling requirements prior to land application or distribution. Annual PFAS monitoring is included in the permit pursuant municipal s. NR 204.06(2)(b)9, Wis. Adm. Code.

## General Sludge 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. Limitations for PCBs are addressed in s. NR 204.07(3)(k), Wis. Adm. Code. Radium requirements are addressed in s. NR 204.07(3)(n), 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.

**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.

# 5 Schedules

## 5.1 Adaptive Management Interim Limit Compliance Update

| Required Action | Due Date |
|---|---|
| **Comply with Adaptive Management Interim Limit**: The Adaptive Management interim effluent limit of 0.6 mg/L as a six-month average goes into effect. The averaging periods are May through October and November through April. Compliance with the 6-month average limit is evaluated at the end of each 6-month period on April 30 and October 31 annually. | 05/01/2025 |

## 5.2 Watershed Adaptive Management Option Annual Report Submittals

The permittee shall submit annual reports on the implementation of AM Plan No. WQT-2024-0026 (November 2024) as specified in the "Phosphorus Limitation(s) and Adaptive Management Requirements" permit section and the following schedule.

| Required Action | Due Date |
|---|---|

| | |
|---|---|
| **Annual Adaptive Management Report:** Submit an annual adaptive management report. The annual adaptive management report shall:<br>o Identify those actions from pages 4-3 through 4-5 of the approved adaptive management plan that were completed during the previous calendar year and those actions that are in progress;<br>o Evaluate collected monitoring data;<br>o Document progress in achieving the goals and measures identified in the approved adaptive management plan;<br>o Describe the outreach and education efforts that occurred during the past calendar year;<br>o Identify any corrections or adjustments to the adaptive management plan that are needed to achieve compliance with the phosphorus water quality standards specified in s. NR 102.06, Wis. Adm. Code;<br>o Describe any updates needed to Waupun's approved phosphorus optimization plan;<br>and<br>o Submit results from all sample points outlined in AM plan No. WQT-2024-0026 (November 2024) to the Department using the Department's Laboratory Data Entry System (LDES) | 03/31/2026 |
| **Annual Adaptive Management Report #2:** Submit an Adaptive Management report with the required information described in this section (see above). | 03/31/2027 |
| **Final Adaptive Management Report for 1st Permit Term:** Submit the final Adaptive Management (AM) report documenting progress made during the first permit term under AM in meeting the watershed phosphorus reduction target of 7,650 lbs/yr, as well as the anticipated future reductions in phosphorus sources and phosphorus effluent concentrations, which shall be measured in accordance with the AM Plan protocols. The report shall summarize AM activities that have been implemented during the current permit term and state which, if any, actions from the approved AM plan No. WQT-2024-0026 (November 2024) were not pursued and why. The report shall include an analysis of trends on both a monthly and six-month average basis for concentrations and mass effluent discharged. Additionally, there shall be an analysis of any improvements to the quality of surface waters in the Adaptive Management Action Area focusing on phosphorus and flow results collected during the permit term. The surface water analysis shall evaluate how the in-stream loadings have changed over the permit term in comparison to implemented AM actions. | 03/31/2028 |
| **Renewal of Adaptive Management Plan for Permit Reissuance:** If the permittee intends to seek renewal of AM plan No. WQT-2024-0026 (November 2024) per s. NR 217.18, Wis. Adm. Code, for the reissued permit term, proposed AM goals and actions based on an updated AM plan shall be submitted to the Department for review and approval. The permittee may propose to adjust load reductions required by AM plan No. WQT-2024-0026 (November 2024) either up or down at the beginning of each WPDES permit term to reflect changes in loads associated with point and non-point sources. This schedule may be modified to incorporate any changes in AM goals and actions, removed if the AM program is terminated per the "Adaptive Management Reopener Clause" permit section, or removed if the adaptive management plan has achieved water quality standards as determined by the Department within the AM action area. | 06/30/2028 |
| **Comply with Adaptive Management Interim Limit:** For the second permit term under Adaptive Management the permittee shall comply with an Adaptive Management total phosphorus interim limit no higher than 0.5 mg/L as a 6-month average, in addition to the 1.0 mg/L monthly avg already effective. | 04/01/2029 |
| **Annual Adaptive Management Report #6:** Submit an Adaptive Management report with the required information described in this section (see above). | |

| | |
|---|---|
| | 03/31/2029 |
| **Annual Adaptive Management Report #7:** Submit an Adaptive Management report with the required information described in this section (see above). | 03/31/2030 |
| **Annual Adaptive Management Report #8:** Submit an Adaptive Management report with the required information described in this section (see above). | 03/31/2031 |
| **Annual Adaptive Management Report #9:** Submit an Adaptive Management report with the required information described in this section (see above). | 03/31/2032 |
| **Final Adaptive Management Report for 2nd Permit Term:** Submit the final Adaptive Management (AM) report documenting progress made during the second permit term under AM in meeting the watershed phosphorus reduction target of 11,480 lbs/yr, as well as the anticipated future reductions in phosphorus sources and phosphorus effluent concentrations, which shall be measured in accordance with the AM Plan protocols. The report shall summarize AM activities that have been implemented during the current permit term and state which, if any, actions from the approved AM plan No. WQT-2024-0026 (November 2024) were not pursued and why. The report shall include an analysis of trends on both a monthly and six-month average basis for concentrations and mass effluent discharged. Additionally, there shall be an analysis of any improvements to the quality of surface waters in the Adaptive Management Action Area focusing on phosphorus and flow results collected during the permit term. The surface water analysis shall evaluate how the in-stream loadings have changed over the permit term in comparison to implemented AM actions. | 03/31/2033 |
| **Renewal of Adaptive Management Plan for Permit Reissuance:** If the permittee intends to seek renewal of AM plan No. WQT-2024-026 (November 2024) per s. NR 217.18, Wis. Adm. Code, for the reissued permit term, proposed AM goals and actions based on an updated AM plan shall be submitted to the Department for review and approval. The permittee may propose to adjust load reductions required by AM plan No. WQT-2024-00026 (November 2024) either up or down at the beginning of each WPDES permit term to reflect changes in loads associated with point and non-point sources. This schedule may be modified to incorporate any changes in AM goals and actions, removed if the AM program is terminated per the "Adaptive Management Reopener Clause" permit section, or removed if the adaptive management plan has achieved water quality standards as determined by the Department within the AM action area. | 06/30/2033 |
| **Annual Adaptive Management Report #11:** Submit an Adaptive Management report with the required information described in this section (see above). | 03/31/2034 |
| **Annual Adaptive Management Report #12:** Submit an Adaptive Management report with the required information described in this section (see above). | 03/31/2035 |
| **Annual Adaptive Management Report #13:** Submit an Adaptive Management report with the required information described in this section (see above). | 03/31/2036 |
| **Annual Adaptive Management Report #14:** Submit an Adaptive Management report with the required information described in this section (see above). | 03/31/2037 |
| **Final Adaptive Management Report:** Submit the final Adaptive Management (AM) report documenting progress made throughout the AM project in meeting the watershed phosphorus | 03/31/2038 |

| | |
|---|---|
| reduction target of 15,280 lbs/yr, and in stream water quality standards specified in s. NR 102.06, Wis. Adm. Code. The report shall summarize AM activities that have been implemented during the current permit term and state which, if any, actions from the approved AM plan No. WQT-2024-0026 (November 2024) were not pursued and why. The report shall include an analysis of trends on both a monthly and six-month average basis for concentrations and mass effluent discharged. Additionally, there should be an analysis of any improvements to the quality of surface waters in the Adaptive Management Action Area focusing on phosphorus and flow results collected during the permit term. The surface water analysis shall evaluate how the in-stream loadings have changed over the permit term in comparison to implemented AM actions. | |
| **Achieve Water Quality Standards and Adaptive Management Plan Success:** All the receiving waters identified within the AM plan WQT-2024-0026 (November 2024) shall comply with water quality standards specified in s. NR 102.06, Wis. Adm. Code. The permittee shall continue to comply with applicable effluent limits (required under s. 217.18(3)(e)3. expressed as a 6-month avg and 1.0 mg/L monthly avg) and continue monitoring surface waters WQT-2024-0026 (November 2024) at a minimum of monthly May through October for total phosphorus. | 12/31/2038 |

## ~~5.3 Total Phosphorus WQBELs Compliance~~

~~The permittee shall achieve compliance with total phosphorus WQBELs as specified.~~

| ~~Required Action~~ | ~~Due Date~~ |
|---|---|
| ~~**Achieve Compliance with Total Phosphorus WQBELs:** The permittee shall achieve compliance with total phosphorus WQBELs as soon as possible but no later than the date specified.~~ | ~~01/01/2025~~ |

## 5.4 Chloride WQBELs Compliance

Pursuant to s. NR 106.117(3)(d), Wis. Adm. Code, this schedule of compliance requires the permittee to evaluate chloride pollution and waste minimization measures as a means for complying with the final chloride effluent limitations specified below.

| Required Action | Due Date |
|---|---|
| **Annual Chloride Progress Report:** Submit an annual chloride progress report on chloride pollution and waste minimization measures implemented during the previous year with conclusions regarding compliance with final chloride effluent limitations. The annual chloride progress report shall:<br>Identify chloride pollution and waste minimization measures that have been implemented and assess the effectiveness of such measures in making progress towards meeting final chloride effluent limitations.<br>Include an analysis of trends in weekly, monthly and annual average chloride concentrations and total mass discharge of chloride based on chloride sampling and flow data; and<br>Include an analysis of how effluent chloride varies with time and with significant loadings of chloride.<br>The weekly average chloride limitations of 495 mg/L and 7,420 lbs/day in the current permit are effective upon permit reissuance as interim limits until the effective date of the chloride limitations specified below.<br>The first annual chloride progress report is to be submitted by the Date Due. | 01/31/2024 |
| **Annual Chloride Progress Report #2:** Submit a chloride progress report as specified above with conclusions regarding compliance. If the report concludes that final chloride limitations can be met with the permittee's current treatment processes this permit may be modified to include the final | 01/31/2025 |

| | |
|---|---|
| chloride limitations specified below. | |
| **Annual Chloride Progress Report #3:** Submit a chloride progress report as specified above with conclusions regarding compliance. If the report concludes that final chloride limitations can be met with the permittee's current treatment processes this permit may be modified to include the final chloride limitations specified below. | 01/31/2026 |
| **Annual Chloride Progress Report #4:** Submit a chloride progress report as specified above with conclusions regarding compliance. If the report concludes that final chloride limitations can be met with the permittee's current treatment processes this permit may be modified to include the final chloride limitations specified below. | 01/31/2027 |
| **Annual Chloride Progress Report #5:** Submit a chloride progress report as specified above with conclusions regarding compliance. If the report concludes that final chloride limitations can be met with the permittee's current treatment processes this permit may be modified to include the final chloride limitations specified below. | 01/31/2028 |
| **Comply With Final Chloride WQBELs:** Weekly and monthly average chloride effluent limits of 472 mg/L, and weekly average limits of 7,290 lbs/day and 22,500 lbs/day based on wet weather conditions become effective. | 07/01/2028 |

## 5.5 PFOS/PFOA Minimization Plan Determination of Need

| Required Action | Due Date |
|---|---|
| **Report on Effluent Discharge:** Submit a report on effluent PFOS and PFOA concentrations and include an analysis of trends in monthly and annual average PFOS and PFOA concentrations. This analysis should also include a comparison to the applicable narrative standard in s. NR 102.04(8)(d), Wis. Adm. Code.<br><br>This report shall include all PFOS and PFOA data collected including any voluntary influent, intake, in-plant, collection system sampling, and blank sample results. | 12/31/2024 |
| **Report on Effluent Discharge and Evaluation of Need:** Submit a final report on effluent PFOS and PFOA concentrations and include an analysis of trends in monthly and annual average PFOS and PFOA concentrations of data collected over the last 24 months. The report shall also provide a comparison on the likelihood of the facility needing to develop a PFOS/PFOA minimization plan.<br><br>This report shall include all PFOS and PFOA data collected including any voluntary influent, intake, in-plant, collection system sampling, and blank sample results.<br><br>The permittee shall also submit a request to the department to evaluate the need for a PFOS/PFOA minimization plan.<br><br>If the Department determines a PFOS/PFOA minimization plan is needed based on a reasonable potential evaluation, the permittee will be required to develop a minimization plan for Department approval no later than 90 days after written notification was sent from the Department. The Department will modify or revoke and reissue the permit to include PFOS/PFOA minimization plan reporting requirements along with a schedule of compliance to meet WQBELs. Effluent monitoring of PFOS and PFOA shall continue as specified in the permit until the modified permit is issued.<br><br>If, however, the Department determines there is no reasonable potential for the facility to discharge PFOS or PFOA above the narrative standard in s. NR 102.04(8)(d), Wis. Adm. Code, no further action is required and effluent monitoring of PFOS and PFOA shall continue as specified in the | 12/31/2025 |

| | |
|---|---|
| permit. | |

## 5.6 Sludge Management Plan

A sludge management plan is required.

| Required Action | Due Date |
|---|---|
| **Sludge Management Plan (SMP) Submittal:** Submit a sludge management plan (SMP) to optimize the treatment and disposal of sludge by the Due Date.<br><br>The SMP shall include a description of the facilities management program for department approval pursuant to s. NR 204.11(1), Wis. Adm. Code. The plan shall include separate sections for each type of sewage sludge including liquid, cake, algae liquid, dried algae, etc. If there will be designated land application sites for each waste type, they should be listed by legal location and department assigned site number.<br><br>The SMP shall provide standardized information for communication to operators and the department for no less than the following:<br><br>1) Sample point, influent point and outfall monitoring locations shown on a schematic and with photos;<br><br>2) Monitoring requirements at each influent point(s), sampling point(s) and outfall location(s);<br><br>3) Sampling protocols for each location and parameters at each location including treatment temperature, moisture content (total solids), fecal concentration as required;<br><br>4) Monitoring frequencies at each sample point, influent point and outfall;<br><br>5) Analytical methods with appropriate hold times and chain of custody procedures;<br><br>6) Multiple operational algae drying durations that include start up, operation and shutdown of treatment facilities that facilitates Waupun's operators needs for flexibility.<br><br>7) Provide planned moisture content intervals for each option;<br><br>8) Provide documentation relating to temperature monitoring data recording, retrieval and printing out the data when requested;<br><br>9) Storage, pickup and transportation details associated with all outfalls and influent locations;<br><br>10) Dryer start up instructions and details associated with overcoming lack of appropriate temperatures or when exceeding moisture content limits;<br><br>11) Provide documentation of a system for collection, storage, disposal/buyer information for cake algae detailing deliveries; and<br><br>12) Collection, storage, and disposal processes of dried algae when algae does not meet minimum requirements to meet Class A and EQ requirements.<br><br>The SMP shall be developed to have inherent flexibility and to allow for frequent updates as processing may change.<br><br>An extension for submitting the SMP may be requested to allow for startup and compliance of the algae dryer. | 12/31/2024 |

## 5.7 Land Application Management Plan

A land application management plan is required for the land application system.

| Required Action | Due Date |
|---|---|
| **Land Application Management Plan Submittal:** Submit a land application management plan for Department approval pursuant to s. NR 204.11(1), Wis. Adm. Code. The plan shall include a description of the facility's sludge management program and how the permittee plans to operate the facility in compliance with the requirements of ch. NR 204, Wis. Adm. Code. The plan shall include, among others, separate sections for municipal sewage cake sludge, municipal sewage liquid sludge and algae that addresses expected nutrient values and predicted loading rates. If there will be designated landspreading sites for each waste type, they should be listed by legal location and department spreading site number. | 12/31/2024 |

## Explanation of Schedules

**Adaptive Management Interim Limit Compliance Update**

This compliance schedule provides the permittee until May 1, 2025 to comply with the phosphorus adaptive management limit of 0.6 mg/L. The permittee has shown the ability to comply with this limit for less than one year. The interim limit becomes effective at the beginning of a 6-month averaging period.

**Watershed Adaptive Management Option Annual Report Submittals**

This compliance schedule requires the permittee to submit annual adaptive management (AM) annual reports that show progress towards meeting the goals and measures contained in the approved AM plan. The final AM Report for this permit term must document the success of meeting the watershed phosphorus minimum reduction target of 2,210 lbs/yr. The compliance schedule may be modified at permit reissuance, should changes in AM goals and measures or timing necessitate different dates for schedule items.

Pursuant to s. NR 217.18(1) Wis. Adm. Code, phosphorus water quality criteria must be achieved “as soon as possible”. The duration for this adaptative management schedule is 15 years. This timeframe is consistent with the approved adaptive management plan, and represents the shortest possible duration based upon the following factors that influence time required for the water body to achieve the phosphorus criterion:

- Magnitude of point and/or nonpoint source phosphorus reductions required
- Costs associated with point and/or nonpoint source phosphorus reductions
- For nonpoint source reductions, the time required to contact landowners and receive adequate participation to implement practices
- Physical characteristics of the watershed and receiving water, including landuse, soil properties, slopes, channel gradient, and level of legacy sediment/phosphorus currently in the system

~~**Total Phosphorus WQBELs Compliance**~~

~~This schedule requires the permittee to achieve compliance with total phosphorus WQBELs by January 1, 2025.~~

**Chloride Water Quality Based Effluent Limitations Compliance**

This schedule requires the permittee to implement measures to reduce sources of chloride to the treatment plant and comply with the new more stringent chloride WQBELs concentration and mass limitations as soon as possible but no later than July 1, 2028.

**Sludge Management Plan**

This schedule requires the permittee to prepare a plan that specifies how the different sludges produced by different treatment processes used at the treatment plant are treated, land applied or distributed. The plan shall contain standard

operating procedures the permittee shall follow to optimize sludge management and assure that the requirements of ch. NR 204, Wis. Adm. Code, are met.

Permit modification -1 altered the language bullet point number 11 to better describe the requirement. Additionally, the due date was changed to reflect the previously approved extensions for submission of this plan.

**Land Application Management Plan**

This schedule requires the permittee to submit a plan that specifies procedures that will be followed to optimize the operation of land application activities and assure compliance with ch. NR 204, Wis. Adm. Code.

**PFOS/PFOA Minimization Plan Determination of Need**

As stated above, NR 106 Subchapter VIII – Permit Requirements for PFOS and PFOA Dischargers became effective on August 1, 2022. S. NR 106.98, Wis. Adm. Code, specifies steps to generate data in order to determine the need for reducing PFOS and PFOA in the discharge. Data generated per the effluent monitoring requirements will be used to determine the need for developing a PFOS/PFOA minimization plan. As part of the schedule, the permittee is required to submit two annual Reports on Effluent Discharge.

If the department determines that a minimization plan is needed, the permit will be modified or revoked/reissued to include additional requirements.

# Comments:

The permittee intends to complete the required steps to include Water Quality Trading prior to January 1, 2025 when the final phosphorus limits become effective. It is anticipated that the permittee will request a permit modification to include Water Quality Trading by October 2024 to allow time for the permit modification. The permittee will utilize WQT as a back up due to the use of new technology for phosphorus removal.

# Attachments:

- WQBEL for facility planning dated December 22, 2021 (rev. January 26, 2022 and April 7, 2022)
- Adaptive Management Plan Approval Letter dated November 20, 2024
- Final AM Plan dated November 2024

# Proposed Expiration Date:

December 31, 2028

# Justification of Any Waivers from Permit Application Requirements

The permittee was allowed to submit hard copy results of application monitoring required for this permit reissuance; however, the requirement to enter application monitoring results in the eApplication will not be waved for future permit applications.

**Prepared By:**

~~Phillip Spranger, Wastewater Specialist – Advanced~~

Jennifer Jerich, Wastewater Specialist

**Date:** July 17, 2023

**Date Post Fact Check:** 10/26/202; During the first fact check of this permit extensive changes occurred including anticipated the effective date of this permit being at/after the completion of the facility upgrade. Therefore, this permit includes only requirements post upgrade. The department completed a second fact check period and received comments from Applied Technologies. The department made editorial changes and additions to improve clarity of decisions based on the comments received. Additionally, the department changed sample frequency to 5/Week and added PFAS sampling to all sludge outfalls (see sections for more information).

**Date Post Public Notice: 12/15/2023;** Updates made to both permit and fact sheet to ensure consistency between the documents. Several other changes made and are identified in the Notice of Final Determination.

**Date Permit Modification**: 10/23/2024

Date Permit Modification -2: 11/22/2024

**State of Wisconsin**
**DEPARTMENT OF NATURAL RESOURCES**
**3911 Fish Hatchery Rd.**
**Fitchburg, WI 53711**

**Tony Evers, Governor**

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

WISCONSIN
DEPT. OF NATURAL RESOURCES

11/20/2024

Steve Schramm
Treatment Facility Supervisor
817 S Madison St.
P.O. Box 431
Waupun, WI 53963-0431

Subject: Waupun Wastewater Treatment Facility - WPDES Permit WI-0022772
Adaptive Management Plan – CONDITIONAL APPROVAL

Dear Steve Schramm:

The Department received the final draft of the Adaptive Management Plan (AM Plan) prepared by Applied Technologies, Inc. on behalf of the Waupun Utilities. The final plan dated November 2024 was received via electronic submittal on November 19, 2024. The Department has reviewed the AM plan and has no additional comments at this time.

Based on the WDNR review, the AM Plan is in general conformance with the WDNR Adaptive Management Guidance and requirements contained in s. NR 217.18, Wis. Adm. Code. The plan indicates that the City of Waupun will utilize AM to comply with the effluent limitations for total phosphorus for their discharge from the Waupun Wastewater Treatment Facility (WWTF), Outfall 001, to the South Branch of the Rock River. Actions outlined on pages 4-3 through 4-5 of the AM plan involve point and nonpoint phosphorus reductions throughout the South Branch of the Rock River, identified as the AM plan's action area. For continued AM eligibility, point and nonpoint source phosphorus reductions undertaken by Waupun and various AM partners are expected to offset the WWTF's proportional phosphorus loading to the South Branch of the Rock River, 2,210 lbs/yr, within the first permit term.

The proposed project duration is fifteen years and may be adjusted per the provisions of s. NR 217.18 and s. 283.13(7) Wis. Stats. Based on the milestones found within the AM Plan, phosphorus reduction goals are as follows:

Permit Term 1 – 7,650 lbs/yr
Permit Term 2 – 11,480 lbs/yr
Permit Term 3 – 15,280 lbs/yr

While these reductions may be modeled to demonstrate interim progress, final compliance (as demonstrated pursuant to s. NR 217.18(3)(e)4 Wis. Adm. Code.) will be based on monitoring data from in-stream sampling. At this time, samples may be collected at the sample point located downstream of the point of discharge from the Waupun WWTF (43.640015, -88.70730). The Point of Compliance (43.63577, -88.68660) as identified in the approved plan may need to be modified in future plans, pending further discussion.

The Department conditionally approves the AM Plan as a basis for phosphorus compliance during the next WPDES permit term. The WDNR has assigned the AM plan a tracking number of WQT-2024-0026 and will be referenced as such in the draft WPDES permit. The draft permit will contain an interim limit for phosphorus and reporting requirements consistent with s. NR 217.18, Wis. Adm. Code. The final AM plan will be included as part

of the public notice package for permit reissuance, and final approval is subject to public comment and EPA review.

If you have any questions or comments, please contact me at 608-419-4155 or at betsyjo.howe@wisconsin.gov

Thank You,

BetsyJo Howe

BetsyJo Howe
SCR WQT/AM Coordinator
Wisconsin Department of Natural Resources

e-CC:

Leo Kucek, P.E., Applied Technologies, Inc.
Jennifer Jerich, WDNR
Jordan Main, WDNR
Matt Claucherty, WDNR

ENGINEERING REPORT

NOVEMBER 2024

WAUPUN UTILITIES
THE POWER OF COMMUNITY

# Adaptive Management Plan

Applied Technologies
Engineers - Architects

PN6554

# ADAPTIVE MANAGEMENT PLAN

## WAUPUN UTILITIES

### November 2024

Prepared by:

Applied Technologies, Inc.
13400 Bishop's Lane, Suite 270
Brookfield, WI 53005
(262) 784-7690

PN6554

# TABLE OF CONTENTS

# CHAPTER 1
# EXECUTIVE SUMMARY

Waupun Utilities owns and operates a wastewater treatment facility (WWTF) that discharges to the Rock River. Effluent limits are based on the Rock River Total Maximum Daily Load (TMDL), unless nonpoint source reduction compliance alternatives such as Water Quality Trading or Adaptive Management are incorporated into the WPDES permit. This report presents the Adaptive Management Plan for the Waupun Action Area.

Partnerships were established in the watershed, including key partnerships with the Fond du Lac County Land and Water Conservation Department, Fond du Lac Watersheds Alliance, and Wings Over Wisconsin. The Waupun Action Area includes Reaches 2 and 3 of the Rock River TMDL. Agriculture is the dominant land use within the Waupun Action Area, which suggests that nonpoint source reductions should be focused on reducing phosphorus runoff via implementation of best management practices (BMPs).

To prioritize areas for BMP implementation, it is essential to communicate with local farmers for potential areas of improvement. These include crop fields throughout the Waupun Action Area, especially near surface water and fields with steep slopes. Improved effluent quality at the Waupun WWTF is expected to provide a portion of the target phosphorus reductions through Waupun's new Advanced Biological Nutrient Recovery (ABNR). The ABNR system is a suspended growth algae-based treatment process that operates in a continuously-controlled environment.

Project success will be defined by improved water quality, documented implementation of BMPs, and financial viability for the Utility. These metrics will be evaluated annually, with Adaptive Management (AM) being assessed before each new permit term. AM is the lowest cost compliance option for Waupun. With this Adaptive Management Plan, Waupun Utilities is eager to do its part to improve the water quality of the Rock River.

# CHAPTER 2
# INTRODUCTION

Waupun Utilities owns and operates a Wastewater Treatment Facility (WWTF) in Fond du Lac County. Waupun's WWTF provides services to residential and commercial customers for the City of Waupun.

## BACKGROUND

The design average flow of the WWTF is 2.14 mgd, with the 2021-2024 average flow of approximately 2.22 mgd. The current average effluent phosphorus concentration is approximately 0.47 mg/L, based on 2021-2024 data.

Waupun's WWTF discharges into the South Branch of the Rock River, which has a Water Quality Criterion (WQC) of 0.075 mg/L Total Phosphorus (TP), per Appendix G of the Rock River TMDL Report (July 2011).

Waupun Utilities submitted a Final Compliance Alternative Plan (CAP) in January 2019. The Compliance Alternative Plan was performed to evaluate a wide variety of compliance alternative capable of ensuring permit compliance. The Final CAP provided a summary of the alternatives considered for the Waupun WWTF. Waupun Utilities selected to achieve compliance via a hybrid approach: installation of a tertiary Advanced Biological Nutrient Recovery system along with nonpoint source (NPS) reductions via Water Quality Trading (WQT).

Since 2019, the ABNR system was constructed, but startup has faced challenges, including the dissolution of subcontractor/technology company responsible for the ABNR system. Moreover, recent sampling of the river has shown that phosphorus concentrations in the river are much lower than had been previously reported. Through its preliminary work developing best management practices (BMPs) to implement within the watershed, it became clear that Adaptive Management is now the best option for Waupun Utilities to improve the water quality in the Rock River and achieve permit compliance. This report presents the Adaptive Management Plan.

## ADAPTIVE MANAGEMENT

Adaptive Management presents a unique opportunity for Waupun Utilities to demonstrate compliance with its permit. Waupun Utilities is poised to work with partners to reduce phosphorus loadings in the Waupun Action Area. Through both point and non-point load reductions, Waupun Utilities' goal is for the Rock River to achieve the TP Water Quality Criterion (WQC) of 0.075 mg/L at the proposed point of compliance, located at the end of Rock River Basin Reach 3, which is downstream of where Waupun's WWTF effluent is discharged.

## IDENTIFY PARTNERS

A successful Adaptive Management Plan relies on strong partnerships. Fortunately, the Waupun Action Area already has many active parties working to improve water quality. Sampling of the South Branch of the Rock River was conducted from 2017-2019, however additional monitoring was not resumed until 2024. Farmer-led organizations such as Dodge County Farmers for Healthy Soil-Healthy Water, as well as the Fond du Lac County Watersheds Alliance (FCWA) are focused on working with farmers and rural landowners on conservation methods. Other key partners include organizations such as Wings Over Wisconsin and the Fond du Lac County Land and Water Conservation Department (LWCD).

The Fond du Lac County LWCD is willing to conduct outreach to producers and landowners specifically on behalf of the Waupun Adaptive Management Program. Therefore, the Fond du Lac County LWCD will continue to shape the Waupun Adaptive Management Program throughout the years of its operation.

The Wisconsin Department of Corrections has expressed a willingness to consider opportunities, such as perennial vegetation, on lands owned and managed by the DOC. The DOC owns approximately 300 acres within Fond du Lac County, including more than 200 acres in the Town of Waupun east of the City of Waupun.

## TABLE NO. 2-1
## Waupun Utilities Adaptive Management Partners

| Partner | Role / Responsibilities |
|---|---|
| **Waupun Utilities** | Lead partner for Adaptive Management Project. |
| | Coordinate project efforts, define scope. |
| | Establish schedule for proposed projects. |
| | Source of financial assistance for improvements and new practices. |
| | Coordinate search for external funding. |
| **Applied Technologies, Inc.* (ATI)** | Provide technical assistance for Waupun's Wastewater Treatment Facility. |
| | Provide technical assistance to Waupun Utilities for implementing and quantifying phosphorus reductions in the watershed. |
| | Support efforts to complete grant proposals and cost-share applications. |
| **Fond du Lac County Land and Water Conservation Department (LWCD)*** | Conduct outreach to producers/landowners specifically on behalf of the Waupun Adaptive Management Program. |
| | Provide technical assistance and review of implemented practices in Fond du Lac County. |
| | Carry out programs that conserve land and water resources. |
| **Fond du Lac County Watersheds Alliance (FCWA)*** | Identify opportunities for phosphorus reductions in the watershed. |
| **Wings Over Wisconsin*** | Provide local leadership. |
| | Identify opportunities for phosphorus reductions in the watershed. |
| | Work with private landowners, state and federal agencies, and communities throughout the state in efforts to restore grasslands, woodlands, and wetlands. |
| **Dodge County Farmers for Healthy Soil Healthy Water (FHSHW)** | Identify opportunities for phosphorus reduction in the watershed. |
| | Provide technical assistance, regulatory oversight, and review of implemented practices in Dodge County. |
| **Dodge County LWCD** | Provide technical assistance and review of implemented practices in Dodge County. Provide local leadership. Carry out programs that conserve land and water resources. |
| **Wisconsin Department of Corrections (DOC)** | Identify and participate in opportunities for BMPs on land managed by the DOC. |
| **United States Department of Agriculture (USDA): Farm Services Agency (FSA) and Natural Resources Conservation Service (NRCS)** | Provide technical assistance and financial assistance for the Adaptive Management Project. |
| | Support enrollment in USDA programs with cost-share/funding such as the Environmental Quality Incentive Program (EQIP) and the Regional Conservation Partnership Program (RCPP) to implement BMPs as part of the Adaptive Management Project. |
| **Wisconsin Department of Natural Resources (WDNR)** | Provide regulatory oversight for the Adaptive Management Project. |
| | Coordinate directly with the Utility regarding compliance with effluent limits at the Wastewater Treatment Facility and progress with implementing the Adaptive Management Plan. |

Note: Asterisks indicate key partners.

# CHAPTER 3
# WATERSHED INFORMATION

The Waupun Action Area, shown in Figure 3-1, includes Reach 2 and Reach 3 of the Rock River Total Maximum Daily Load (TMDL). Reach 2 encompasses the South Branch of the Rock River to just before the Fond du Lac St. Bridge, which is upstream of the point of discharge from the Waupun WWTF. Reach 3 encompasses the remainder of the South Branch of the Rock River, including the area downstream of the Waupun WWTF at the confluence with the West Branch of the Rock River. The Waupun Action Area is a neighboring action area to the Beaver Dam Action Area, as shown in Figure A-1 in the Appendix.

## ADAPTIVE MANAGEMENT ELIGIBILITY

As detailed in the 2019 Final Compliance Alternatives Plan (CAP), Waupun Utilities is eligible for Adaptive Management (AM) based on: 1) its demonstration that a major facility upgrade is required to meet total phosphorus (TP) limits at the WWTF, and 2) the permittee's location within a nonpoint source dominated watershed.

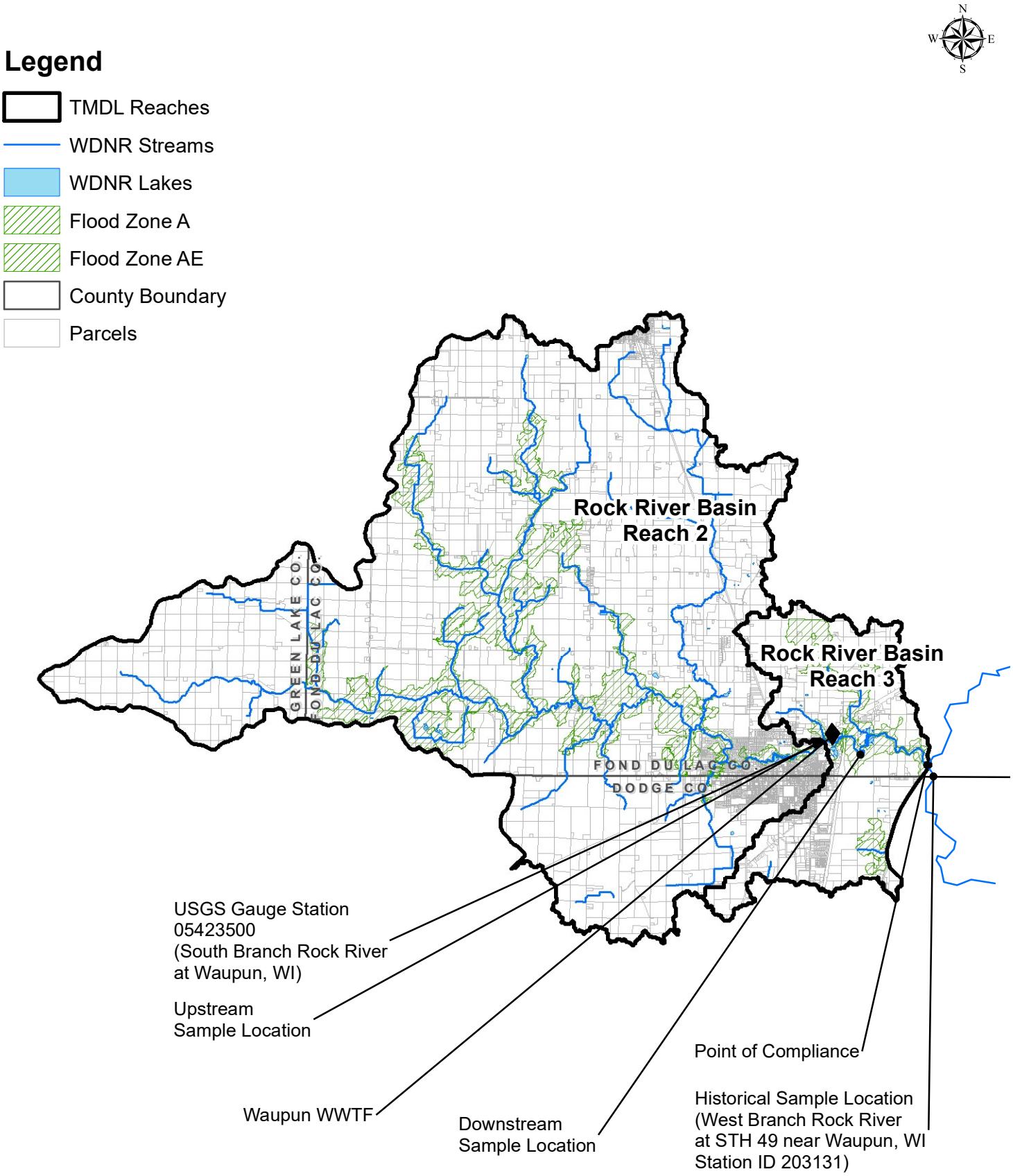
To evaluate AM for Waupun Utilities, the required reductions needed to meet the Water Quality Criterion (WQC) of 0.075 mg/L at the point of compliance (POC) must be established. Required reductions are based on the nonpoint source and point source phosphorus loads within the Waupun Action Area and the allowable phosphorus load at the POC.

### FLOWS AND TP LOADINGS – POINT OF COMPLIANCE

Current flow data at the POC was unavailable. Therefore, the annual average flow of the Rock River at the POC was calculated as the sum of the following:

1. The annual average flow at United States Geological Survey (USGS) Gage Station 05423500 between 2017-2019, upstream of the WWTF
2. The annual average effluent flow of the WWTF based on eDMR data between 2021-2024
3. Proportional flow of the Reach 3 catchment area, based on flow data upstream of the WWTF at USGS Gage Station 05423500.

The current annual average flow at the POC was estimated to be 29.4 mgd. Flow data from these sources is summarized in Table 3-1. Detailed flow data for USGS Gage Station 05423500 and the WWTF is provided in Table 1 and 4, respectively, of the Technical Memorandum "*Request for Conditional Approval of Adaptive Management"* provided in Appendix C.




Document Path: C:\Users\PhilCGerlach\Documents\Waupun Adaptive Management GIS\Figure 3-1 Waupun Action Area.mxd

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FIGURE 3-1
WAUPUN ACTION AREA
Adaptive Management Plan
Waupun Utilities

**TABLE 3-1**
**Point of Compliance – Annual Average Flow, 2017-2019**
**Waupun Utilities WWTF**

| Location | Annual Average Flow (mgd) | Sample Period |
|---|---|---|
| USGS 05423500 | 24.6 | 2017-2019 |
| WWTF Effluent | 2.22 | 2021-2024 |
| Reach 3 Proportional Flow | 2.52 | 2017-2019 |
| **Total Annual Average Flow** | **29.4** | |

Phosphorus concentration data at the POC was also unavailable. In lieu of these data, the NR 217 median growing season phosphorus concentration was determined using available data between 2017-2019 at the Historical Sample Location (West Branch Rock River at STH 49 near Waupun, WI Station ID 203131) shown in Figure 3-1. These data are summarized in Table 3-2.

**TABLE 3-2**
**Point of Compliance – Annual Average TP Concentration, 2017-2019**
**Waupun Utilities WWTF**

| Date | TP (mg/L) |
|---|---|
| September 2019 | 0.273 |
| October 2018 | 0.266 |
| July 2018 | 0.229 |
| June 2018 | 0.227 |
| April 2018 | 0.081 |
| October 2017 | 0.356 |
| August 2017 | 0.231 |
| June 2017 | 0.288 |
| May 2017 | 0.246 |
| **Median Concentration** | **0.246** |

As shown on Figure 3-1, these data were collected downstream of the POC and include additional phosphorus loading from Reach 4, which is outside of the Waupun Action Area. It is expected that the actual TP concentration at the POC is less than the concentrations shown in Table 3-2.

Based on the Total Annual Average Flow of 29.4 mgd and the NR 217 Median Growing Season TP Concentration of 0.246 mg/L, the current annual average TP loading at the POC is 21,990 lb/yr. The allowable TP load at the POC is 6,710 lb/yr based on the WQC of 0.075 mg/L.

## FLOWS AND TP LOADINGS – WAUPUN WWTF

Effluent flows and loadings reported on Waupun Utilities' eDMR data from 2021 through 2024 was analyzed to determine the current annual average effluent flows and TP loading from the WWTF. Results are summarized in Table 3-3.

**TABLE 3-3**
**Current Flows and TP Loadings, 2021-2024**
**Waupun Utilities WWTF**

| Year | Flow (mgd) | TP (mg/L) | TP (lb/d) |
|---|---|---|---|
| 2021 | 1.75 | 0.59 | 8.61 |
| 2022 | 2.02 | 0.52 | 8.76 |
| 2023 | 2.24 | 0.49 | 9.15 |
| 2024 | 2.87 | 0.28 | 6.70 |
| **Average** | **2.22** | **0.47** | **8.70** |

Based on an average flow of 2.22 mgd and an effluent TP loading of 8.70 lb/d, the annual average TP loading from the WWTF to the Rock River is approximately 3,180 lb/yr.

## REQUIRED LOAD REDUCTIONS

Guidance from page 60 of the "*Wisconsin Department of Natural Resources (WDNR) Adaptive Management Guidance Handbook, Edition 2*" was used to calculate the first permit term offset and ultimate reductions required to meet the WQC. Required reductions were calculated based on the results from Table 3-1 through Table 3-3. The first permit term offset required was considered to be equal to 50% of the ultimate reductions required. Results are summarized in Table 3-4.

**TABLE 3-4**
**First Term and Ultimate Phosphorus Reductions Required**
**Waupun Utilities WWTF**

| Parameter | TP Load (lb/yr) |
|---|---|
| Current TP Load at POC | 21,990 |
| Allowable TP Load at POC | 6,710 |
| **Ultimate TP Reduction** | **15,280** |
| **First-Term Offset Required** | **7,650** |
| **Applicant's Proportional Share of Ultimate Reduction** | **2,210** |

### QUALITY OF DATA REPRESENTING CURRENT ROCK RIVER CONDITIONS

It is worth noting that the river data used to calculate the required reductions is outdated and not consistent with the period of time used to analyze current contributions from the Waupun Utilities WWTF. Furthermore, the data used to represent current phosphorus concentrations at the POC were collected downstream of the confluence of the South Branch and West Branch of the Rock River, which includes contributions from Reach 4 of the Rock River TMDL. Therefore, updated data will be used to modify the Waupun Adaptive Management Plan in future years.

## WATERSHED DESCRIPTION AND INVENTORY

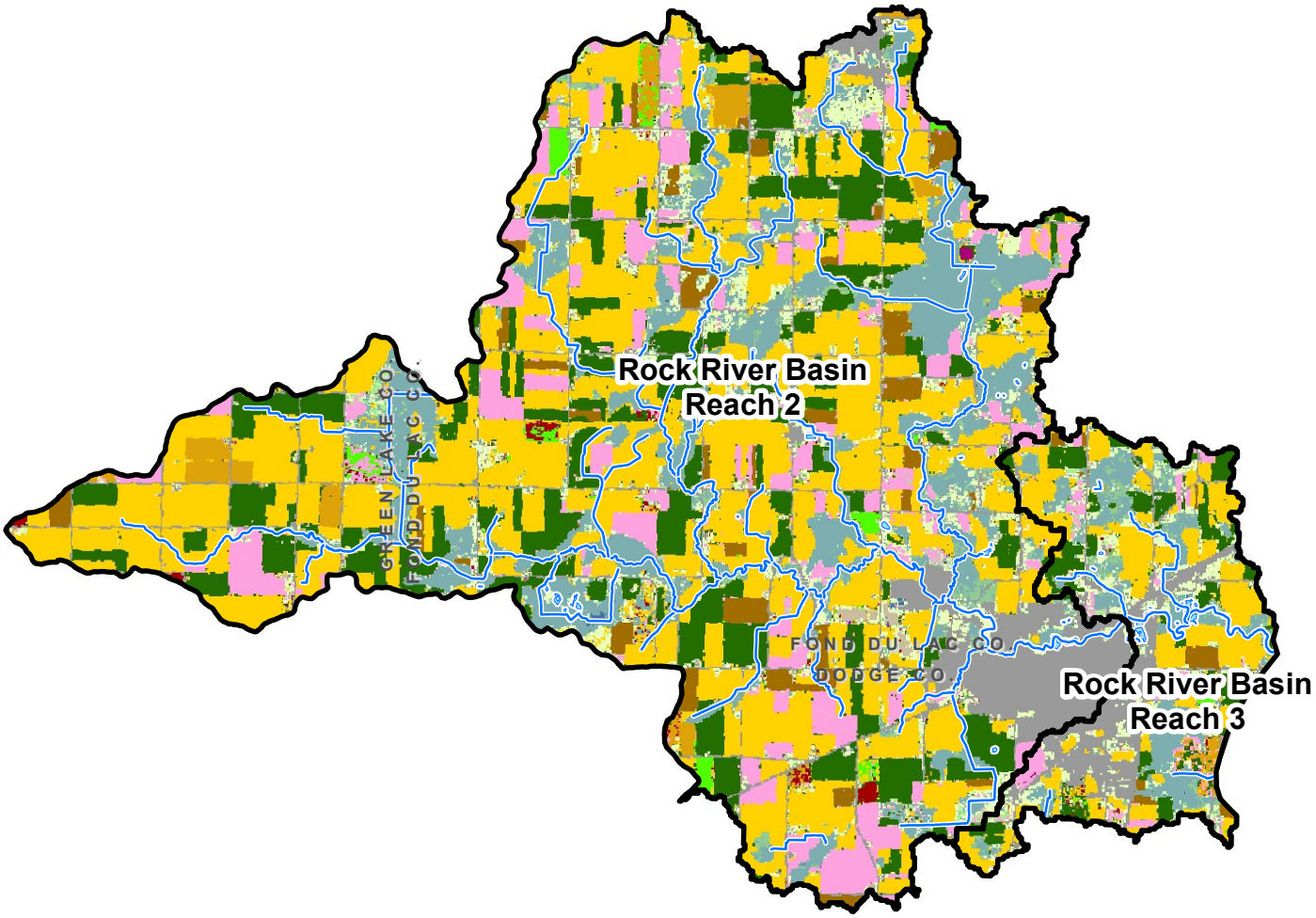
Adaptive Management presents a unique opportunity for Waupun Utilities to demonstrate compliance with its permit. Waupun Utilities has identified partners and practices to reduce phosphorus loadings in the Waupun Action Area.

### LAND USE

Land use and land management practices are key to understanding the water quality within the Waupun Action Area. Figure 3-2 shows that corn dominates the map in yellow, with soybeans in dark green. Alfalfa (pink) and grass/pasture (light green) dot the landscape. A considerable portion of the Action Area is comprised of wetlands, in grayish-blue. Notably, the western edge of Reach 2 in Green County (Watershed A) is dominated by corn and soybeans, while wetlands, alfalfa, and grass/pasture are more common in the northern potion of Reach 2 (Watershed D). Dodge County appears to have relatively more development (grey) than Fond du Lac County, as well as abundant alfalfa in Reach 2 (Watershed C) and wetlands in Reach 3.

In Figure 3-3, it is shown that continuous corn is abundant just west of Waupun (Watershed C), around Alto (southern portions of Watersheds B and D) as well as in Green Lake County (Watershed A). In the northern portions of Reach 2, near Brandon, corn frequency is lower, indicating a more balanced cropping rotation.

As shown in Table 3-5, the Waupun Action Area is primarily agricultural, with ~65% of the total acreage in cropland. Other areas of land use include ~10% in developed land, ~15% in wetlands, ~7% in grassland and pasture, etc.

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Engineers - Architects

FIGURE 3-2
ACTION AREA LAND USE
Adaptive Management Plan
Waupun Utilities

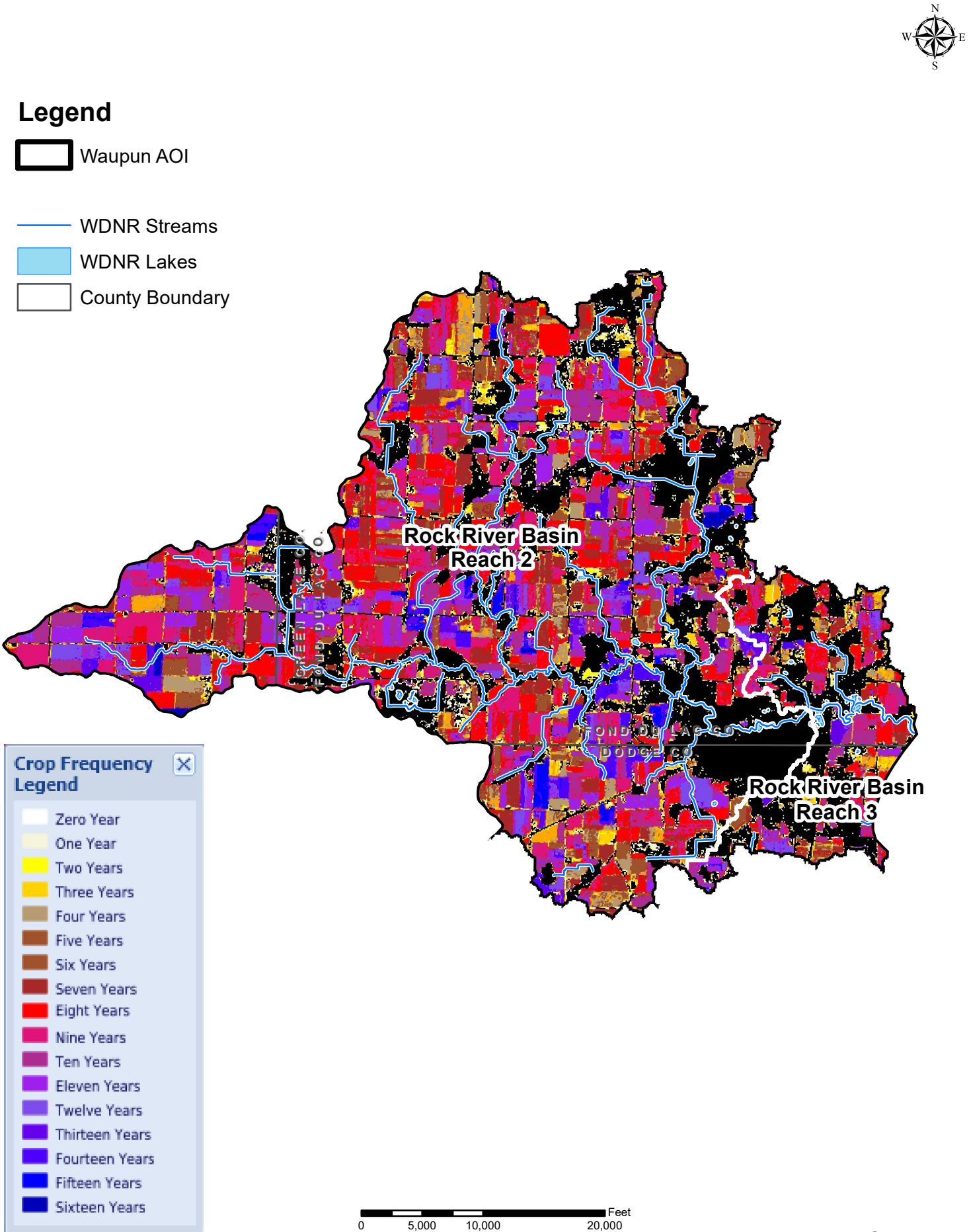


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FIGURE 3-3
CORN FREQUENCY
Adaptive Management Plan
Waupun Utilities

**TABLE NO. 3-5**
**Waupun Action Area Land Use, 2023**

| Land Use | Acres | % of Action Area | % of Cropland |
|---|---|---|---|
| Forest | 720 | 1.6% | - |
| Developed | 4430 | 10.1% | - |
| Corn | 16350 | 37.3% | 57.0% |
| Soybeans | 6720 | 15.3% | 23.4% |
| Wetlands | 6660 | 15.2% | - |
| Grass/Pasture | 3110 | 7.1% | - |
| Open Water | 61 | 0.1% | - |
| Hay | 190 | 0.4% | 0.7% |
| Other Crops | 5450 | 12.4% | 19.0% |
| Fallow/Idle Cropland | 0 | 0.0% | - |
| Miscellaneous | 110 | 0.2% | - |
| **Total** | **43,787** | **100.0%** | **-** |
| **Cropland** | **28,700** | **65.5%** | **100.0%** |

### *Corn*

Corn comprises ~37% of the total acres in the Waupun Action Area, and more than 55% of the cropland acres. It is grown primarily for grain production, which a small percent produced for silage. Corn is grown frequently on the same parcels. Under almost continuous corn plantings, measures are required to control for erosion and other sources of phosphorus loss to surface waters.

### *Cropland Management Practices*

To prevent phosphorus loss to surface waters, corn growers in the Waupun Action Area may employ several practices. Practices such as cover crops, conservation easements, and non-till/reduced tillage are already in use within Fond du Lac County.

Cover crops are especially compatible with corn production, either in continuous corn or with a rotation that does not yet include a winter cover. Cover crops support soil health, improved

infiltration, reduced erosion, and can contribute to higher corn yields. Consequently, interest in cover crops by corn growers is increasing, and adoption of cover crops has great potential to reduce phosphorus loadings to surface waters. A map of farmers that may be interested in BMPs such as cover crops is included in the Appendix.

According to the Fond du Lac County Conservation Department and other key partners, implementation of perennial vegetation may also be popular in the Waupun Action Area. While perennial vegetation implementation on cropland requires growers to suspend their crop production in exchange for a payment, the payments through the Conservation Reserve Program (CRP) of the United States Department of Agriculture can be economical, with up to half of the cost cost-shared by the USDA. It was estimated that implementation of CRP-type BMPs may result in phosphorus runoff reductions of up to 2 pounds per acre. Historically unproductive fields, lowland and steep areas may all be candidates for perennial vegetation and conservation easements.

A considerable portion of agricultural acres are part of a dairy rotation. With the support of the Fond du Lac County Watersheds Alliance, the Waupun Adaptive Management Plan will encourage hay production in the lowlands to serve as a "buffer" for upland flows. Meanwhile, pollution from upland fields via gulleys can be corrected by implementing grassed waterways. The Waupun Adaptive Management Plan will support FCWA's efforts to encourage grassed waterways.

It is known that some crop acres in the Waupun Action Area are currently managed with either reduced tillage of non-till practices. However, is expected that some of the growers currently using intensive tillage may be willing to try new practices to reduce phosphorus losses, although this subset of growers typically lags behind others in the adoption of conservation management practices. In addition, growers that employ no-till may not see significant reductions in phosphorus losses if they add cover crops. Based on these factors, it is anticipated that improved tillage practices may offer a tertiary option for reduced phosphorus loadings to surface water.

## CRITICAL SOURCE AREAS

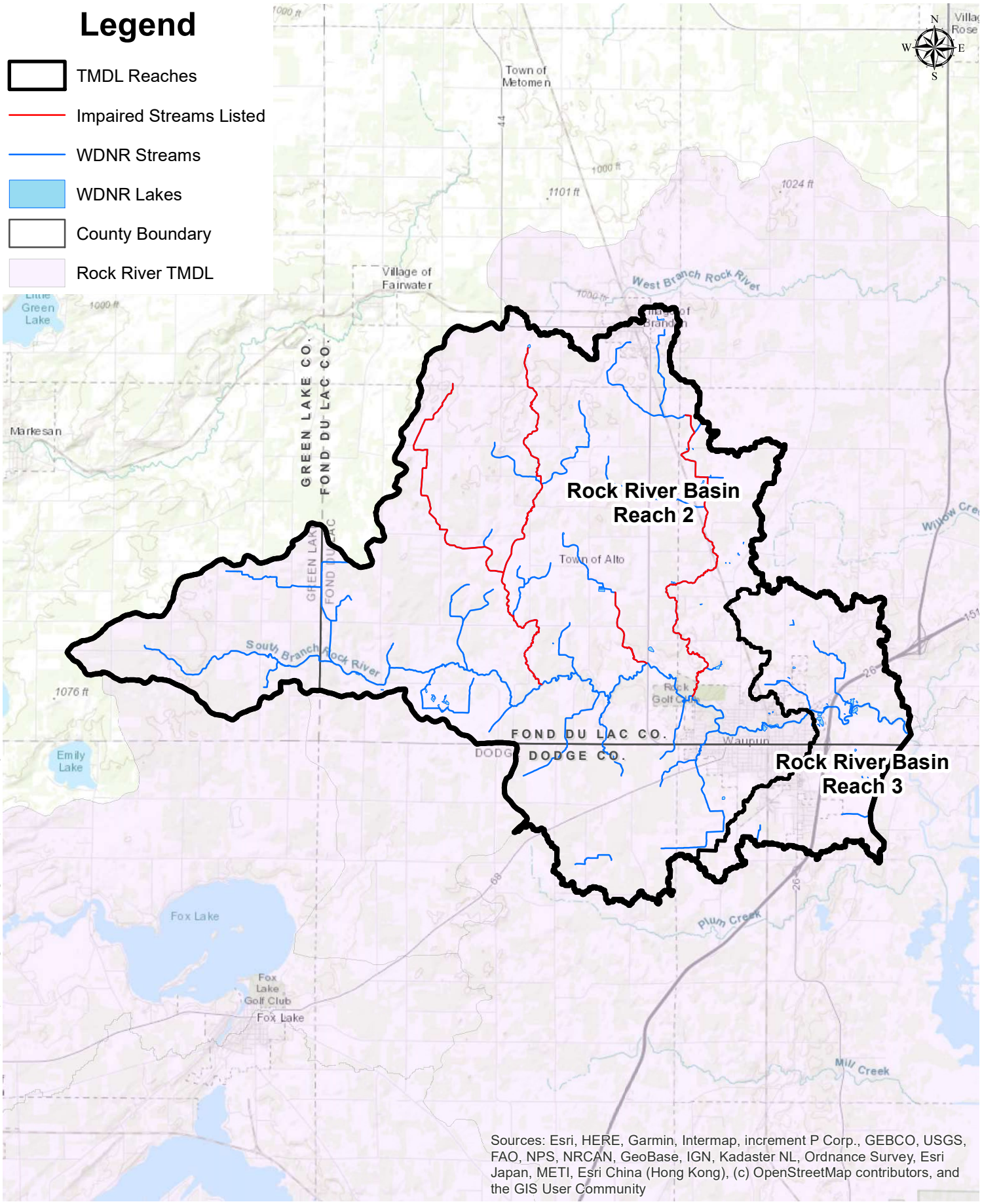
For a successful Adaptive Management Plan, impaired streams – especially near the point of compliance – should achieve lower phosphorus levels. In Figure 3-4, only the northern tributaries of the South Branch of the Rock River were listed as impaired, and it appears that this dataset is from within the past few years.

By contrast, Figure 3-5 shows that these northern tributaries of the South Branch of the Rock River were listed as "Medium Priority" for the Rock River TMDL, while the South Branch itself was listed under "Multiple Priorities", apparently including "Implementation Priority". Importantly, the data in Figure 3-5 relies on old data, while Figure 3-4 relies on more recent data. This suggests that the South Branch of the Rock River may be in better condition than it was characterized by the 2011 Rock River TMDL Report.

Moreover, Figure 3-5 includes SPARROW model catchment delivery fractions, with higher values indicating a higher level of delivery to downstream waterbodies. This model serves as a starting point for Critical Source Area (CSA) definition. CSAs should be identified to efficiently meet the goals of AM. These CSAs are marked by areas of high phosphorus losses as well as high potential for phosphorus transport to the surface water. CSA identification will continue as part of the early phases of the AM process, including further engagement with Waupun AM partners. CSA identification and the watershed inventory will continue to be updated as needed.

As detailed previously, the concentration data for Reaches 2 and 3 are incredibly outdated. For the historical sample location on the West Branch of the Rock River (Station ID 203131 at STH 49) within the most upstream portion of Reach 4, recent data suggests that the median concentration is less than half the level observed through 2007-2017. Therefore, additional sampling is absolutely necessary before implementing practices, as described in Chapter 4.

A rough delineation of six watersheds within the Action Area are defined in Figure 3-7. Notably, most of Reach 3 that is in Dodge County does not appear to flow to the Point of Compliance, according to PRESTO. Therefore, BMP implementation is only recommended in Reach 3 within Watershed F.




Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

0 5,000 10,000 20,000 Feet

Document Path: C:\Users\PhilCGerlach\Documents\Waupun Adaptive Management GIS\Figure 3-4 Impaired Waterways.mxd

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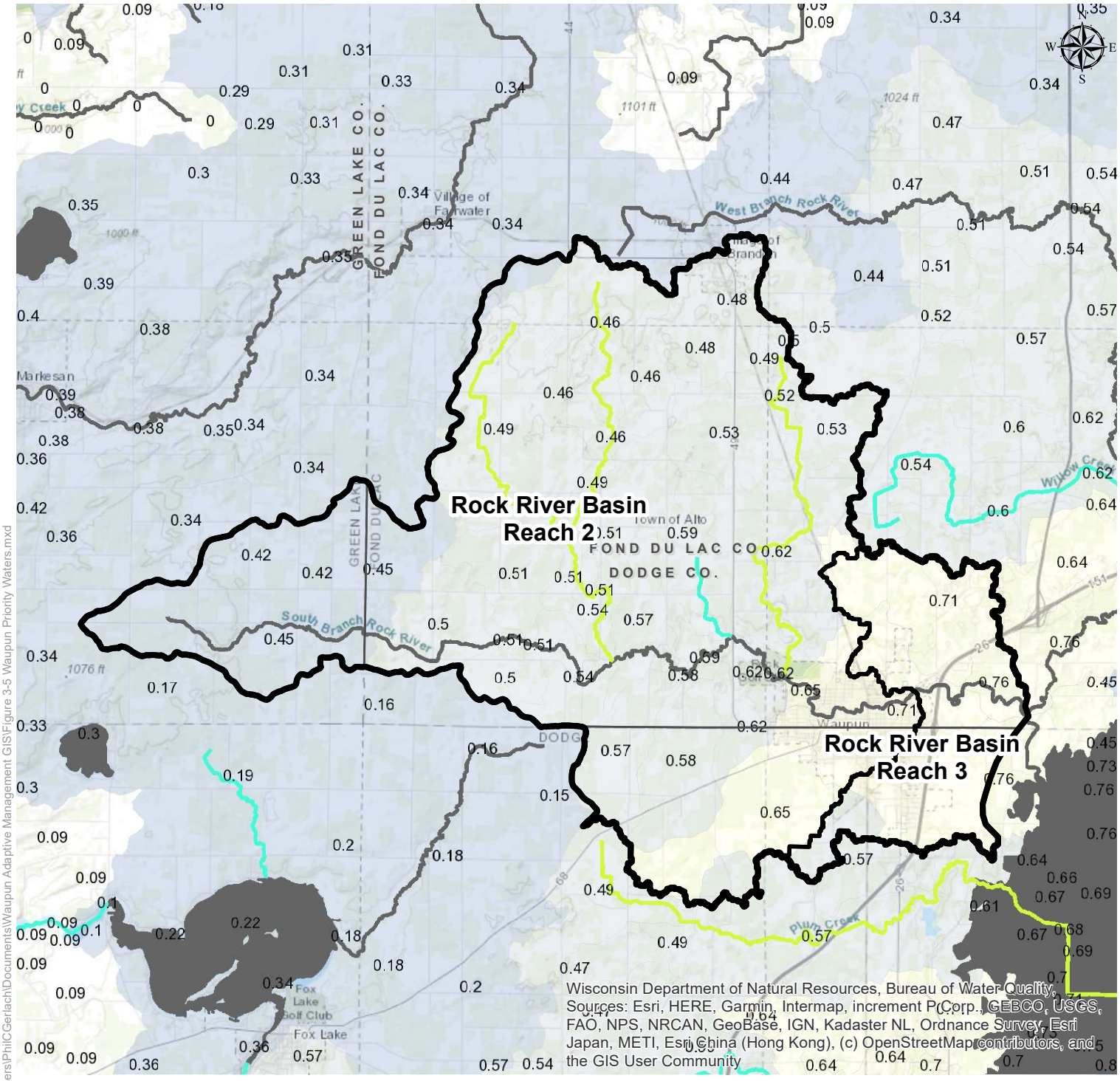
FIGURE 3-4
IMPAIRED WATERWAYS
Adaptive Management Plan
Waupun Utilities

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Applied Technologies
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FIGURE 3-5
PRIORITY WATERWAYS
Adaptive Management Plan
Waupun Utilities

## Legend

- Waupun_AOI
- TMDL Reaches
- County Boundary

**2007-2017 Calculated TP Data**

**NR217 Rolling Median**

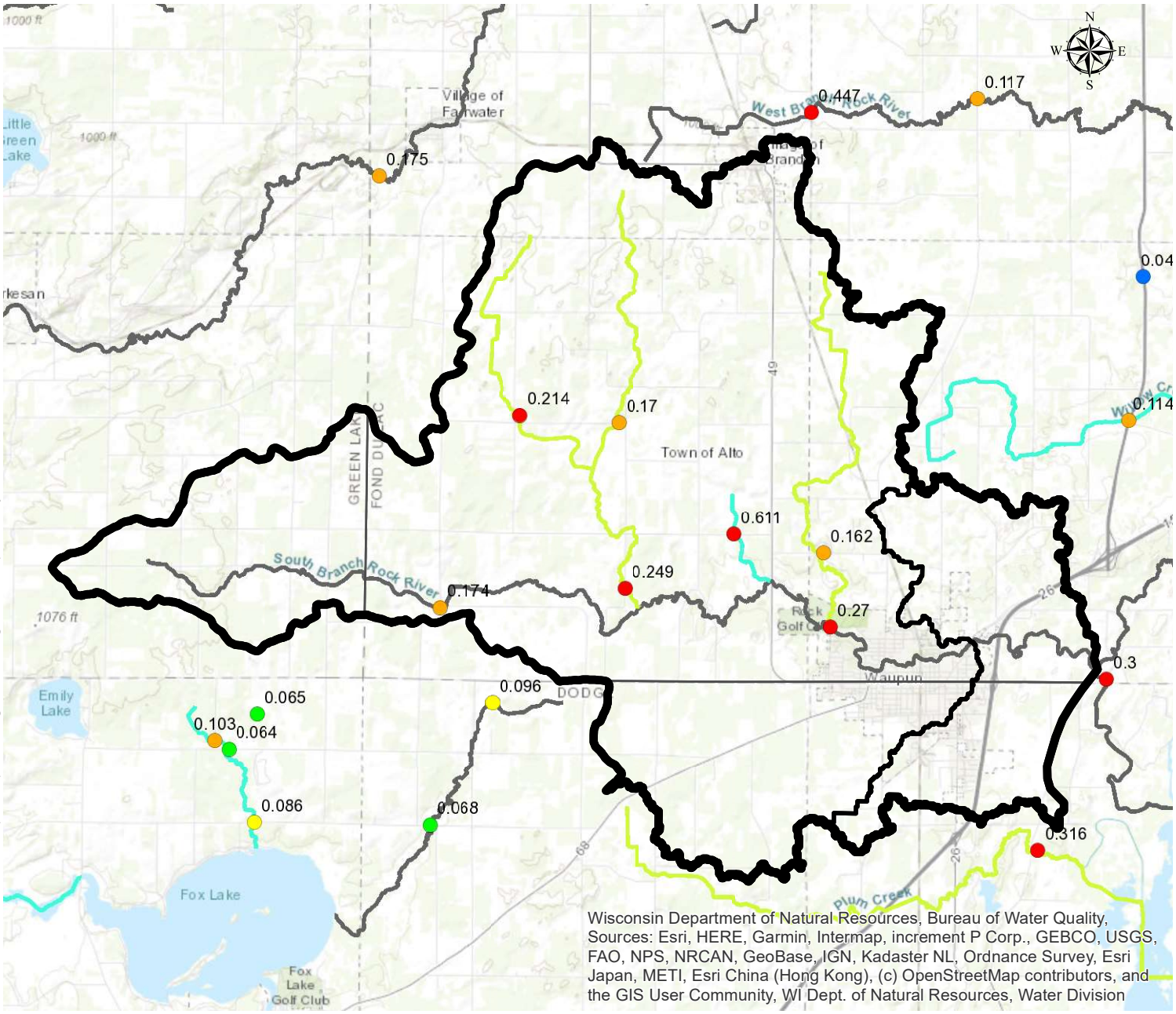
- Insufficient Data
- Less than 0.05
- 0.0501 - 0.075
- 0.0751 - 0.1
- 0.101 - 0.2
- Greater than 0.2

**TMDL Priority Lines**

- Multiple Priorities

**IMPAIRED_WATER_PRIORITY**

- Implementation Priority
- High Priority
- Medium Priority
- Low Priority




Wisconsin Department of Natural Resources, Bureau of Water Quality, Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community, WI Dept. of Natural Resources, Water Division

0 4,850 9,700 19,400 Feet

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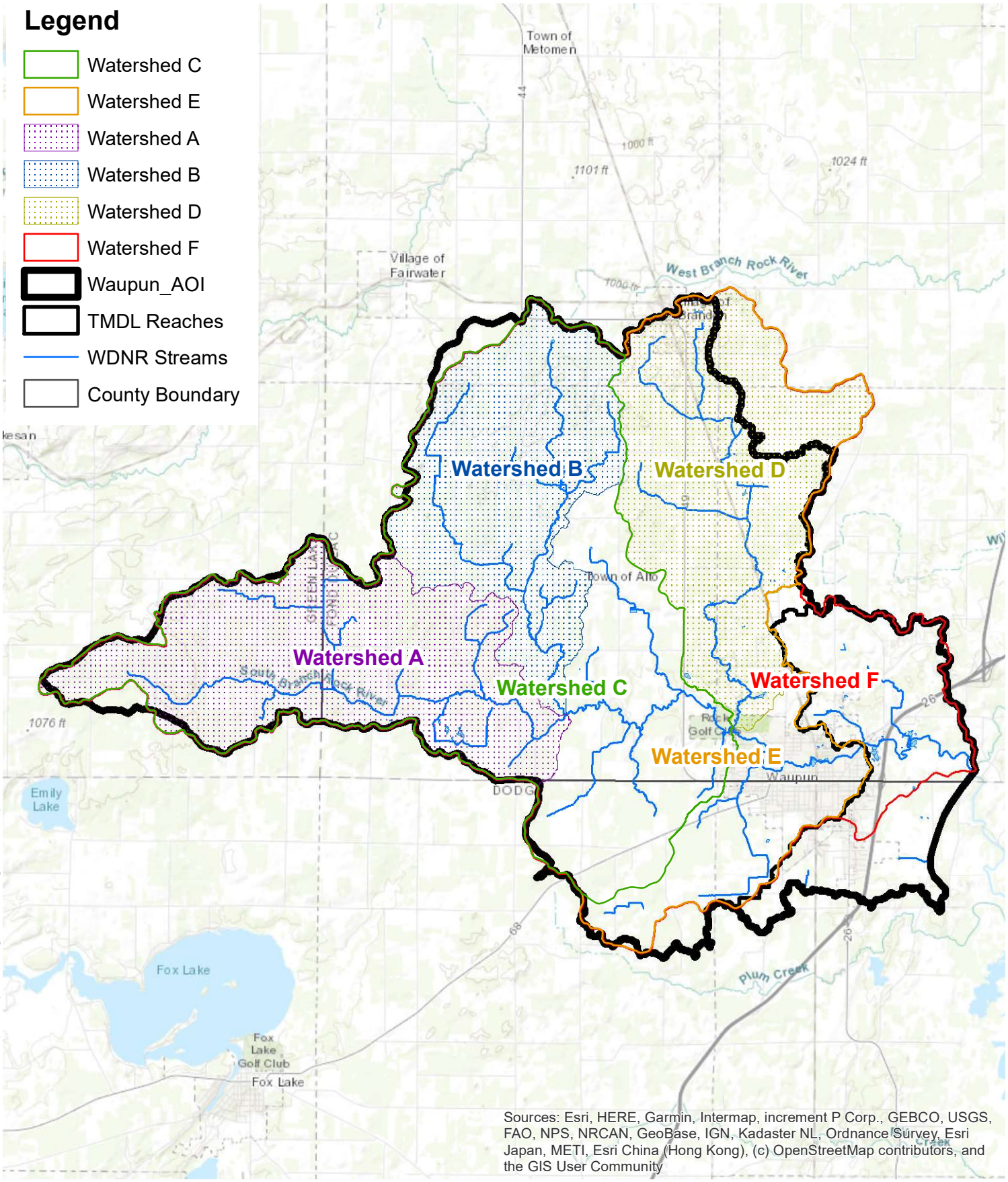
FIGURE 3-6
PRIORITY WATERWAYS
Adaptive Management Plan
Waupun Utilities




Document Path: C:\Users\PhilCGerlach\Documents\Waupun Adaptive Management GIS\Figure 3-7 Waupun Watersheds.mxd

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Engineers - Architects

FIGURE 3-7
WAUPUN ACTION AREA WATERSHEDS
Adaptive Management Plan
Waupun Utilities

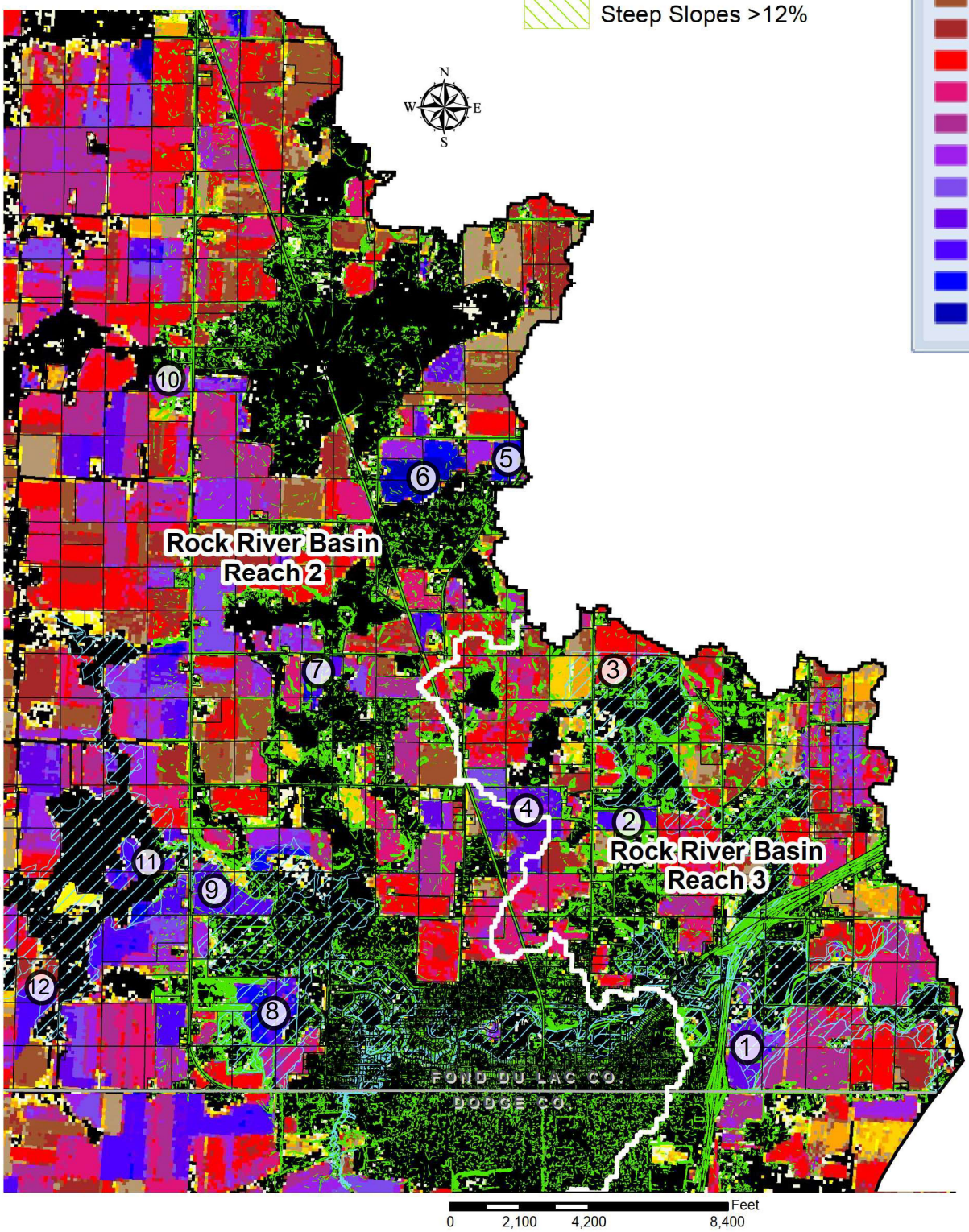
## TARGETED OUTREACH EFFORTS

To prioritize outreach for BMP implementation, several factors will continue to be considered, including land and cropping analyses, along with recommendations from key partners.

Remote analyses that overlay slopes and cropping data will continue to be used throughout the watershed, as shown in Figure 3-8. Based on properties that that have at least two factors that are likely to result in increased phosphorus runoff (steep slopes, continuous corn, and proximity to the flood plain), targeted properties have been identified in Figure 3-8. By working with the Fond du Lac County LWCD, the Waupun Adaptive Management Program will refine which properties will continue to be prioritized. It is expected that the Waupun Adaptive Management Program will provide financial support to Fond du Lac County LWCD to utilize the EVAAL model in defining which fields are most prone to erosion risk.

In June 2023, the Fond du Lac County LWCD provided a list of producers and landowners to target, as shown in Figure 3-9. The Waupun Adaptive Management Program will include these landowners in its targeted outreach. As additional data becomes available, including enrollment in county, state, and federal programs supporting BMP establishment, the Waupun Adaptive Management Program will adjust its targeted outreach efforts.

In total, twenty targets have been identified for BMP implementation within Fond du Lac County between Figures 3-8 and 3-9, with prioritization based on both remote analyses as well as subjective recommendations from leaders in the Fond du Lac County LWCD. The Fond du Lac County LWCD is willing to conduct outreach to producers and landowners specifically on behalf of the Waupun Adaptive Management Program. Therefore, the Fond du Lac County LWCD will continue to shape the Waupun Adaptive Management Program throughout the years of its operation, with both objective analyses and subjective recommendations factoring into targeted outreach.




Document Path: C:\Users\PhilCGerlach\Documents\Waupun Adaptive Management GIS\Figure 3-8a Waupun Steep Slopes.mxd

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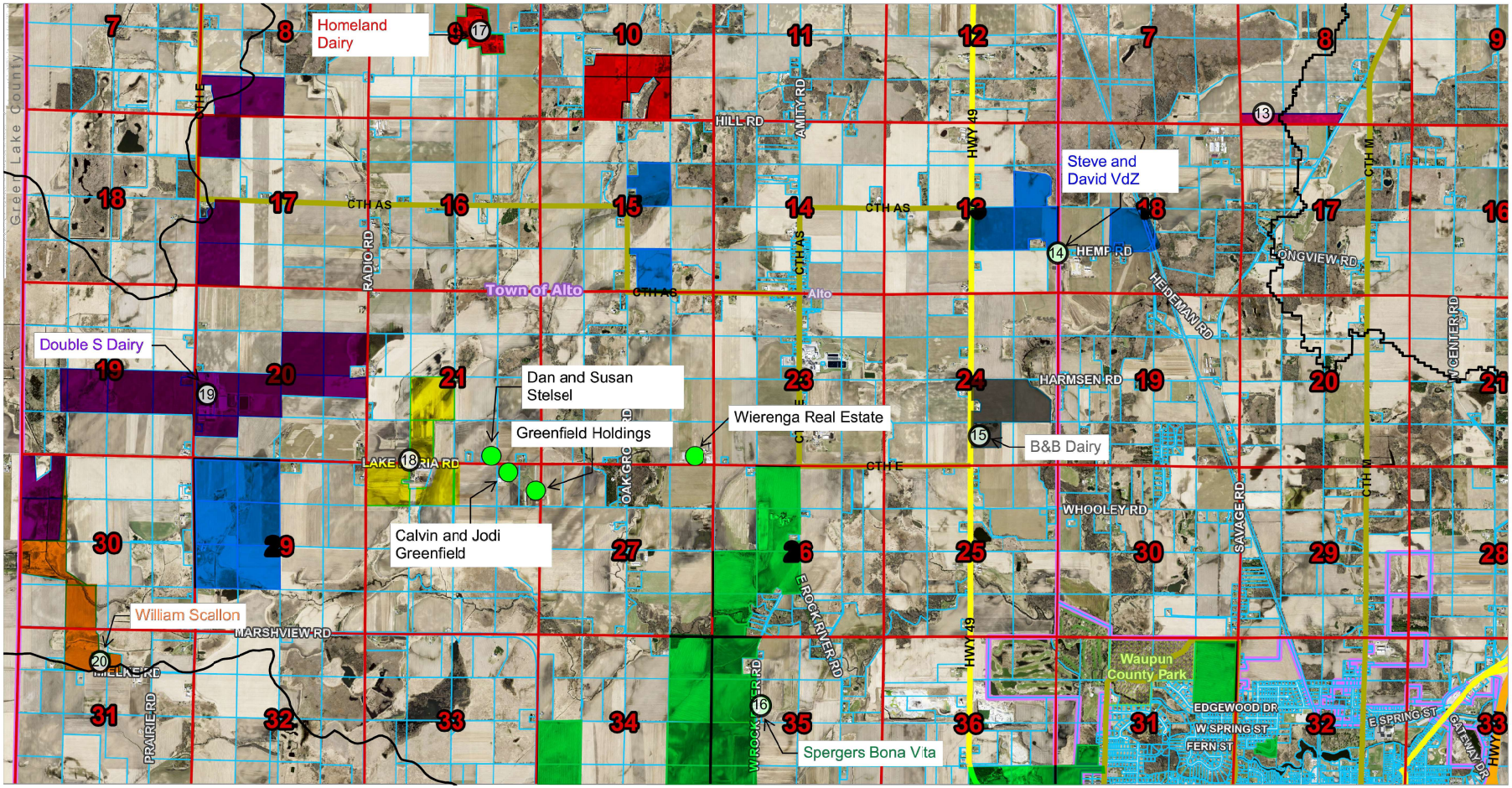
FIGURE 3-8
TARGETED PROPERTIES
Adaptive Management Plan
Waupun Utilities




*Disclaimer: Map and parcel data are believed to be accurate, but accuracy is not guaranteed. This is not a legal document and should not be substituted for a title search,appraisal, survey, or for zoning verification.*

Map Scale
**1 inch = 0.6 mile**
6/22/2023

**Stuart Mulder:** 129.4 acres

**Don Betty:** NA

**Pebble Knolls Dairy:** 123.2 acres
(Northern parcels not shown)

**B&B Dairy:** 79.4 acres

**William Scallon:** 113.6 acres

**Homeland Dairy:** 352.7 acres
(Northern Parcels not shown)

**Steve and David Van de Zande:** 436.9 acres

**Double S Dairy:** 730.15 acres

**Weirenga Farms:** 66.4 acres
(North of map, not shown)

**Spergers Bona Vita:** 736.4 acres
(Southern parcels not shown)

**David Patty:** NA

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FIGURE 3-9
TARGETED PROPERTIES
Adaptive Management Plan
Waupun Utilities

# CHAPTER 4
# LOAD REDUCTION PLAN

To meet the Water Quality Criterion (WQC) of 0.075 mg/L, the Waupun Adaptive Management Plan proposes to reduce annual phosphorus loadings to the Waupun Action Area.

## CONTINUING RIVER SAMPLING

River flow at the point of compliance (POC) was based on the sum of:

1. Average flow data from USGS gauge station 05423500, using nine monthly values between May 2017 and September 2019
2. An additional 10% of the flow at USGS gauge station 05423500 based on the proportional catchment basin size within Reach 3, and
3. Average flow data at the WWTF from August 2021-July 2024

As detailed in Chapter 3, samples used to determine the required phosphorus load reductions have two flaws. First, as shown in Figure 3-1, all river concentration samples were collected downstream of the confluence of the South Branch of the Rock River and the West Branch of the Rock River, well within Reach 4 of the Rock River TMDL. Therefore, an estimate was made that the river concentrations at the point of compliance (POC) were similar to the river concentrations downstream of the POC. Unfortunately, data was not available for the West Branch of the Rock River, and these load estimates would be increasingly inaccurate if the phosphorus concentration in the West Branch of the Rock River deviates from the level upstream of the POC.

Second, in determining a median river phosphorus concentration of 0.246 mg/L, only ten river phosphorus samples were used. These ten river samples were collected between May 2017 and September 2019, with nine monthly averages (two from September 2019).

In August 2024 and September 2024, a total of eight samples were collected at Station ID 203131. Phosphorus levels ranged from 0.100 to 0.140 mg/L, with monthly averages of 0.126 and 0.121 mg/L. The median value for 2024 was 0.123 mg/L, which is half of the median value from 2017-2019.

Therefore, with referenced locations on Figure 3-1, the first years of the Waupun AMP will focus on improved river sampling, including the following:

1. Monthly sampling at the historical sample location during the growing season (May through October)
2. Monthly sampling at the upstream sampling location during the growing season

3. Monthly sampling at the downstream sampling location during the growing season, which appears to be the most accessible location upstream of the POC.

River flow data will continue to use the same methods detailed previously.

## PLAN MODIFICATION

Due to the limited river sampling to date, the Waupun AMP will propose to modify the required load reductions following data collection through October 2026. When this additional site-specific information becomes available, this modification process will follow the guidance in the Adaptive Management Technical Handbook, June 2020.

For the remainder of this AMP, it was presumed (probably incorrectly) that the 2017-2019 Rock River phosphorus median concentration, 0.246 mg/L, is representative of what will be observed by the end of ongoing river sampling.

## LOAD REDUCTION SCHEDULE

Table 4-1 lists a potential load reduction schedule. Notably, it is expected that the specific quantity of reductions to be achieved by optimization at the wastewater treatment facility will vary from year to year, and will not precisely follow Table 4-1. Similarly, the quantity of reductions achieved through implementation of Best Management Practices (BMPs) to reduce nonpoint source (NPS) loadings will not specifically adhere to the reductions listed in Table 4-1.

**TABLE NO. 4-1**
**Load Reduction Schedule**

| Year | WWTF Annual Loading (lb/yr) | WWTF Annual Optimization Reductions (lb/yr) | NPS Annual Reductions (lb/yr) | Total Annual Reductions (lb/yr) | % of Ultimate Reductions |
|---|---|---|---|---|---|
| Baseline | 3,180 | - | - | - | 0% |
| 2025 | 2,320 | 860 | 0 | 860 | 6% |
| 2026 | 1,460 | 1,720 | 190 | 1,910 | 13% |
| 2027 | 980 | 2,200 | 1,620 | 3,820 | 25% |
| 2028 | 490 | 2,690 | 4,950 | 7,640 | 50% |
| 2033 | 490 | 2,690 | 8,790 | 11,480 | 75% |
| 2038 | 490 | 2,690 | 12,590 | 15,280 | 100% |
| 2043 | 490 | 2,690 | 12,590 | 15,280 | 100% |

As detailed in Appendix B, the Wisconsin Department of Natural Resources (WDNR) sent a letter dated September 6, 2024 to Waupun Utilities. The WDNR recommended specific values for the Waupun AMP, which were then slightly modified based on corrected information as compared to the draft technical memorandum dated August 30, 2024. Updated data are presented in Table 4-2.

**TABLE NO. 4-2**
**Updated Data**

| Item | Units | Draft Memo, August 2024 | | | WDNR Recommendation, September 2024 | Waupun AMP, October 2024 |
|---|---|---|---|---|---|---|
| | | 2017-2019 | 2021-2024 | 2024 | | |
| Current Waupun WWTF Annual Loading | lb/yr | 7,370 | 3,180[1] | - | 3,032 | 3,180 (2021-2024) |
| Current River Median Phosphorus Concentration | mg/L | 0.247[2] | - | 0.126[2] | 0.234 | 0.246 (2017-2019)<br>0.123 (2024) |
| Current River Average Flow | mgd | 24.2 | - | 12.5 | 23.2 | 29.4 (2017-2019)<br>(See Table 3-1) |
| Current River Phosphorus Load | lb/yr | 18,210[3] | - | 4,780[3] | 19,582 | 21,990 (2017-2019) |
| Allowable River Phosphorus Load | lb/yr | 5,900 | 4,200 | | 5,811 | 6,710 (2017-2019) |
| Applicant's Percent Contribution of Total Load | % | 29% | 32% | | 15.5% | 14% |
| Ultimate Reduction Required | lb/yr | 19,600 | 3,800 | | 13,770 | 15,280 (2017-2019) |
| Applicant's Proportional Share of the Ultimate Reduction | lb/yr | 5,690 | 1,200 | | 2,132 | 2,210 (2017-2019 River, 2021-2024 WWTF) |

Notes:
1. Tables 4 and 5 in the draft August 2024 Technical Memorandum incorrectly listed WWTF discharge at 2,250 lb/year; annual loading should have been 3,180 lb/year = 0.47 mg/L x 2.22 mgd x 8.34 x 365 d/year.
2. Value was listed as an average, not a median.
3. Value was incorrectly listed upstream value in the draft August 2024 Technical Memorandum.

## MANAGEMENT PRACTICES

The phosphorus load reduction practices will be categorized as 1) Wastewater Treatment Facility Optimization and 2) Nonpoint Source Best Management Practices.

### WASTEWATER TREATMENT FACILITY OPTIMIZATION

Waupun Utilities is currently in startup of the Advanced Biological Nutrient Recovery (ABNR). Optimization of the ABNR system, including additional light for the photobioreactor, is anticipated to lead toward the ability for the WWTF to achieve an effluent phosphorus concentration of 0.075 mg/L or less on an annual average basis.

The current average effluent phosphorus level is approximately 0.47 mg/L based on data from August 2021-July 2024. The current average effluent phosphorus loading is approximately 3,180 pounds per year. To comply with the terms of Adaptive Management, the effluent from Waupun's WWTF will be required to meet a six-month average effluent phosphorus level of 0.6 mg/L throughout the first five-year permit term, and 0.5 mg/L throughout the second permit term.

Therefore, compared to the current baseline of 3,180 pounds per year, the WWTF is expected to ultimately reduce annual point source phosphorus loadings by about 2,690 pounds.

## NONPOINT SOURCE REDUCTIONS VIA BEST MANAGEMENT PRACTICES

In addition to point source optimization, several types of best management practices (BMPs) will be pursued to reduce nonpoint source loadings and soil erosion. Potential management practices include:

1. Perennial Vegetation
2. Conservation Easements
3. Cover Crops
4. Grassed Waterways
5. Hay and Pasture

A primary focus is establishment of perennial vegetation, including with the encouragement of the Conservation Reserve Program (CRP). The cost-share available to producers is likely to make this an enticing option, especially for less-productive farmland and land near water or with steep slopes. Additional details are in Chapter 3.

The adoption of cover crops within corn production systems is also expected to be a primary focus. With so many areas planted into continuous corn, as detailed in Chapter 3, cover crops would be valuable for reducing runoff, especially before the corn becomes established in the spring.

Encouraging farmers to implement grassed waterways is another priority, with an attempt to reduce gully formation and improve soil retention. Grassed waterways will be a priority in areas with steep slopes and near surface water.

Finally, with a considerable amount of acreage in dairy rotations, establishing hay in the lowlands – or even pasture, if desired – would serve as another buffer without taking land out of production.

These BMPs align with the core efforts of the Fond du Lac County Watersheds Alliance, Dodge County Farmers for Healthy Soil Healthy Water, and the County Land and Water Conservation Departments (LWCDs). It is anticipated that these practices would be focused on areas marked by high SPARROW delivery fractions and on waters that have High Priority or Multiple Priorities,

as shown in Figure 3-5. Other factors identified in Chapter 3, including steep slopes, proximity to surface water, cropping practices, and other prioritization metrics (e.g. EVAAL) will also be considered when selecting sites for BMP implementation.

SnapPlus modeling will be conducted to determine the anticipated loading reductions for BMPs. An annual reduction of 4,950 pounds is anticipated by the conclusion of the first permit term of the Adaptive Management Plan. The necessary reductions are achievable if perennial vegetation is implemented on about 6% of the Action Area, or if cover crops are planted on about 30% of the acres in corn. Ultimately a combination of practices is the approach most likely to result in success.

Outreach to farmers is expected primarily via contacts through the County LWCDs. The Fond du Lac County LWCD has a track record of facilitating nonpoint source credit generation. An established procedure is to share the Action Area boundaries with the LWCD, provide an estimate of available resources or credit requirements, and let the LWCD share this information with farmers already considering BMPs. When farmers then decide which BMPs they would like to implement, Waupun Utilities and the LWCD can call or meet with the farmer to determine if financial support of the BMPs would be acceptable in exchange for registering and claiming the generated credits. Notably, this does not put Waupun Utilities in the position of recommending BMPs – instead, Waupun Utilities is poised to support BMPs that farmers already are interested in implementing. Groups such as the Fond du Lac Watersheds Alliance, Wings Over Wisconsin, and the Dodge County Farmers for Healthy Soil Healthy Water are anticipated to be critical to these outreach efforts.

According to the Fond du Lac County Conservation Department and other key partners, implementation of perennial vegetation may also be popular in the Waupun Action Area. While perennial vegetation implementation on cropland requires growers to suspend their crop production in exchange for a payment, the payments through the Conservation Reserve Program (CRP) of the United States Department of Agriculture can be economical, with up to half of the cost cost-shared by the USDA. It was estimated that implementation of CRP-type BMPs may result in phosphorus runoff reductions of up to 2 pounds per acre. Historically unproductive fields, lowland and steep areas may all be candidates for perennial vegetation and conservation easements. At $120/acre, and half paid by USDA, it was estimated that Waupun Adaptive Management Plan may compensate farmers for the remaining $120/acre, which would fully cover their costs if coupled with the USDA's CRP. Consequently, an estimate of $30/pound-year was used as an estimate for NPS phosphorus reduction costs.

As part of the required reporting to accompany BMP implementation, each implemented practice will include documentation of the BMP type, baseline pollutant load, and pollutant load reduction achieved.

# CHAPTER 5
# PROJECT METRICS

To meet the Water Quality Criterion (WQC) of 0.075 mg/L, the Waupun Adaptive Management (AM) Plan proposes to reduce annual phosphorus loadings to the Waupun Action Area. To ensure success, two key metrics will be evaluated annually: water quality and financial viability. Decisions will be made prior to the start of each new permit term. It is anticipated that other partners may provide additional metrics.

## MEASURING SUCCESS

Adaptive Management is a flexible and creative approach for communities and watersheds to achieve specific WQC. While interim progress can be demonstrated by modeled load reductions, the ulitmateTherefore, monitoring of water quality is critical. As detailed in Section 3, monitoring will focus on the South Branch of the Rock River, downstream of the point of discharge from the Waupun WWTF. All sampling locations will be in the open river beyond interference from bridges or downstream waterways. Sampling will be conducted in the growing season only (May through October), with one sample per month at even intervals at the same day of the week. Unless modified hereafter, the second Monday of each calendar month is proposed for sampling. Additional sampling may occur upstream of the Fond du Lac St. Bridge, at the Point of Compliance, and even the historical sampling location. Sampling locations are shown in Figure A-2. Waupun Utilities will continue sampling based on existing protocols, and data evaluation will adhere to the Wisconsin Consolidated Assessment and Listing Methodology (WisCALM) from the Wisconsin Department of Natural Resources, April 2023.

With the adoption of new practices, several steps will be taken. First, proposed new practices will be modeled via SnapPlus or other applicable programs, both under baseline and new conditions. Second, new practices that will be funded by Waupun Utilities will be registered for potential use in WQT. Next, Waupun Utilities will work with county staff to request support in monitoring of installed practices.

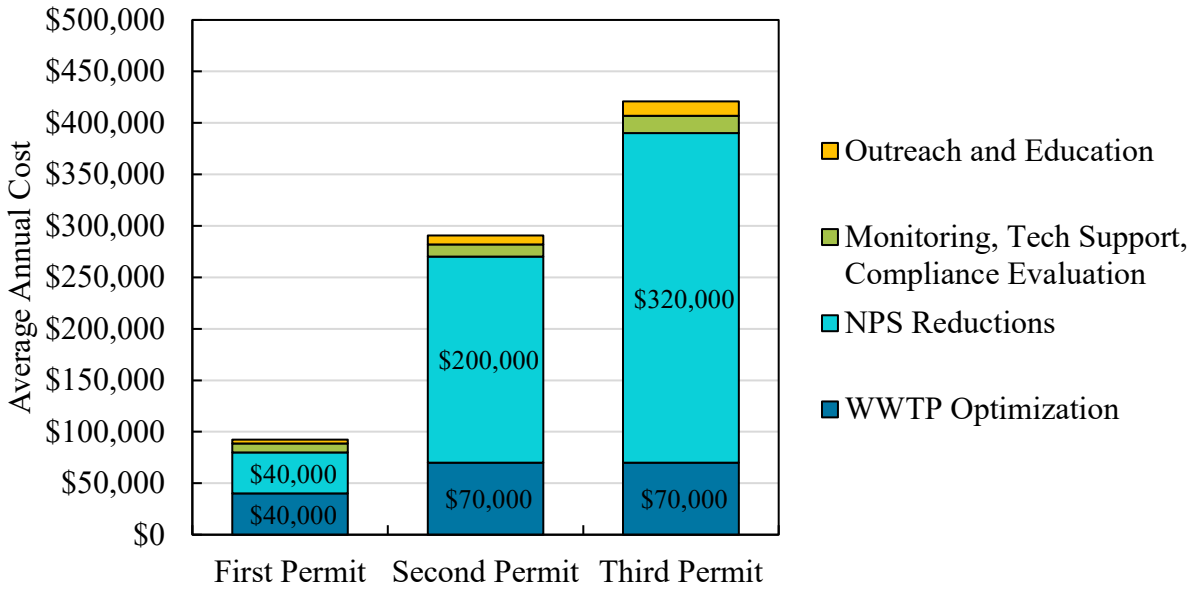
Best Management Practices (BMPs) monitoring will be conducted via site visits, windshield surveys, and geographic information system (GIS) data. Monitoring will include a 1) determination of practice status, 2) notification of landowner of corrective action (if necessary), 3) implementation of corrective action (if necessary), 4) documentation of corrective action, and 5) updating of database and modeling (if necessary). Monitoring will occur at least once per permit term, and Waupun Utilities will manage data. Annual reporting to the WDNR will keep the Adaptive Management Plan on course. Annual reporting will include several metrics, including

the following: stream and river monitoring, numbers of stakeholders contacted, practices and payments planned and completed, implemented practice monitoring, and pollutant load reductions achieved.

## FINANCIAL VIABILITY

Sustained environmental success requires financial viability. AM was determined to be the most cost-effective compliance alternative. As Waupun Utilities begins working with partners to reduce loadings, the anticipated compliance costs of AM will be continually updated and evaluated. As shown in Figure 5-1, the average annual costs total to approximately $90,000 in the first permit, $290,000 in the second permit, and $420,000 in the third permit.

**FIGURE NO. 5-1**
**Waupun Adaptive Management Plan**
**Annual Costs**




The costs are broken down into four factors: outreach and education; monitoring, technical support, and compliance evaluation; NPS reductions; and WWTP optimization. Nonpoint source reduction and optimization at the wastewater treatment facility were defined in Chapter 4.

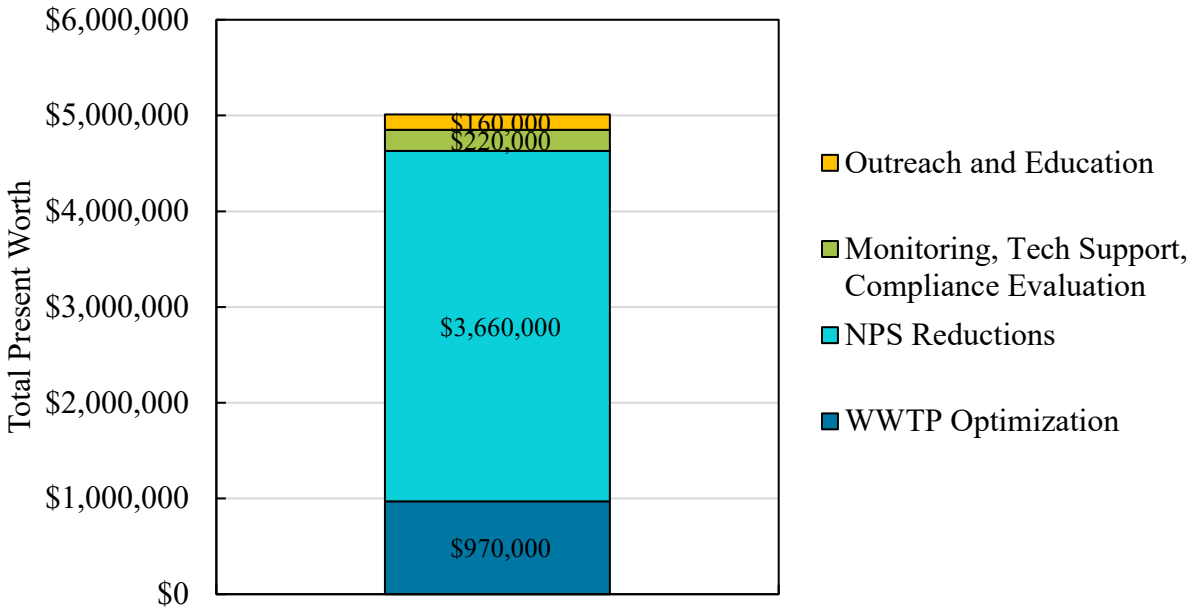
Support for outreach and education will be provided when requested from key partners, especially the Fond du Lac County LWCD. It is expected that the Waupun Adaptive Management Program will reimburse key partners for costs for marketing materials, attendance at field days, and other outreach events.

Support for monitoring, technical support, and compliance evaluation will be provided by the Waupun Adaptive Management Program to facilitate completion of critical tasks by key partners. Some critical tasks may include prioritization efforts (e.g., EVAAL), evaluation of monitoring data, and synthesis of program data plus reporting.

In addition, annual evaluations required by the compliance schedule will keep Waupun Utilities cognizant of its resource allocation. If AM no longer remains the most cost-effective compliance option, Waupun Utilities may exercise its option to select another compliance alternative. This change would likely occur upon permit reissuance, currently expected every five years.

Based on data currently available, Adaptive Management is anticipated to be the lowest cost compliance option with the twenty-year Total Present Worth determined to be slightly less than $5,000,000, as shown in Figure 5-2. With great partnerships, smart evaluations, and an open approach, Waupun Utilities is eager to do its part in meeting the goals established in this Adaptive Management Plan. Working together with partners and landowners, the Waupun Adaptive Management Plan is poised for great progress and improvements for years to come.

**FIGURE NO. 5-2**
**Waupun Adaptive Management Plan**
**Total Present Worth**



# APPENDIX A:
# ADAPTIVE MANAGEMENT

Fond du Lac County

LAND & WATER CONSERVATION DEPARTMENT
400 University Drive, Fond du Lac, WI 54935

PHONE (920) 906-4680
www.fdlco.wi.gov
bradly.murry@fdlco.wi.gov

Mr. Matthew Claucherty

Department of Natural Resources

PO Box 7921

Madison, WI 53707

Dear Mr. Claucherty:

My name is Bradly Murry, and I serve as County Conservationist for the Fond du Lac County Land and Water Conservation Department. The mission of the Fond du Lac County Land and Water Conservation department is to provide technical assistance to county landowners to find solutions to land and water resource problems.

After discussing opportunities for BMPs and Water Quality within the Action Area proposed by Waupun Utilities, we recently learned about the Adaptive Management Plan proposed by Waupun Utilities. This proposal will decrease phosphorus loadings in the Rock River and improve water quality. The goals and approaches proposed are aligned with our own mission, and we are therefore very excited to support the proposed efforts.

If you have any questions, please feel free to contact me. Otherwise, thank you for evaluating this important proposal to improve our county's water quality.

Sincerely,

Mr. Matthew Claucherty
Department of Natural Resources
PO Box 7921
Madison, WI 53707

Dear Mr. Claucherty:

My name is Bruce A Petersson, and I serve as President for the Fond du Lac County Watersheds Alliance (FCWA). The mission of the FCWA is to improve our community's soil and water through conservation practices and education.

We recently learned about the Adaptive Management Plan proposed by Waupun Utilities. This proposal will decrease phosphorus loadings in the Rock River and improve water quality by looking at all sources of impairment to the watershed, point and non-point. The goals and approaches proposed are aligned with our own mission, and we are therefore very excited to support the proposed efforts.

If you have any questions, please feel free to contact me. Otherwise, thank you for evaluating this important proposal to improve our county's water quality.

Sincerely,

Bruce A Peterson

Bruce A Peterson, President

Fond du Lac County Watersheds Alliance

# Wings Over Wisconsin


CHAPTERS
Beaver Dam
920-296-4947

Black River Falls
715-299-9688

Coulee Region
608-526-3363

Denmark
920-655-8687

Eden
920-960-7986

Fox Cities
920-450-0270

Fox River
414-581-3157

Green Bay
920-371-8150

Kettle Moraine
262-626-4311

Markesan
920-748-3113

Mayville
920-387-5198

Northeast
920-336-7752

Northern Skyes
920-737-5993

Ozaukee
262-339-3208

Southwest
608-778-3878

Tri-County
608-837-8738

Waupaca
920-387-5198

Waupun
920-767-1037

Wingettes
920-387-5198


Dear Mr. Claucherty:

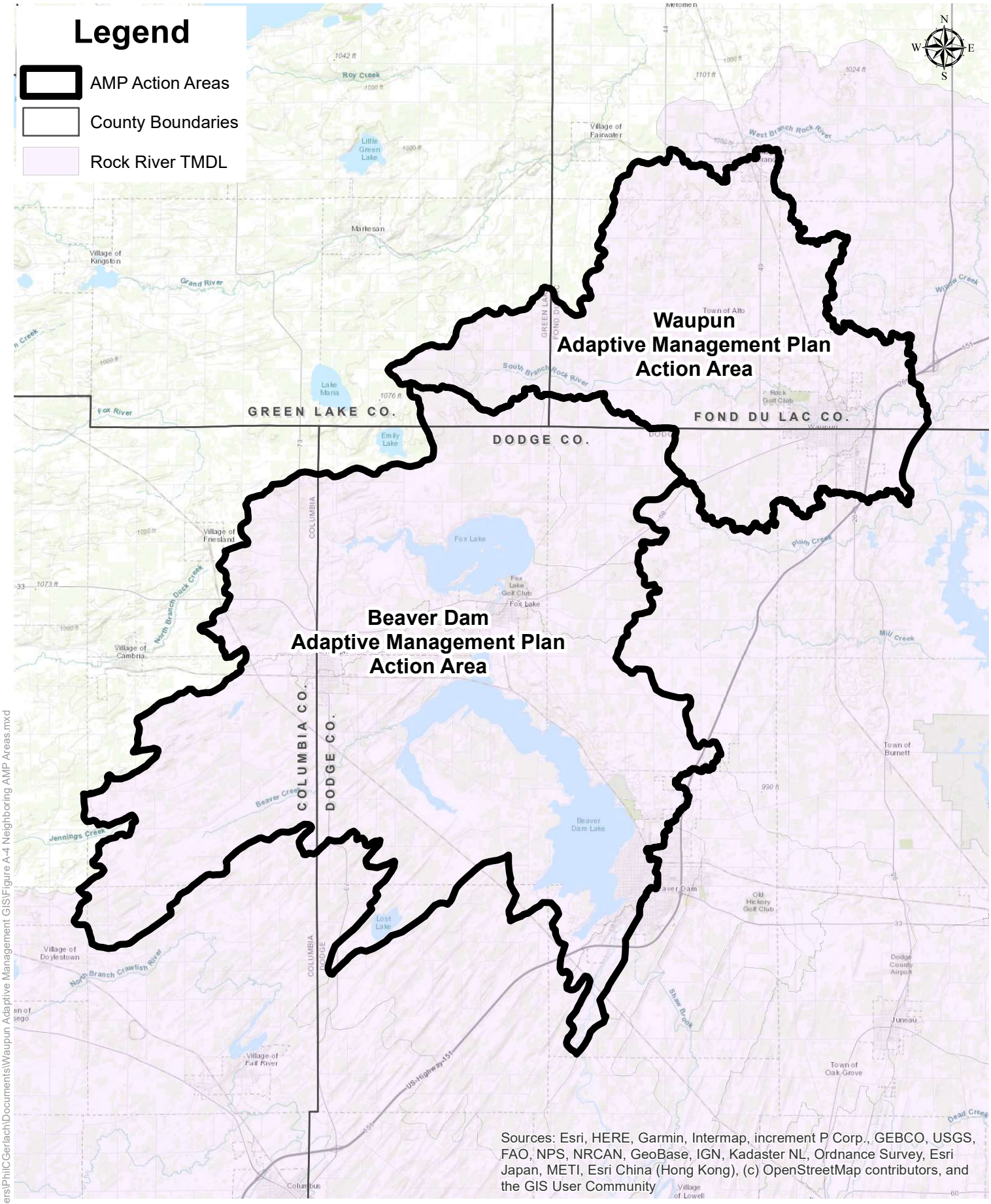
My name is Burt Bushke, and I serve as Executive Director for Wings Over Wisconsin. The mission of Wings Over Wisconsin is to restore and preserve natural resources in Wisconsin. We work with private landowners, state and federal agencies, and communities throughout the state to restore grasslands, woodlands, and wetlands. Our focus is on improving the habitat for wildlife to nest, feed, and survive in Wisconsin, and improved land conservation and water quality supports our mission.

We recently learned about the Adaptive Management Plan proposed by Waupun Utilities. This proposal will decrease phosphorus loadings in the Rock River and improve water quality. The goals and approaches proposed are aligned with our own mission, and we are therefore very excited to support the proposed efforts.

If you have any questions, please feel free to contact me. Otherwise, thank you for evaluating this important proposal to improve our state's water quality.

Sincerely,

Burt Bushke
Executive Director
Wings Over Wisconsin
920-387-5198




Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Feet
0 6,500 13,000 26,000

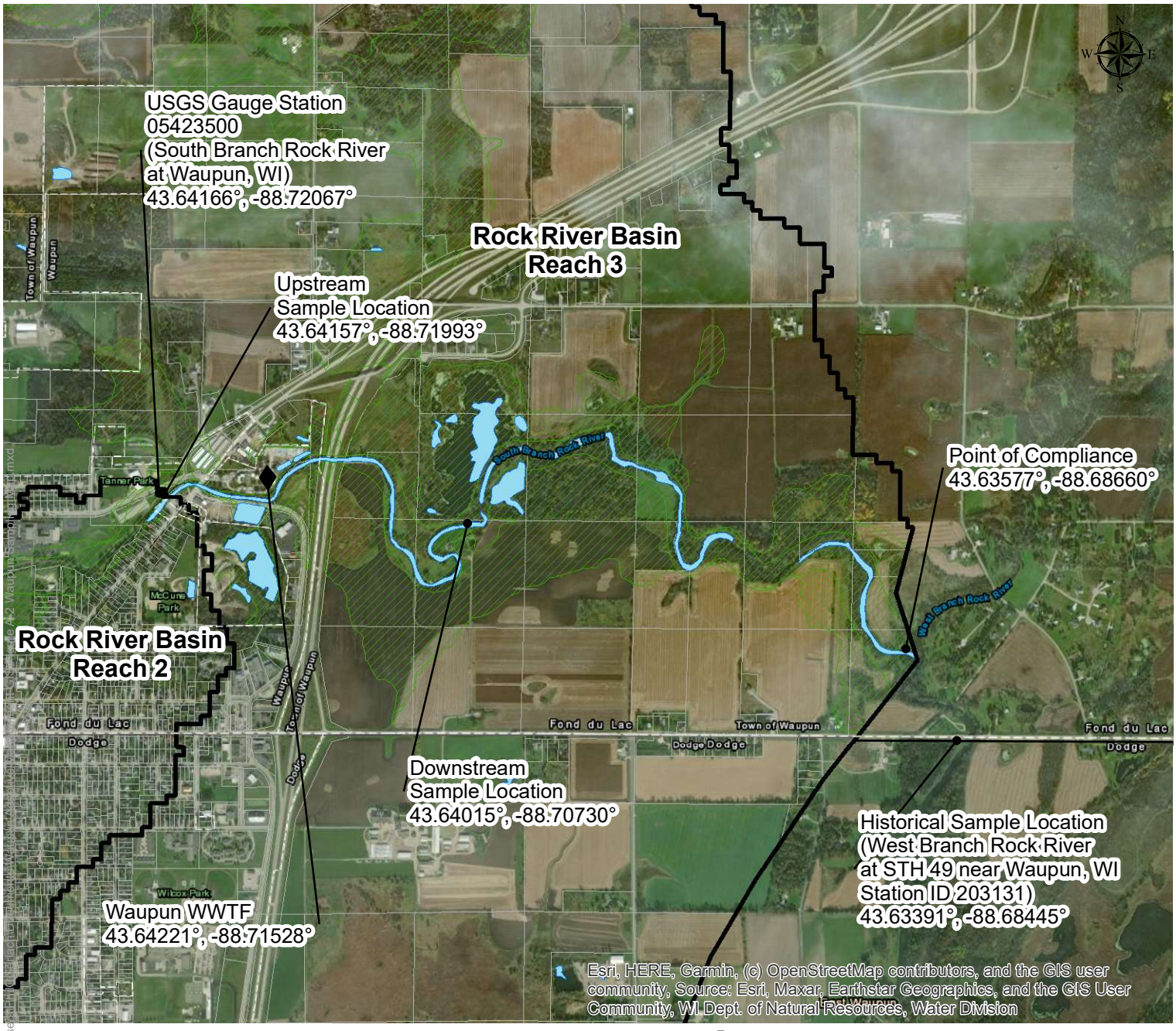
Document Path: C:\Users\PhilCGerlach\Documents\Waupun Adaptive Management GIS\Figure A-4 Neighboring AMP Areas.mxd

Applied Technologies
Engineers - Architects

FIGURE A-1
NEIGHBORING AMP ACTION AREAS
Adaptive Management Plan
Waupun Utilities / City of Beaver Dam

## Legend

- TMDL Reaches
- WDNR Lakes
- Flood Zone A
- Flood Zone AE
- County Boundary
- Parcels




Applied Technologies
Engineers - Architects

FIGURE A-2
WAUPUN SAMPLING MAP
Adaptive Management Plan
Waupun Utilities

# FIGURE A-2


0 2.5 5 10 15 20 Miles

**Legend**

- Industrial WWTF
- Municipal WWTF
- CAFO
- MS4

Numbers in sub-basins correspond to Reach IDs in load allocation tables (Appendices F-T).
Point IDs are listed in Tables 2, 3, and 4.

**Waupun Wastewater Treatment Plant Laboratory**

**Revision Date: December 2016**

**Total Phosphorus SOP**

**TITLE: Hach TNT Total Phosphate 1.2 mg/L P (4500 P F-1997, Automated Ascorbic Acid Reduction Method).**

**ANALYTE** Total Phosphorus

## 1) Applicable Matrices

a) This method is applicable to drinking, surface, domestic and industrial wastes.

## 2) Scope and Application

a) Ammonium molybdate and potassium antimony tartrate react in acid medium with orthophosphate to form a heteropoly acid- phosphomolybdic acid that is reduced to intensely colored molybdenum blue by ascorbic acid.

## 3) Interference

a) Arsenates react with the molybdate reagent to produce a blue color similar to that formed with phosphate. Concentration as low as 0.1mg As/l interface with the phosphate determination. Hexavalent chromium and NO2- interfere to give results about 3% low at concentration of 1mg/l and 10 to 15% low at 10mg/l. Sulfide and silicate do not interfere at concentrations of 1.0 and 10mg/l.

## 4) Equipment and Supplies

a) Spectrophotometer, DR 3900 with infrared phototube for use at 880nm, providing a light path of 2.5 cm or longer

b) HACH COD Reactor capable of heating to 150 Deg C.

c) HACH TNT Total Phosphate 0-1.1 mg/L as P (0-3.5 mg/L PO4) Reagent Set

d) Auto pipettes, 0-1.0 mL and 0-10.0 mL, with disposable tips, Class A pipets, volumetric cylinders, and 100 ml volumetric flasks

e) Test tube rack

**5) Reagents and Standards**

a) HACH TNT Total Phosphate 0-1.1 mg/L as P (0-3.5 mg/L PO4) Reagent Set

b) Sodium Hydroxide standard solution 5 N NCL Lot# S-48

c) Sulfuric acid Standard solution 5 N NCL Lot # S-90A

d) Phosphate Standard 5 ppm as P, NCL # P-35A. Store in a < 6 C refrigerator after opening. This solution is stable for up to the expiration date listed on the bottle.

e) Quality Control Check Standards

f) Proficiency Test samples

g) Short range pH paper, 0-6 pH, NCL # EM-9586. Use to confirm pH of <2 is reached after adding sulfuric acid to preserve samples.

h) Short range pH paper, 5.0-10.0, NCL # EM-9588. Use to confirm preserved samples are neutralized to the 6.0 to 8.0 pH.

**6) Sample Collection, Preservation, Shipment, and Storage**

a) Collect samples in clean plastic bottles.

b) Preserve the samples by reducing the pH to <2 with sulfuric acid by adding 0.5 mL of 5N sulfuric acid to 125 mL of sample. Verify the pH is <2 with the 0-6 pH paper and record on pH verification spreadsheet (5g).

c) Store at <6 C until analysis.

d) Acid preserved samples may be stored up to 28 days.

e) Before analysis, warm stored samples to room temperature 20-23 C. Neutralize by adding about 0.44 mL of 5N sodium hydroxide to 125 mL of preserved sample for Effluent and about 0.40 mL for Influent. Confirm the pH is in the 6.0 to 8.0 pH range using the pH 5.0-10.0 short range pH paper and record on pH verification spreadsheet (5h).

## 7) Quality Control

a) The sample cell used to standardize the instrument is thoroughly rinsed first to ensure that contaminants from the previous test are not present. The outside surfaces of the sample are dried with a Kim-Wipe before placing it into the sample cell. Water droplets in the cell holder light slit, on the photocell window, or on the sample cell will cause error in the instrument reading; therefore, all surfaces must be kept clean and dry at all times.

b) Run blank at the beginning of each run of 20 samples, blank must be <LOD. If not, re-analyze, if still out of range qualify data.

c) Calibrate a minimum once per year or if continuing calibration verification (CCV) standard is not within +/- 10% of the value. Analyze ICV standard after calibration from a second source standard. Calibration r-value is required to be > 0.995, if not re-calibrate.

d) Analyze CCV daily if > 20 samples from same lot # of calibration standards.

e) Analyze LCS, second source standard every batch of 20 samples.

f) The LOD is now an ongoing calculation using the EPA spreadsheet on the home screen of lab computer. When testing every blank is recorded on spreadsheet along with analyzing 2 extra known standards (on different test days) per quarter, also recorded on spreadsheet.

g) Analyze Initial Demonstration of Capability (IDC) before beginning any certified analyses.

h) Analyze PT sample once per year.

i) New calibrations are recorded on bench sheets and new MDL is forward to clients reports

j) Initial Method Detection Limit capability: Demonstrate the ability to generate acceptable data by analysis of the following: 7 replicate samples, record results on MDL worksheet, must meet the 5-point check requirements, if not re-mix standards and re-run.

## 8) Calibration

i) Turn on DR 3900 spectrophotometer, allow it to run the self check, and make sure instrument is set to 880 nm.

ii) Turn on Reactor and set temp to 150 C.

iii) Take cover off the vials you will be using for testing, put .2 mls of standard (5d) into vial using the 0-1.0 pipet (.4, .6, .8, 1.0, into other vials), then bring to 5 mL using D I water with the 0-10.0 ml pipet.

iv) Place the contents of 1 packet of Potassium Persulfate into each vial

v) Put the cap on each vial and invert 2 to 3 times.

vi) Place vials into reactor which is at 150 C and heat for 30 min.

vii) After 30 minute timer goes off remove vials from reactor and allow them to cool to room temperature.

viii) When vials are cooled to room temperature remove caps and using the 0-10 mL auto pipetter add 2 mL of 1.54N Sodium Hydroxide Solution (found in TNT kit) to each vial.

ix) Place cap on blank, wipe off vial with a Kimwipe, place in spectrophotometer and press zero.

x) Be sure to wipe all vials with a Kimwipe before placing them into spectrophotometer.

xi) Remove blank and take cap off, put the contents of 1 packet of PhosVer 3 Reagent into each vial, replace caps and shake for 10-15 seconds to mix, place blank into spectrophotometer and push read, followed by the rest of the vials, making sure to read them all out between 2 and 8 minutes after adding the PhosVer 3 Reagent. Record Abs of each vial on spreadsheet.

xii) Calculate the r2 value, if > 0.995 enter values in new Phosphorus workbook in excel spreadsheet. Save as Phos + date of calibration and use the worksheets in that workbook for calculation of concentrations. Make copies of Phos calibration bench sheet to store in calibration binder.

**9) Procedures:**

xiii) All preserved samples should be neutralized with Sodium Hydroxide prior to setting up samples following the instructions in section 6e.

**k)** Turn on DR 3900 spectrophotometer, allow it to run the self check and make sure instrument is set to 880 nm, also turn on the COD reactor, heat to 150ºC

l) Record your sample data on worksheet

m) Set up the vials needed

n) Prepare CCV standard (Continuing Calibration Standard), Blank, and an LCS (Laboratory Control Standard). Analyze CCV standard once per day LCS from different lot # every 20 samples.

o) Remove caps off vials, put desired amount of sample using the 0-1.0 or 0-10.0 auto pipetter into each vial followed by DI water so final volume into vials is 5 mL.

p) Place the contents of 1 packet of Potassium Persulfate into each vial.

**q)** Put the cap on each vial and invert 2 to 3 times.

r) Place vials into Reactor which is at 150 C and heat for 30 minutes.

**s)** After 30 minute timer goes off remove vials from reactor and allow them to cool to room temperature.

**t)** When vials are cooled to room temperature remove caps and using the 0-10 ml auto pipetter add 2 mL of 1.54N Sodium Hydroxide Solution (found in TNT kit) to each vial.

u) Place cap on blank, wipe off vial with a Kimwipe, place in spectrophotometer and press zero.

v) Be sure to wipe all vials with a Kimwipe before placing them into spectrophotometer.

w) Remove blank and take cap off, put the contents of 1 packet of PhosVer 3 Reagent into each vial, replace caps and shake for 10-15 seconds to mix, place blank into spectrophotometer and push read, followed by the rest of the vials, making sure to read them all out between 2 and 8 minutes after adding the PhosVer 3 Reagent.

x) Record data and absorbances to phosphorus spreadsheet.

y) Also be sure to record the codes for standards, ICV, CCV, and all reagents (including the TNT Kit) on the spreadsheet.

**10) Corrective Action for Out-of-Control or Data**

a. Any blank that exceeds above the MDL, the analyst must re-mix and re-analyze the entire batch. No samples can be run until the blank meets requirements. A corrective action report must also be filed.

b. CCV and LCS standards must fall within 5% of true value (90%-110% Recovery) If not re-mix and re-analyze, if still out of range re-calibrate. Fill out corrective action report.

**11) Contingencies for Handling Out-of-Control Data**

a. Samples that fail the Quality Control check standard will have to be qualified back to the last date that the quality control met the above conditions.

**12) Waste Management**

a. Waste from the test does not require special consideration. Disposal of waste down the sink followed by a tap water rinse is recommended.

b. The Waupun WWTP Laboratory shall do its best to minimize pollution of the environment and manage its hazardous wastes in a safe and environmentally sound manner.

c. Consider environmental impact when purchasing materials, handling chemicals and disposing of wastes.

## 13) References

14) Standard Methods for the Examination of Water and Wastewater, 20th ed. Clesceri, L.S.; Greenberg, A

15) Hach methods manual.

# APPENDIX B:
# WPDES PERMIT

# WPDES PERMIT

## *STATE OF WISCONSIN*
## *DEPARTMENT OF NATURAL RESOURCES*

**PERMIT TO DISCHARGE UNDER THE WISCONSIN POLLUTANT DISCHARGE ELIMINATION SYSTEM**

**CITY OF WAUPUN**

is permitted, under the authority of Chapter 283, Wisconsin Statutes, to discharge from a facility located at
501 NORTH FOND DU LAC STREET, WAUPUN, WISCONSIN
to
**SOUTH BRANCH OF ROCK RIVER (UPPER ROCK RIVER WATERSHED, UR12-UPPER ROCK RIVER BASIN) IN FOND DU LAC COUNTY**

in accordance with the effluent limitations, monitoring requirements and other conditions set forth in this permit.

The permittee shall not discharge after the date of expiration. If the permittee wishes to continue to discharge after this expiration date an application shall be filed for reissuance of this permit, according to Chapter NR 200, Wis. Adm. Code, at least 180 days prior to the expiration date given below.

State of Wisconsin Department of Natural Resources
For the Secretary

By _____
Tim Ryan
Field Operations Director

_____
Date Permit Signed/Issued

**PERMIT TERM: EFFECTIVE DATE – January 01, 2024** **EXPIRATION DATE – December 31, 2028**
**Permit Modification Date – November 1, 2024**

# TABLE OF CONTENTS

# 1 Influent Requirements

## 1.1 Sampling Point(s)

| Sampling Point Designation | |
|---|---|
| **Sampling Point Number** | **Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)** |
| 701 | INFLUENT: 24-Hr flow proportional composite influent samples shall be collected prior to the grit tanks and after influent screening. |

## 1.2 Monitoring Requirements

The permittee shall comply with the following monitoring requirements.

### 1.2.1 Sampling Point 701 - INFLUENT

| Monitoring Requirements and Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Flow Rate | | MGD | Daily | Continuous | |
| $BOD_5$, Total | | mg/L | 5/Week | 24-Hr Flow Prop Comp | |
| Suspended Solids, Total | | mg/L | 5/Week | 24-Hr Flow Prop Comp | |
| Mercury, Total Recoverable | | ng/L | Quarterly | 24-Hr Flow Prop Comp | See 'Mercury Monitoring' section. |

#### 1.2.1.1 Mercury Monitoring

The permittee shall collect and analyze all mercury samples according to the data quality requirements of ss. NR 106.145(9) and (10), Wisconsin Administrative Code. The limit of quantitation (LOQ) used for the effluent and field blank shall be less than 1.3 ng/L, unless the samples are quantified at levels above 1.3 ng/L. The permittee shall collect at least one mercury field blank for each set of mercury samples (a set of samples may include combinations of intake, influent, effluent or other samples all collected on the same day). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

# 2 In-Plant Requirements

## 2.1 Sampling Point(s)

| Sampling Point Designation | |
|---|---|
| **Sampling Point Number** | **Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)** |
| 102 | FIELD BLANK: Mercury field blanks shall be collected using Clean Hands/Dirty Hands sample handling procedures. |
| 103 | BLENDING: Sample point for reporting diverted flow from the primary clarifiers during high flow events. Wastewater flow bypasses the aeration basins, final clarifiers and tertiary algal treatment, and then receives disinfection prior to discharge. The permittee shall notify the Department when blending occurs. See "Blending" requirements in the Standard Requirements. |
| 104 | OTHER BYPASS In-Plant Diversion: Sample point for reported diverted flow which bypasses the tertiary algal treatment process prior to disinfection. |

## 2.2 Monitoring Requirements and Limitations

The permittee shall comply with the following monitoring requirements and limitations.

### 2.2.1 Sampling Point 102 - MERCURY FIELD BLANK

| Monitoring Requirements and Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Mercury, Total Recoverable | | ng/L | Quarterly | Blank | See Mercury Monitoring section. |

#### 2.2.1.1 Mercury Monitoring

The permittee shall collect and analyze all mercury samples according to the data quality requirements of ss. NR 106.145(9) and (10), Wisconsin Administrative Code. The limit of quantitation (LOQ) used for the effluent and field blank shall be less than 1.3 ng/L, unless the samples are quantified at levels above 1.3 ng/L. The permittee shall collect at least one mercury field blank for each set of mercury samples (a set of samples may include combinations of intake, influent, effluent or other samples all collected on the same day). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

### 2.2.2 Sampling Point 103 - BLENDING

| Monitoring Requirements and Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Flow Rate | | MGD | Per Occurrence | Continuous | See Blending Flow section. |
| Time | | hours | Per Occurrence | Calculated | Report the total duration of blending within a given day (12:00am - 11:59pm) in |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | which blending occurs. See Blending Flow section. |

### 2.2.2.1 Blending Flow

Flow measurement shall start at the commencement of blending operations and shall be maintained for the duration of the blending operation. Measure flow in daily increments until operation ends and report daily flow on the eDMR. The permittee shall report the volume of wastewater that is diverted around secondary treatment processes whenever in-plant diversion (blending) occurs. See "Blending" requirements in the Standard Requirements section for additional requirements.

## 2.2.3 Sampling Point 104 - OTHER BYPASS

| Monitoring Requirements and Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Flow Rate | | MGD | ~~Per Occurrence~~<br><br>Daily | Calculated | ~~Start flow measurement at the commencement of bypass operations. Measure until operation ends and report daily bypass flow on the eDMR. See Other Bypass Requirements section.~~<br><br>Calculate and report flow in daily increments on the eDMR. Flow shall be calculated by the difference between final effluent and ~~secondary effluent flow meters~~ the sum of blended flow and ABNR permeate flow. See Other Bypass Requirements section. |
| ~~Time~~ | | ~~hours~~ | ~~Per Occurrence~~ | ~~Calculated~~ | ~~Report the total duration of Other Bypass within a given day (12:00am - 11:59pm) in which the other bypass occurs. See Other Bypass Requirements section.~~ |

### 2.2.3.1 Other Bypass Requirements

The Department has determined that an 'other bypass' as defined in s. NR 205.07(1)(u)3, Wis. Adm. Code, may occur at this sewage treatment facility. Furthermore, the Department has previously approved plans in accordance with s. 281.41, Wis. Stats., for the partial bypass around the tertiary treatment process prior to disinfection. A bypass that is defined as a controlled diversion in s. NR 205.07(1)(v), Wis. Adm. Code, is not covered under this sample point. The following requirements shall apply whenever the 'other bypass' operations are in effect:

- The 'other bypass' may only operate during wet weather or other high flow conditions when peak wastewater flow to the sewage treatment facility exceeds the maximum design and operating capacity of the tertiary treatment facilities and when necessary to avoid severe property damage to the sewage treatment facility as described in s. NR 205.07(1)(u)3.a, Wis. Adm. Code. The 'other bypass' may only divert flow around the tertiary treatment process described under the In-Plant Diversion OTHER BYPASS Sample Point description above. In no case shall this include flow diversion which would constitute blending, as defined in s. NR 210.03(2e), Wis. Adm. Code, unless otherwise approved in this permit;
- All flow, inclusive of that wastewater treated or not treated by the tertiary treatment process, shall be disinfected, if required by this permit, prior to discharge, and the flows shall be recombined prior to discharge;
- Effluent from the sewage treatment facility shall be monitored to include all wastewater that is discharged from the facility, including those wastewaters that are diverted around tertiary treatment process and shall meet the effluent limitations for outfalls included in this permit;
- Bypassing under this section and the circumstances that lead to the 'other bypass' shall be reported to the Department on the permittee's Discharge Monitoring Report (DMR), and shall include the duration, and volume of wastewater routed around the tertiary treatment process. Duration shall be reported daily by providing either the volume of wastewater routed or zero to indicate no bypass occurred.

# 3 Surface Water Requirements

## 3.1 Sampling Point(s)

| Sampling Point Designation | |
|---|---|
| **Sampling Point Number** | **Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)** |
| 001 | EFFLUENT: 24-hr flow proportional effluent samples shall be collected after tertiary algal treatment for composite samples and at the bottom of the aeration steps for grab samples, prior to discharge to the South Branch of the Rock River. Sampling shall occur during all blending and other bypass events. |

## 3.2 Monitoring Requirements and Effluent Limitations

The permittee shall comply with the following monitoring requirements and limitations.

### 3.2.1 Sampling Point (Outfall) 001 – EFFLUENT

| Monitoring Requirements and Effluent Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Flow Rate | | MGD | Daily | Continuous | |
| $BOD_5$, Total | Weekly Avg | 14 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective November through April. |
| $BOD_5$, Total | Monthly Avg | 14 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective November through April. |
| $BOD_5$, Total | Weekly Avg | 10 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective May through August, and October. |
| $BOD_5$, Total | Monthly Avg | 10 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective May through August, and October. |
| $BOD_5$, Total | Weekly Avg | 7.9 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective September. |
| $BOD_5$, Total | Monthly Avg | 7.9 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective September. |
| $BOD_5$, Total | Weekly Avg | 250 lbs/day | 5/Week | Calculated | Limit effective November through April. |
| $BOD_5$, Total | Weekly Avg | 178 lbs/day | 5/Week | Calculated | Limit effective May through August, and October. |
| $BOD_5$, Total | Weekly Avg | 122 lbs/day | 5/Week | Calculated | Limit effective September. |
| Suspended Solids, Total | Weekly Avg | 14 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective November through April. |
| Suspended Solids, Total | Monthly Avg | 14 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective November through April. |
| Suspended Solids, Total | Weekly Avg | 10 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective May through October. |
| Suspended Solids, Total | Monthly Avg | 10 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective May through October. |

| Monitoring Requirements and Effluent Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Suspended Solids, Total | Weekly Avg | 413 lbs/day | 5/Week | Calculated | Limit effective January, March and December. |
| Suspended Solids, Total | Monthly Avg | 293 lbs/day | 5/Week | Calculated | Limit effective January, March and December. |
| Suspended Solids, Total | Weekly Avg | 460 lbs/day | 5/Week | Calculated | Limit effective February. |
| Suspended Solids, Total | Monthly Avg | 326 lbs/day | 5/Week | Calculated | Limit effective February. |
| Suspended Solids, Total | Weekly Avg | 366 lbs/day | 5/Week | Calculated | Limit effective April. |
| Suspended Solids, Total | Monthly Avg | 259 lbs/day | 5/Week | Calculated | Limit effective April. |
| Suspended Solids, Total | Weekly Avg | 330 lbs/day | 5/Week | Calculated | Limit effective May. |
| Suspended Solids, Total | Monthly Avg | 234 lbs/day | 5/Week | Calculated | Limit effective May. |
| Suspended Solids, Total | Weekly Avg | 295 lbs/day | 5/Week | Calculated | Limit effective June. |
| Suspended Solids, Total | Monthly Avg | 209 lbs/day | 5/Week | Calculated | Limit effective June. |
| Suspended Solids, Total | Weekly Avg | 201 lbs/day | 5/Week | Calculated | Limit effective July. |
| Suspended Solids, Total | Monthly Avg | 143 lbs/day | 5/Week | Calculated | Limit effective July. |
| Suspended Solids, Total | Weekly Avg | 177 lbs/day | 5/Week | Calculated | Limit effective August. |
| Suspended Solids, Total | Monthly Avg | 126 lbs/day | 5/Week | Calculated | Limit effective August. |
| Suspended Solids, Total | Weekly Avg | 236 lbs/day | 5/Week | Calculated | Limit effective September. |
| Suspended Solids, Total | Monthly Avg | 167 lbs/day | 5/Week | Calculated | Limit effective September. |
| Suspended Solids, Total | Weekly Avg | 271 lbs/day | 5/Week | Calculated | Limit effective October. |
| Suspended Solids, Total | Monthly Avg | 192 lbs/day | 5/Week | Calculated | Limit effective October. |
| Suspended Solids, Total | Weekly Avg | 342 lbs/day | 5/Week | Calculated | Limit effective November. |
| Suspended Solids, Total | Monthly Avg | 243 lbs/day | 5/Week | Calculated | Limit effective November. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Daily Max | 9.8 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective year-round. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Weekly Avg | 9.8 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective November through April. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Weekly Avg | 13 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective May. |

| Monitoring Requirements and Effluent Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Nitrogen, Ammonia ($NH_3$-N) Total | Weekly Avg | 5.9 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective June. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Weekly Avg | 3.8 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective July. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Weekly Avg | 3.7 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective August. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Weekly Avg | 5.0 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective September. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Weekly Avg | 14 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective October. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Monthly Avg | 11 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective December through February. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Monthly Avg | 9.8 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective March and April. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Monthly Avg | 9.1 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective May. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Monthly Avg | 4.5 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective June. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Monthly Avg | 2.9 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective July. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Monthly Avg | 2.4 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective August. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Monthly Avg | 3.1 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective September. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Monthly Avg | 8.7 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective October. |
| Nitrogen, Ammonia ($NH_3$-N) Total | Monthly Avg | 12 mg/L | 5/Week | 24-Hr Flow Prop Comp | Limit effective November. |
| Chlorine, Total Residual | Daily Max | 22 µg/L | Daily | Grab | Limit effective May through September. |
| Chlorine, Total Residual | Weekly Avg | 8.6 µg/L | Daily | Grab | Limit effective May through September. |
| Chlorine, Total Residual | Monthly Avg | 8.6 µg/L | Daily | Grab | Limit effective May through September. |
| E. coli | Geometric Mean - Monthly | 126 #/100 ml | 2/Week | Grab | Limit effective May through September. |
| E. coli | % Exceedance | 10 Percent | Monthly | Calculated | Limit effective May through September. See 'E. coli Percent Limit' section. Enter the result on the DMR on the last day of the month. |
| pH Field | Daily Min | 6.0 su | Daily | Grab | |
| pH Field | Daily Max | 8.1 su | Daily | Grab | |

| Monitoring Requirements and Effluent Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Dissolved Oxygen | Daily Min | 7.0 mg/L | Daily | Grab | Limit effective September through June. |
| Dissolved Oxygen | Daily Min | 8.0 mg/L | Daily | Grab | Limit effective July. |
| Dissolved Oxygen | Daily Min | 8.5 mg/L | Daily | Grab | Limit effective August. |
| Phosphorus, Total | Monthly Avg | 1.0 mg/L | 5/Week | 24-Hr Flow Prop Comp | |
| Phosphorus, Total | Monthly Avg | 1.18 lbs/day | 5/Week | Calculated | Limit effective January beginning January 2025. |
| Phosphorus, Total | Monthly Avg | 1.57 lbs/day | 5/Week | Calculated | Limit effective February beginning February 2025. |
| Phosphorus, Total | Monthly Avg | 1.47 lbs/day | 5/Week | Calculated | Limit effective March beginning March 2025. |
| Phosphorus, Total | Monthly Avg | 1.51 lbs/day | 5/Week | Calculated | Limit effective April beginning April 2025. |
| Phosphorus, Total | Monthly Avg | 1.44 lbs/day | 5/Week | Calculated | Limit effective May beginning May 2025. |
| Phosphorus, Total | Monthly Avg | 1.42 lbs/day | 5/Week | Calculated | Limit effective June beginning June 2025. |
| Phosphorus, Total | Monthly Avg | 1.24 lbs/day | 5/Week | Calculated | Limit effective July beginning July 2025. |
| Phosphorus, Total | Monthly Avg | 1.01 lbs/day | 5/Week | Calculated | Limit effective August beginning August 2025. |
| Phosphorus, Total | Monthly Avg | 1.02 lbs/day | 5/Week | Calculated | Limit effective September beginning September 2025. |
| Phosphorus, Total | Monthly Avg | 1.03 lbs/day | 5/Week | Calculated | Limit effective October beginning October 2025. |
| Phosphorus, Total | Monthly Avg | 1.1 lbs/day | 5/Week | Calculated | Limit effective November beginning November 2025. |
| Phosphorus, Total | Monthly Avg | 1.09 lbs/day | 5/Week | Calculated | Limit effective December beginning December 2025. |
| Chloride | Weekly Avg | 495 mg/L | 4/Month | 24-Hr Flow Prop Comp | This is an interim limit effective through June 30, 2028. See 'Chloride WQBELs Compliance' in the schedules section. |
| Chloride | Weekly Avg | 472 mg/L | 4/Month | 24-Hr Flow Prop Comp | Limit effective beginning July 1, 2028. See 'Chloride WQBELs Compliance' in the schedules section. |
| Chloride | Monthly Avg | 472 mg/L | 4/Month | 24-Hr Flow Prop Comp | Limit effective beginning July 1, 2028. See 'Chloride WQBELs Compliance' in the schedules section. |

| Monitoring Requirements and Effluent Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Chloride | Weekly Avg | 7,420 lbs/day | 4/Month | Calculated | This is an interim limit effective through June 30, 2028. See 'Chloride WQBELs Compliance' in the schedules section. |
| Chloride | Weekly Avg - Variable | lbs/day | 4/Month | Calculated | Limits effective July 1, 2028. Report the chloride mass result in the Chloride Weekly Average Mass column on the DMR. Compare to the Variable Chloride Mass Limitation table below to determine compliance. See 'Chloride WQBELs Compliance' in the schedules section. |
| Chloride, Variable Limit | | lbs/day | 4/Month | Calculated | Limits effective July 1, 2028. Look up the variable chloride mass limit from the 'Variable Chloride Mass Limitation' table below and report the variable limit in the Chloride Variable Limit column on the DMR. See 'Chloride WQBELs Compliance' in the schedules section. |
| PFOS | | ng/L | 1/ 2 Months | Grab | Monitoring only. See 'PFOS/PFOA Minimization Plan Determination of Need' in the schedules section. |
| PFOA | | ng/L | 1/ 2 Months | Grab | Monitoring only. See 'PFOS/PFOA Minimization Plan Determination of Need' in the schedules section. |
| Mercury, Total Recoverable | | ng/L | Quarterly | Grab | See the 'Mercury Monitoring' section. |
| Temperature Maximum | | deg F | 3/Week | Continuous | Monitoring during calendar year 2025. See the 'Effluent Temperature Monitoring' section. |
| Acute WET | | $TU_a$ | See Listed Qtr(s) | 24-Hr Flow Prop Comp | See the 'Whole Effluent Toxicity (WET) Testing' section for testing dates and WET requirements. |

| Monitoring Requirements and Effluent Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Chronic WET | | TUc | See Listed Qtr(s) | 24-Hr Flow Prop Comp | See the 'Whole Effluent Toxicity (WET) Testing' section for testing dates and WET requirements. |
| Nitrogen, Total Kjeldahl | | mg/L | Quarterly | 24-Hr Flow Prop Comp | Monitoring Only |
| Nitrogen, Nitrite + Nitrate Total | | mg/L | Quarterly | 24-Hr Flow Prop Comp | Monitoring Only |
| Nitrogen, Total | | mg/L | Quarterly | Calculated | Monitoring Only - Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen. |

### 3.2.1.1 Annual Average Design Flow

The annual average design flow of the permittee's wastewater treatment facility is 2.14 million gallons per day (MGD).

### 3.2.1.2 TSS Limitation(s)

The Rock River TMDL for Total Phosphorus (TP) and Total Suspended Solids (TSS) was approved by the Environmental Protection Agency (EPA) September 2011. The TMDL derived TSS limits are expressed as weekly average and monthly average effluent limits. The approved TSS TMDL limits for this permittee are included in the following table:

**Total Suspended Solids Effluent Limitations**

| Month | Monthly Average TSS Effluent Limit (lbs/day) | Weekly Average TSS Effluent Limit (lbs/day) |
|---|---|---|
| Jan | 293 | 413 |
| Feb | 326 | 460 |
| March | 293 | 413 |
| April | 259 | 366 |
| May | 234 | 330 |
| June | 209 | 295 |
| July | 143 | 201 |
| Aug | 126 | 177 |
| Sept | 167 | 236 |
| Oct | 192 | 271 |
| Nov | 243 | 342 |
| Dec | 293 | 413 |

### 3.2.1.3 Phosphorus Limitation(s)

The Rock River TMDL for Total Phosphorus (TP) and Total Suspended Solids (TSS) was approved by the Environmental Protection Agency (EPA) September 2011. The TMDL derived phosphorus limits are expressed as

monthly average effluent limits and go into effect January 1, 2025. See 'Total Phosphorus WQBELs' in the schedules section. The approved total phosphorus TMDL limits for this permittee are included in the following table:

**Total Phosphorus Effluent Limitations**

| Month | Monthly Average Total P Effluent Limit (lbs/day) |
|---|---|
| Jan | 1.18 |
| Feb | 1.57 |
| March | 1.47 |
| April | 1.51 |
| May | 1.44 |
| June | 1.42 |
| July | 1.24 |
| Aug | 1.01 |
| Sept | 1.02 |
| Oct | 1.03 |
| Nov | 1.10 |
| Dec | 1.09 |

### 3.2.1.4 *E. coli* Percent Limit

No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 #/100 ml. Bacteria samples may be collected more frequently than required. All samples shall be reported on the monthly discharge monitoring reports (DMRs). The following calculation should be used to calculate percent exceedances.

$$\frac{\#\ \boldsymbol{of\ Samples\ greater\ than\ 410\ \#/100}}{\boldsymbol{Total\ \#\ of\ samples}} \times \mathbf{100} = \%\ \boldsymbol{Exceedance}$$

### 3.2.1.5 Alternative Wet Weather Chloride Mass Limitation

The final effluent limitations for Chloride become effective on July 1, 2028 as specified in the Schedules Section. Monitoring 4/Month and calculation of mass is required upon permit reissuance for Chloride. The permittee shall calculate the chloride mass in lbs/day on the same days chloride sampling occurs using the Daily Mass Discharge formula in the Standard Requirements Section.

Alternative wet and dry weather weekly average chloride mass limitations become effective July 1, 2028. Variable chloride limits are reported on the eDMR. Per s. NR 106.07(9), Wis. Adm. Code, wet weather mass limitations apply only when the permittee demonstrates to the satisfaction of the department that the discharge exceedance is caused by and occurs during a wet weather event. A wet weather event occurs during and immediately following periods of precipitation or snowmelt, including but not limited to rain, sleet, snow, hail or melting snow, during which water from the precipitation, snowmelt or elevated groundwater enters the sewerage system through infiltration or inflow, or both. The permittee shall provide documentation to demonstrate these requirements were met to allow for alternative wet weather limitations in the comments field of the eDMR.

**Variable Chloride Mass Limitation Effective July 1, 2028**

| Parameter | Weekly Average Wet Weather | Weekly Average Dry Weather |
|---|---|---|
| Chloride | 22,500 lbs/day | 7,290 lbs/day |

### 3.2.1.6 PFOS/PFOA Sampling and Reporting Requirements

For grab samples, as defined per s. NR 218.04(10), Wis. Adm. Code, a single sample at a location as defined by the sample point description shall be taken during the time of the day most representative to capture all potential

discharges. If extra equipment besides the sample bottle is used to collect the sample, it is recommended that a one-time equipment blank is collected with the first sample. An equipment blank would be collected by passing laboratory-verified PFAS-free water over or through field sampling equipment before the collection of a grab sample to evaluate potential contamination from the equipment used during sample.

If any equipment blanks are performed, these results shall be reported in the comments section of the eDMR and shall also documented in the reports submitted as part of the PFOS/PFOA Minimization Plan Determination of Need schedule of the permit.

### 3.2.1.7 PFOS/PFOA Minimization Plan Determination of Need

The permittee shall monitor PFOS and PFOA as specified in the table above and report on the effluent concentrations including trends in monthly and annual average PFOS and PFOA concentrations as specified in the PFOS/PFOA Minimization Plan Determination of Need Schedule.

If, after reviewing the data, the Department determines that a minimization plan for PFOS and PFOA is necessary based on the procedures in s. NR 106.98(4), Wis. Adm. Code, the Department will notify the permittee in writing that a PFOS and PFOA minimization plan that satisfies the requirements in s. NR 106.99, Wis. Adm. Code, is required. The permittee shall submit an initial plan for Department approval no later than 90 days after written notification was sent from the Department in accordance with s. NR 106.985(2)(a), Wis. Adm. Code. Pursuant to s. NR 106.985(2)(b), Wis. Adm. Code, as soon as possible after Department approval of the PFOS and PFOA minimization plan, the Department will modify or revoke and reissue the permit in accordance with public notice procedures under ch. 283, Wis. Stats., and ch. NR 203, Wis. Adm. Code, to include the PFOS and PFOA minimization plan and other related terms and condition.

If, however, the Department determines that a PFOS and PFOA minimization plan is unnecessary based on the procedures in s. NR 106.98(4), Wis. Adm. Code, the Department shall notify the permittee that no further action is required. Per s. NR 106.98(3)(a), Wis. Adm. Code, the Department may reduce monitoring frequency to once every 3 months (quarterly) on a case-by-case basis, but only after at least 12 representative results have been generated. If the permittee requests a reduction in monitoring and the Department agrees a reduction would be appropriate, the permit may be modified in accordance with public notice procedures under ch. 283, Wis. Stats., and ch. NR 203, Wis. Adm. Code, to incorporate this change.

### 3.2.1.8 Mercury Monitoring

The permittee shall collect and analyze all mercury samples according to the data quality requirements of ss. NR 106.145(9) and (10), Wis. Adm. Code. The limit of quantitation (LOQ) used for the effluent and field blank shall be less than 1.3 ng/L, unless the samples are quantified at levels above 1.3 ng/L. The permittee shall collect at least one mercury field blank for each set of mercury samples (a set of samples may include combinations of intake, influent, effluent or other samples all collected on the same day). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

### 3.2.1.9 Effluent Temperature Monitoring

For monitoring temperature continuously, collect measurements in accordance with s. NR 218.04(13), Wis. Adm. Code. This means that discrete measurements shall be recorded at intervals of not more than 15 minutes during the 24-hour period. Report the maximum temperature measured during the day on the DMR.

### 3.2.1.10 Whole Effluent Toxicity (WET) Testing

**Primary Control Water:** South Branch Rock River upstream/out of the influence of the mixing zone and any other known discharge

**Instream Waste Concentration (IWC):** 83%

**Acute Mixing Zone Concentration:** N/A

**Dilution series:** At least five effluent concentrations and dual controls must be included in each test.

- **Acute:** 100, 50, 25, 12.5, 6.25% and any additional selected by the permittee.
- **Chronic:** 100, 75, 50, 25, 12.5% and any additional selected by the permittee.

**WET Testing Frequency:**

**Acute** tests are required during the following quarters:

- **Acute:** 2nd Quarter (April – June) 2024
  1st Quarter (January – March) 2025
  4th Quarter (October – December) 2026
  3rd Quarter (July – September) 2027
  2nd Quarter (April – June) 2028

  Acute WET testing shall continue after the permit expiration date (until the permit is reissued) in accordance with the WET requirements specified for the last full calendar year of this permit. For example, the next test would be required in 2nd Quarter (July – September) 2029.

**Chronic** tests are required during the following quarters:

- **Chronic:** 2nd Quarter (April – June) 2024
  1st Quarter (January – March) 2025
  4th Quarter (October – December) 2026
  3rd Quarter (July – September) 2027
  2nd Quarter (April – June) 2028

  Chronic WET testing shall continue after the permit expiration date (until the permit is reissued) in accordance with the WET requirements specified for the last full calendar year of this permit. For example, the next test would be required in 2nd Quarter (April - June) 2029.

**Testing:** WET testing shall be performed during normal operating conditions. Permittees are not allowed to turn off or otherwise modify treatment systems, production processes, or change other operating or treatment conditions during WET tests.

**Reporting:** The permittee shall report test results on the Discharge Monitoring Report form, and also complete the "Whole Effluent Toxicity Test Report Form" (Section 6, "*State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, 2nd Edition*"), for each test. The original, complete, signed version of the Whole Effluent Toxicity Test Report Form shall be sent to the Biomonitoring Coordinator, Bureau of Water Quality, 101 S. Webster St., P.O. Box 7921, Madison, WI 53707-7921, within 45 days of test completion. The Discharge Monitoring Report (DMR) form shall be submitted electronically by the required deadline.

**Determination of Positive Results:** An acute toxicity test shall be considered positive if the Toxic Unit - Acute ($TU_a$) is greater than 1.0 for either species. The $TU_a$ shall be calculated as follows: $TU_a = 100 \div LC_{50}$. A chronic toxicity test shall be considered positive if the Toxic Unit - Chronic (TUc) is greater than 1.2 for either species. The TUc shall be calculated as follows: TUc = 100 ÷ IC25.

**Additional Testing Requirements:** Within 90 days of a test which showed positive results, the permittee shall submit the results of at least 2 retests to the Biomonitoring Coordinator on "Whole Effluent Toxicity Test Report Forms". The 90-day reporting period shall begin the day after the test which showed a positive result. The retests shall be completed using the same species and test methods specified for the original test (see the Standard Requirements section herein.

# 4 Land Application Requirements

## 4.1 Sampling Point(s)

The discharge(s) shall be limited to land application of the waste type(s) designated for the listed sampling point(s) on Department approved land spreading sites or by hauling to another facility.

| Sampling Point Designation | |
|---|---|
| **Sampling Point Number** | **Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)** |
| 003 | Class B, Liquid, Anaerobically digested biosolids. Representative sludge samples shall be collected from the secondary digester discharge pump. This outfall will only be used if the permittee is unable to produce Class B cake sludge from Outfall 004. Outfall 003 is inactive. Contact DNR representative to activate this outfall and verify sampling requirements prior to land application or disposal. (Note: Land application from this outfall will require monitoring for Lists 1, 2, 3 and 4, and potentially Radium-226 depending upon duration of outfall use.). |
| 004 | Class B, Cake, Anaerobically digested dewatered biosolids. Representative sludge samples shall be collected after the belt press and monitored annually for Lists 1, 2, 3 and 4 and Radium-226, and once per permit term for PCBs. |
| 005 | Class A, Dried Cake algae sludge. Sample point for dried algae treatment process monitoring. The temperature of algae sludge in the dryer shall be monitored continuously. Total solids of the algae sludge shall be monitored during sludge dryer operation per the approved Sludge Management Plan. Pathogen testing is required immediately after the sludge treatment process and shall satisfy the Class A Sludge: Fecal Coliform Density Requirement. Pathogen testing is required immediately after the sludge treatment process and shall satisfy the Class A Sludge: Fecal Coliform Density Requirement. Pathogen testing shall be performed on no less than 7 discrete samples to be collected and reported individually throughout the calendar year, not as a geometric mean. Each pathogen control sample shall meet the pathogen limit to prove effective pathogen treatment. This sample point is intended for meeting pathogen density requirements of the Class A dryer. If this sample point is used as an outfall for distribution in place of Outfall 007, Lists 1 and 3 requirements shall be met. If used additionally for land application, List 2 requirements shall be monitored. Use of this sample point as an outfall shall be clearly communicated in the sludge management plan.<br><br>Notify the Department 30 days prior to when the permittee is ready to begin initial distribution of Class A Dried Cake algae sludge. In this notification shall notify the department's biosolids coordinator and compliance engineer for the facility. Also provided in the notification, the permittee shall collect and provide continuous temperature monitoring data, percent solids and pathogen data during the course of a typical startup, operation, and shutdown of the heating drying equipment. During the inspection, the permittee will have heat drying equipment operational instructions available for review. |

| Sampling Point Designation | |
|---|---|
| **Sampling Point Number** | **Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)** |
| 007 | Class A, Dried algae cake for distribution. When dried algae is stored prior to distribution, this outfall shall be used for distribution of dried algae (cake). Representative samples shall be monitored for Lists 1, 3 and 4. Nutrient monitoring (List 2) is optional and recommended to be monitored no less than annually. If material is land applied from this outfall, monitoring shall include List 2. Pathogen control monitoring is required if the dried algae sludge is not bagged and sealed immediately upon generating. Pathogen testing is required immediately after the sludge treatment process and shall satisfy the Class A Sludge: Fecal Coliform Density Requirement. Pathogen testing shall be performed on no less than 7 discrete samples to be collected and reported individually throughout the calendar year, not as a geometric mean. Each pathogen control sample shall meet the pathogen limit to prove effective pathogen treatment. Vector attraction reduction requirements shall be satisfied by Drying Without Primary Solids and shall be performed at the same time Fecal Coliforms are monitored. This outfall is inactive for distribution. This outfall shall be utilized when dried sludge (dried algae) is stored after the algae dryer and when Sample Point 005 is used only for pathogen monitoring. If storage is not used prior to bagging, distribution or land application, this outfall can remain inactive. Permittee shall determine need for this outfall, communicate to DNR representative the permittee's use and clearly communicate the use in the sludge management plan.<br><br>Notify the Department 30 days prior to when the permittee is ready to begin initial distribution of Class A Dried Cake algae sludge. In this notification shall notify the department's biosolids coordinator and compliance engineer for the facility. Also provided In the notification, the permittee shall collect and provide continuous temperature monitoring data, percent solids and pathogen data during the course of a typical startup, operation, and shutdown of the heating drying equipment. During the inspection, the permittee will have heat drying equipment operational instructions available for review. |
| 008 | Class B, Liquid, Thickened algae for land application. Representative samples shall be collected from dewatered algae storage. Monitoring will include Lists 1, 2, 3 and 4 prior to land application. This outfall will only be used if the permittee is unable to produce Class A dried algae cake at Outfalls 005 and 007. This outfall is inactive for land application. Contact DNR representative to activate this outfall and verify sampling requirements prior to Class B land application. |

## 4.2 Monitoring Requirements and Limitations

The permittee shall comply with the following monitoring requirements and limitations.

### 4.2.1 Sampling Point (Outfall) 003 - CLASS B LIQUID SLUDGE; 004- CLASS B CAKE SLUDGE

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

| Monitoring Requirements and Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Lead Dry Wt | Ceiling | 840 mg/kg | Annual | Composite | |
| Lead Dry Wt | High Quality | 300 mg/kg | Annual | Composite | |
| Mercury Dry Wt | Ceiling | 57 mg/kg | Annual | Composite | |
| Mercury Dry Wt | High Quality | 17 mg/kg | Annual | Composite | |
| Molybdenum Dry Wt | Ceiling | 75 mg/kg | Annual | Composite | |
| Nickel Dry Wt | Ceiling | 420 mg/kg | Annual | Composite | |
| Nickel Dry Wt | High Quality | 420 mg/kg | Annual | Composite | |
| Selenium Dry Wt | Ceiling | 100 mg/kg | Annual | Composite | |
| Selenium Dry Wt | High Quality | 100 mg/kg | Annual | Composite | |
| Zinc Dry Wt | Ceiling | 7,500 mg/kg | Annual | Composite | |
| Zinc Dry Wt | High Quality | 2,800 mg/kg | Annual | Composite | |
| Nitrogen, Total Kjeldahl | | Percent | Annual | Composite | |
| Nitrogen, Ammonium ($NH_4$-N) Total | | Percent | Annual | Composite | |
| Phosphorus, Total | | Percent | Annual | Composite | |
| Phosphorus, Water Extractable | | % of Tot P | Annual | Composite | |
| Potassium, Total Recoverable | | Percent | Annual | Composite | |
| Radium 226 Dry Wt | | pCi/g | Annual | Composite | Monitoring required at Outfall 004 only. |
| PCB Total Dry Wt | Ceiling | 50 mg/kg | Once | Composite | Monitor Outfall 004 in calendar year 2025. |
| PCB Total Dry Wt | High Quality | 10 mg/kg | Once | Composite | Monitor Outfall 004 in calendar year 2025. |
| PFOA + PFOS | | µg/kg | Annual | Calculated | Report the sum of PFOA and PFOS. See PFAS Permit Sections for more information. |
| PFAS Dry Wt | | | Annual | Grab | Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS Permit Sections for more information. |

| Other Sludge Requirements | |
|---|---|
| **Sludge Requirements** | **Sample Frequency** |
| **List 3 Requirements – Pathogen Control:** The requirements in List 3 shall be met prior to land application of sludge. | **Outfall 004 – Annual**<br>**Outfall 003 – Annual if Outfall Activated for Land Application** |
| **List 4 Requirements – Vector Attraction Reduction:** The vector attraction reduction shall be satisfied prior to, or at the time of land application as specified in List 4. | **Outfall 004 – Annual**<br>**Outfall 003 – Annual if Outfall Activated for Land Application** |

### 4.2.1.1 List 2 Analysis

If the monitoring frequency for List 2 parameters is more frequent than "Annual" then the sludge may be analyzed for the List 2 parameters just prior to each land application season rather than at the more frequent interval specified.

### 4.2.1.2 Changes in Feed Sludge Characteristics

If a change in feed sludge characteristics, treatment process, or operational procedures occurs which may result in a significant shift in sludge characteristics, the permittee shall reanalyze the sludge for List 1, 2, 3 and 4 parameters each time such change occurs.

### 4.2.1.3 Multiple Sludge Sample Points (Outfalls)

If there are multiple sludge sample points (outfalls), but the sludges are not subject to different sludge treatment processes, then a separate List 2 analysis shall be conducted for each sludge type which is land applied, just prior to land application, and the application rate shall be calculated for each sludge type. In this case, List 1, 3, and 4 and PCBs need only be analyzed on a single sludge type, at the specified frequency. If there are multiple sludge sample points (outfalls), due to multiple treatment processes, List 1, 2, 3 and 4 and PCBs shall be analyzed for each sludge type at the specified frequency.

### 4.2.1.4 Sludge Which Exceeds the High Quality Limit

Cumulative pollutant loading records shall be kept for all bulk land application of sludge which does not meet the high quality limit for any parameter. This requirement applies for the entire calendar year in which any exceedance of Table 3 of s. NR 204.07(5)(c), is experienced. Such loading records shall be kept for all List 1 parameters for each site land applied in that calendar year. The formula to be used for calculating cumulative loading is as follows:

[(Pollutant concentration (mg/kg) x dry tons applied/ac) ÷ 500] + previous loading (lbs/acre) = cumulative lbs pollutant per acre

When a site reaches 90% of the allowable cumulative loading for any metal established in Table 2 of s. NR 204.07(5)(b), the Department shall be so notified through letter or in the comment section of the annual land application report (3400-55).

### 4.2.1.5 Sludge Analysis for PCBs – Outfall 004

The permittee shall analyze the sludge for Total PCBs one time during **2025**. The results shall be reported as "PCB Total Dry Wt". Either congener-specific analysis or Aroclor analysis shall be used to determine the PCB concentration. The permittee may determine whether Aroclor or congener specific analysis is performed. Analyses shall be performed in accordance with Table EM in s. NR 219.04, Wis. Adm. Code and the conditions specified in Standard Requirements of this permit. PCB results shall be submitted by January 31, following the specified year of analysis.

### 4.2.1.6 Sludge Monitoring for PFAS

Sampling shall occur for perfluoroalkyl and polyfluoroalkyl compounds (PFAS) listed in the table below and as indicated in sampling point sections above. Monitoring shall occur at each sample point when sludge is generated regardless of the end use (i.e. land applied, hauled to another facility, landfilled).

| PERFLUOROALKYLCARBOXILIC Acids (PFCAs) | |
|---|---|
| PFBA | Perfluorobutanoic acid |
| PFPeA | Perfluroropentanoic acid |
| PFHxA | Perfluorohexanoic acid |
| PFHpA | Perfluoroheptanoic acid |
| PFOA | Perfluorooctanoic acid |
| PFNA | Perfluorononanoic acid |
| PFDA | Perfluorodecanoic acid |
| PFUnA | Perfluroroundecanoic acid |
| PFDoA | Perfluorododecanoic acid |
| PFTriA | Perfluorotridecanoic acid |
| PFTeDA | Perfluorotetradecanoic acid |
| PERFLUOROALKYLSULFONIC Acids (PFSAs) | |
| PFBS | Perfluorobutane sulfonic acid |
| PFPeS | Perfluroropentane sulfonic acid |
| PFHxS | Perfluorohexane sulfonic acid |
| PFHpS | Perfluoroheptane sulfonic acid |
| PFOS | Perfluorooctane sulfonic acid |
| PFNS | Perfluorononane sulfonic acid |
| PFDS | Perfluorodecane sulfonic acid |
| PFDoS | Perfluorododecane sulfonic acid |
| TELOMER SULFONIC Acids | |
| 4:2 FTSA | 4:2 fluorotelomersulfonic acid |
| 6:2 FTSA | 6:2 fluorotelomersulfonic acid |
| 8:2 FTSA | 8:2 fluorotelomersulfonic acid |
| PERFLUOROOCTANCESULFONAMIDES (FOSAs) | |
| PFOSA | Perfluroroctane sulfonamide |
| N-MeFOSA | N-Methyl perfluoroocatane sulfonamide |
| N-EtFOSA | N-Ethyl perfluorooctane sulfonamide |
| PERFLUOROOCTANCESULFONAMIDOACETIC Acids | |
| N-MeFOSAA | N-Methyl perfluoroocatane sulfonamidoacetic acid |
| N-EtFOSAA | N-Ethyl perfluorooctane sulfonamidoacetic acid |
| NATIVE PERFLUOROOCTANCESULFONAMIDOETHANOLS (FOSEs) | |
| N-MeFOSE | N-Methyl perfluorooctane sulfonamideoethanol |
| N-EtFOSE | N-Ethyl perfluorooctane sulfonamidoethanol |
| PERFLUOROALKYLETHERCARBOXYLIC Acids (PFECAs) | |
| HFPO-DA | Hexafluoropropylene oxide dimer acid |
| DONA | 4,8-dioxa-3H-perfluorononanoic acid |

| CHLORO-PERFLUOROALKYLSULFONATE | |
|---|---|
| F-53B Major | 9-chloroehexadecafluoro-3-oxanone-1-sulfonic acid |
| F-53B Minor | 11-chloroelcosafluoro-3-oxaundecane-1-sulfonic acid |

Note: If WDNR Lab Certification removes a particular compound from the reporting list above and upon receiving written communication from the department, reporting for that compound is no longer required.

### 4.2.1.7 Sampling and Reporting Sludge Samples for PFAS

Representative sludge samples shall be collected at each sample point as listed. At minimum, liquid sludge storage/digesters should be thoroughly mixed prior to sampling. Cake sludge samples should consist of seven equal size discrete samples and be collected from different areas and depths then composited into one sample for laboratory analysis.

Note: If additional equipment is used for collecting sludge samples (i.e., shovels, compositing buckets, bottles, etc.), then a one-time equipment blank is recommended to be collected with the first sample. An equipment blank sample is collected by passing laboratory verified PFAS-free water over or through field sampling equipment before the collection of a representative sludge sample. The equipment blank result shall be reported on the annual Sludge Characteristics Form (3400-049) in the comment section when reporting PFAS concentrations in the sludge.

The permittee shall report each of the PFAS sludge monitoring results on the annual Sludge Characteristics and Monitoring Form (3400-049) as provided by the department. The permittee shall also report the summation of PFOS and PFOA on this same form. All results shall be reported in dry weight. The annual Sludge Characteristics and Monitoring Form (3400-049) are due January 31, of the year following the collection of the sludge samples.

The laboratory performing the analysis on any samples shall be certified for the applicable PFAS compounds in the solids matrix by the Wisconsin Laboratory Certification Program established under s. 299.11, Wis. Stats., and in accordance with s. NR 149.41, Wis. Adm. Code. If the EPA Office of Water publishes a 1600 series isotope dilution method for the analysis of PFAS in solids, the department recommends the use of the EPA method. The department may reject any sample results if results are produced by a laboratory that is not in compliance with certification requirements under ch. NR 149, Wis. Adm. Code.

### 4.2.1.8 PFAS Land Application Requirements

The department recommends the landspreading and/or land application of sludge be done in a manner consistent with the most recent version of the "Interim Strategy for Land Application of Biosolids and Industrial Sludges containing PFAS".

### 4.2.1.9 Lists 1, 2, 3, and 4

| **List 1**<br>**TOTAL SOLIDS AND METALS**<br>See the Monitoring Requirements and Limitations table above for monitoring frequency and limitations for the List 1 parameters |
|---|
| Solids, Total (percent) |
| Arsenic, mg/kg (dry weight) |
| Cadmium, mg/kg (dry weight) |
| Copper, mg/kg (dry weight) |
| Lead, mg/kg (dry weight) |
| Mercury, mg/kg (dry weight) |

| **List 1**<br>**TOTAL SOLIDS AND METALS**<br>See the Monitoring Requirements and Limitations table above for monitoring frequency and limitations for the List 1 parameters |
|---|
| Molybdenum, mg/kg (dry weight) |
| Nickel, mg/kg (dry weight) |
| Selenium, mg/kg (dry weight) |
| Zinc, mg/kg (dry weight) |
| Radium-226, pCi/g (dry weight) |

| **List 2**<br>**NUTRIENTS**<br>See the Monitoring Requirements and Limitations table above for monitoring frequency for the List 2 parameters |
|---|
| Solids, Total (percent) |
| Nitrogen Total Kjeldahl (percent) |
| Nitrogen Ammonium (NH4-N) Total (percent) |
| Phosphorus Total as P (percent) |
| Phosphorus, Water Extractable (as percent of Total P) |
| Potassium Total Recoverable (percent) |

**List 3**
**PATHOGEN CONTROL FOR CLASS B SLUDGE**

The permittee shall implement pathogen control as listed in List 3. The Department shall be notified of the pathogen control utilized and shall be notified when the permittee decides to utilize alternative pathogen control.

The following requirements shall be met prior to land application of sludge.

| **Parameter** | **Unit** | **Limit** |
|---|---|---|
| Fecal Coliform* | MPN/gTS or CFU/gTS | 2,000,000 |
| **OR**, ONE OF THE FOLLOWING PROCESS OPTIONS | | |
| Aerobic Digestion | Air Drying | |
| Anaerobic Digestion | Composting | |
| Alkaline Stabilization | PSRP Equivalent Process | |
| ***** The Fecal Coliform limit shall be reported as the geometric mean of 7 discrete samples on a dry weight basis. | | |

**List 4**
**VECTOR ATTRACTION REDUCTION**

The permittee shall implement any one of the vector attraction reduction options specified in List 4. The Department shall be notified of the option utilized and shall be notified when the permittee decides to utilize an alternative option.

One of the following shall be satisfied prior to, or at the time of land application as specified in List 4.

| **Option** | **Limit** | **Where/When it Shall be Met** |
|---|---|---|
| Volatile Solids Reduction | ≥38% | Across the process |
| Specific Oxygen Uptake Rate | ≤1.5 mg $O_2$/hr/g TS | On aerobic stabilized sludge |
| Anaerobic bench-scale test | <17 % VS reduction | On anaerobic digested sludge |
| Aerobic bench-scale test | <15 % VS reduction | On aerobic digested sludge |

**List 4**
**VECTOR ATTRACTION REDUCTION**

The permittee shall implement any one of the vector attraction reduction options specified in List 4. The Department shall be notified of the option utilized and shall be notified when the permittee decides to utilize an alternative option.

One of the following shall be satisfied prior to, or at the time of land application as specified in List 4.

| Option | Limit | Where/When it Shall be Met |
|---|---|---|
| Aerobic Process | >14 days, Temp >40°C and Avg. Temp > 45°C | On composted sludge |
| pH adjustment | >12 S.U. (for 2 hours) and >11.5 (for an additional 22 hours) | During the process |
| Drying without primary solids | >75 % TS | When applied or bagged |
| Drying with primary solids | >90 % TS | When applied or bagged |
| Equivalent Process | Approved by the Department | Varies with process |
| Injection | - | When applied |
| Incorporation | - | Within 6 hours of application |

### 4.2.1.10 Daily Logs

**Daily Land Application Log:** The permittee shall maintain a daily land application log for biosolids land applied each day when land application occurs. See section 4.2.5.1 for the minimum records that must be kept, in addition to all analytical results for the biosolids land applied. The log book records shall form the basis for the annual land application report requirements.

**Daily Log of Hauled Sludge:** The permittee shall maintain a daily log of hauled sludge. See section 4.2.5.2 for the minimum records that must be kept. The log book records shall form the basis for hauled sludge reports submitted on Form 3400-52 "Other Methods of Disposal or Distribution Report" following each year that sludge is hauled.

## 4.2.2 Sampling Point (Outfall) 005 - CLASS A DRIED ALGAE SAMPLE PT

| Monitoring Requirements and Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Temperature | Daily Min | 80 deg C | Continuous | Continuous | See section 4.2.2.3 for monitoring and reporting requirements. |
| Solids, Total | Daily Min | 90 Percent | Per Batch | Grab | See section 4.2.2.3 for monitoring and reporting requirements. |
| Fecal Coliform | Daily Max | 1,000 MPN/g TS | See Permit Note | Grab | Monitor immediately after the treatment process. See section 4.2.2.4 for Fecal Coliform Density Requirement. |
| PFOA + PFOS | | µg/kg | Annual | Calculated | Report the sum of PFOA and PFOS. See PFAS Permit Sections for more information. |

| Monitoring Requirements and Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| PFAS Dry Wt | | | Annual | Grab | Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS Permit Sections for more information. |

### 4.2.2.1 Outfall 005 and Outfall 007

Sample Point 005 is provided for dried algae treatment process monitoring and demonstrating that pathogen density requirements have been meet immediately after the Class A treatment process (Heat Drying) is complete. Outfall 007 is provided for pathogen retesting if the dried algae is stored such as in an algae hopper or other algae storage unit. Flexibility in this permit allows the permittee to utilize either Outfall 005 or Outfall 007 for monitoring and reporting metals (List 1) and meeting vector attraction reduction requirements (List 4). If land applying from either Outfall 005 or Outfall 007, nutrients (List 2) shall be monitored and pathogen control (List 3) requirements shall be met prior to distribution, land application or disposal. The details for meeting the monitoring requirements of ch. NR 204, Wis. Adm. Code, and this permit shall be described in the sludge management plan.

### 4.2.2.2 Activating Sample Point/Outfall 005 – Class A Dried Algae Sludge or Sample Point 007 – Class A Dried Algae Sludge from Storage

Prior to distribution or land application of Class A Heat Dried Algae sludge from Sample Point/Outfall 005 or Outfall 007 the permittee shall contact the department to arrange for the statewide biosolids coordinator to inspect the treatment equipment and review process related data. Prior to distribution of Class A sludge, the department shall inspect the Class A Heat Dried Algae sludge treatment (Algae ~~Microwave~~ Double Drum Dryer) process, material handling equipment and storage processes. The department shall also review the associated operational and monitoring data, sample collection and monitoring procedures, and record keeping and reporting procedures. Upon a favorable inspection, the permittee will then be authorized to distribute or land apply Class A Heat Dried Algae sludge from the requested outfall.

### 4.2.2.3 Sampling, Monitoring and Reporting –Temperature and Solids Content (Outfall 005)

The temperature of algae sludge in the dryer shall be monitored continuously. Report the minimum temperature recorded on the eDMR daily.
Total solids percent shall be monitored and collected per the approved Sludge Management Plan. Monitoring is required at each dryer startup and ‘Per Batch’. The sampling frequency ‘Per Batch’ is as defined in the Sludge Management Plan. For each ‘Batch’ report the minimum total solids content recorded on the eDMR.

### 4.2.2.4 Fecal Coliform Density Requirements

Pathogen testing shall be performed on individual samples and shall be collected and reported on no less than 7 discreet samples taken throughout the calendar year. Monitoring for fecal coliform density shall be reported as discrete sample results and shall not be reported as a geometric mean. Each pathogen control sample shall meet the pathogen limit to prove effective pathogen treatment. See the standard requirements section of this permit. Samples shall be collected as specified in an approved Sludge Management Plan.

### 4.2.2.5 Sludge Monitoring for PFAS

Sampling shall occur for perfluoroalkyl and polyfluoroalkyl compounds (PFAS) listed in the table below and as indicated in sampling point sections above. Monitoring shall occur at each sample point when sludge is generated regardless of the end use (i.e. land applied, hauled to another facility, landfilled).

| PERFLUOROALKYLCARBOXILIC Acids (PFCAs) | |
|---|---|
| PFBA | Perfluorobutanoic acid |
| PFPeA | Perfluoropentanoic acid |
| PFHxA | Perfluorohexanoic acid |
| PFHpA | Perfluoroheptanoic acid |
| PFOA | Perfluorooctanoic acid |
| PFNA | Perfluorononanoic acid |
| PFDA | Perfluorodecanoic acid |
| PFUnA | Perfluoroundecanoic acid |
| PFDoA | Perfluorododecanoic acid |
| PFTriA | Perfluorotridecanoic acid |
| PFTeDA | Perfluorotetradecanoic acid |
| PERFLUOROALKYLSULFONIC Acids (PFSAs) | |
| PFBS | Perfluorobutane sulfonic acid |
| PFPeS | Perfluoropentane sulfonic acid |
| PFHxS | Perfluorohexane sulfonic acid |
| PFHpS | Perfluoroheptane sulfonic acid |
| PFOS | Perfluorooctane sulfonic acid |
| PFNS | Perfluorononane sulfonic acid |
| PFDS | Perfluorodecane sulfonic acid |
| PFDoS | Perfluorododecane sulfonic acid |
| TELOMER SULFONIC Acids | |
| 4:2 FTSA | 4:2 fluorotelomersulfonic acid |
| 6:2 FTSA | 6:2 fluorotelomersulfonic acid |
| 8:2 FTSA | 8:2 fluorotelomersulfonic acid |
| PERFLUOROOCTANCESULFONAMIDES (FOSAs) | |
| PFOSA | Perfluoroctane sulfonamide |
| N-MeFOSA | N-Methyl perfluoroocatane sulfonamide |
| N-EtFOSA | N-Ethyl perfluorooctane sulfonamide |
| PERFLUOROOCTANCESULFONAMIDOACETIC Acids | |
| N-MeFOSAA | N-Methyl perfluoroocatane sulfonamidoacetic acid |
| N-EtFOSAA | N-Ethyl perfluorooctane sulfonamidoacetic acid |
| NATIVE PERFLUOROOCTANCESULFONAMIDOETHANOLS (FOSEs) | |
| N-MeFOSE | N-Methyl perfluorooctane sulfonamideoethanol |
| N-EtFOSE | N-Ethyl perfluorooctane sulfonamidoethanol |
| PERFLUOROALKYLETHERCARBOXYLIC Acids (PFECAs) | |
| HFPO-DA | Hexafluoropropylene oxide dimer acid |
| DONA | 4,8-dioxa-3H-perfluorononanoic acid |
| CHLORO-PERFLUOROALKYLSULFONATE | |
| F-53B Major | 9-chloroehexadecafluoro-3-oxanone-1-sulfonic acid |
| F-53B Minor | 11-chloroelcosafluoro-3-oxaundecane-1-sulfonic acid |

Note: If WDNR Lab Certification removes a particular compound from the reporting list above and upon receiving written communication from the department, reporting for that compound is no longer required.

### 4.2.2.6 Sampling and Reporting Sludge Samples for PFAS

Representative sludge samples shall be collected at each sample point as listed. At minimum, liquid sludge storage/digesters should be thoroughly mixed prior to sampling. Cake sludge samples should consist of seven equal size discrete samples and be collected from different areas and depths then composited into one sample for laboratory analysis.

Note: If additional equipment is used for collecting sludge samples (i.e., shovels, compositing buckets, bottles, etc.), then a one-time equipment blank is recommended to be collected with the first sample. An equipment blank sample is collected by passing laboratory verified PFAS-free water over or through field sampling equipment before the collection of a representative sludge sample. The equipment blank result shall be reported on the annual Sludge Characteristics Form (3400-049) in the comment section when reporting PFAS concentrations in the sludge.

The permittee shall report each of the PFAS sludge monitoring results on the annual Sludge Characteristics and Monitoring Form (3400-049) as provided by the department. The permittee shall also report the summation of PFOS and PFOA on this same form. All results shall be reported in dry weight. The annual Sludge Characteristics and Monitoring Form (3400-049) are due January 31, of the year following the collection of the sludge samples.

The laboratory performing the analysis on any samples shall be certified for the applicable PFAS compounds in the solids matrix by the Wisconsin Laboratory Certification Program established under s. 299.11, Wis. Stats., and in accordance with s. NR 149.41, Wis. Adm. Code. If the EPA Office of Water publishes a 1600 series isotope dilution method for the analysis of PFAS in solids, the department recommends the use of the EPA method. The department may reject any sample results if results are produced by a laboratory that is not in compliance with certification requirements under ch. NR 149, Wis. Adm. Code.

### 4.2.2.7 PFAS Land Application Requirements

The department recommends the landspreading and/or land application of sludge be done in a manner consistent with the most recent version of the "Interim Strategy for Land Application of Biosolids and Industrial Sludges containing PFAS".

## 4.2.3 Sampling Point (Outfall) 005 - CLASS A DRIED ALGAE SAMPLE PT; 007 - CLASS A DRIED ALGAE FROM STORAGE

| Monitoring Requirements and Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Solids, Total | | Percent | Annual | Composite | |
| Fecal Coliform | Daily Max | 1,000 MPN/g TS | Annual | Multiple Grab | Outfall 005 - Monitor if stored prior to bagging or distribution. See section 4.2.2.4 above for Fecal Coliform Density Requirement. |
| Arsenic Dry Wt | Ceiling | 75 mg/kg | Annual | Composite | |
| Arsenic Dry Wt | High Quality | 41 mg/kg | Annual | Composite | |

| Monitoring Requirements and Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Cadmium Dry Wt | Ceiling | 85 mg/kg | Annual | Composite | |
| Cadmium Dry Wt | High Quality | 39 mg/kg | Annual | Composite | |
| Copper Dry Wt | Ceiling | 4,300 mg/kg | Annual | Composite | |
| Copper Dry Wt | High Quality | 1,500 mg/kg | Annual | Composite | |
| Lead Dry Wt | Ceiling | 840 mg/kg | Annual | Composite | |
| Lead Dry Wt | High Quality | 300 mg/kg | Annual | Composite | |
| Mercury Dry Wt | Ceiling | 57 mg/kg | Annual | Composite | |
| Mercury Dry Wt | High Quality | 17 mg/kg | Annual | Composite | |
| Molybdenum Dry Wt | Ceiling | 75 mg/kg | Annual | Composite | |
| Nickel Dry Wt | Ceiling | 420 mg/kg | Annual | Composite | |
| Nickel Dry Wt | High Quality | 420 mg/kg | Annual | Composite | |
| Selenium Dry Wt | Ceiling | 100 mg/kg | Annual | Composite | |
| Selenium Dry Wt | High Quality | 100 mg/kg | Annual | Composite | |
| Zinc Dry Wt | Ceiling | 7,500 mg/kg | Annual | Composite | |
| Zinc Dry Wt | High Quality | 2,800 mg/kg | Annual | Composite | |
| Nitrogen, Total Kjeldahl | | Percent | Annual | Composite | Monitoring is optional for these outfalls unless sludge from one or both outfalls is land applied. |
| Nitrogen, Ammonium ($NH_4$-N) Total | | Percent | Annual | Composite | Monitoring is optional for these outfalls unless sludge from one or both outfalls is land applied. |
| Phosphorus, Total | | Percent | Annual | Composite | Monitoring is optional for these outfalls unless sludge from one or both outfalls is land applied. |
| Phosphorus, Water Extractable | | % of Tot P | Annual | Composite | Monitoring is optional for these outfalls unless sludge from one or both outfalls is land applied. |
| Potassium, Total Recoverable | | Percent | Annual | Composite | Monitoring is optional for these outfalls unless sludge from one or both outfalls is land applied. |
| PFOA + PFOS | | µg/kg | Annual | Calculated | Report the sum of PFOA and PFOS. See PFAS Permit Sections for more information. |
| PFAS Dry Wt | | | Annual | Grab | Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS Permit Sections for more information. |

| Other Sludge Requirements | |
|---|---|
| **Sludge Requirements** | **Sample Frequency** |
| **List 3 Requirements – Pathogen Control:** The requirements in List 3 shall be met prior to land application or distribution of sludge. | **Annual if Dried Algae is Land Applied or Distributed** |
| **List 4 Requirements – Vector Attraction Reduction:** The vector attraction reduction shall be satisfied prior to, or at the time of land application or distribution as specified in List 4. | **Annual if Dried Algae is Land Applied or Distributed** |

### 4.2.3.1 Vector Attraction Reduction Requirements (Outfall 007)

If dried algae cake sludge from Outfall 007 is land applied, vector attraction reduction requirements shall be satisfied by Drying Without Primary Solids (Total Solids shall be ≥ 70%) and shall be performed at the same time Fecal Coliforms are monitored. See the standard requirements section of this permit. Samples shall be collected as specified in an approved management plan.

### 4.2.3.2 List 2 Analysis

If the monitoring frequency for List 2 parameters is more frequent than "Annual" then the sludge may be analyzed for the List 2 parameters just prior to each land application season rather than at the more frequent interval specified.

### 4.2.3.3 Changes in Feed Sludge Characteristics

If a change in feed sludge characteristics, treatment process, or operational procedures occurs which may result in a significant shift in sludge characteristics, the permittee shall reanalyze the sludge for List 1, 2, 3 and 4 parameters each time such change occurs.

### 4.2.3.4 Multiple Sludge Sample Points (Outfalls)

If there are multiple sludge sample points (outfalls), but the sludges are not subject to different sludge treatment processes, then a separate List 2 analysis shall be conducted for each sludge type which is land applied, just prior to land application, and the application rate shall be calculated for each sludge type. In this case, List 1, 3, and 4 and PCBs need only be analyzed on a single sludge type, at the specified frequency. If there are multiple sludge sample points (outfalls), due to multiple treatment processes, List 1, 2, 3 and 4 and PCBs shall be analyzed for each sludge type at the specified frequency.

### 4.2.3.5 Sludge Which Exceeds the High Quality Limit

Cumulative pollutant loading records shall be kept for all bulk land application of sludge which does not meet the high quality limit for any parameter. This requirement applies for the entire calendar year in which any exceedance of Table 3 of s. NR 204.07(5)(c), is experienced. Such loading records shall be kept for all List 1 parameters for each site land applied in that calendar year. The formula to be used for calculating cumulative loading is as follows:

[(Pollutant concentration (mg/kg) x dry tons applied/ac) ÷ 500] + previous loading (lbs/acre) = cumulative lbs pollutant per acre

When a site reaches 90% of the allowable cumulative loading for any metal established in Table 2 of s. NR 204.07(5)(b), the Department shall be so notified through letter or in the comment section of the annual land application report (3400-55).

### 4.2.3.6 Sludge Monitoring for PFAS

Sampling shall occur for perfluoroalkyl and polyfluoroalkyl compounds (PFAS) listed in the table below and as indicated in sampling point sections above. Monitoring shall occur at each sample point when sludge is generated regardless of the end use (i.e. land applied, hauled to another facility, landfilled).

| PERFLUOROALKYLCARBOXILIC Acids (PFCAs) | |
|---|---|
| PFBA | Perfluorobutanoic acid |
| PFPeA | Perfluroropentanoic acid |
| PFHxA | Perfluorohexanoic acid |
| PFHpA | Perfluoroheptanoic acid |
| PFOA | Perfluorooctanoic acid |
| PFNA | Perfluorononanoic acid |
| PFDA | Perfluorodecanoic acid |
| PFUnA | Perfluroroundecanoic acid |
| PFDoA | Perfluorododecanoic acid |
| PFTriA | Perfluorotridecanoic acid |
| PFTeDA | Perfluorotetradecanoic acid |
| PERFLUOROALKYLSULFONIC Acids (PFSAs) | |
| PFBS | Perfluorobutane sulfonic acid |
| PFPeS | Perfluroropentane sulfonic acid |
| PFHxS | Perfluorohexane sulfonic acid |
| PFHpS | Perfluoroheptane sulfonic acid |
| PFOS | Perfluorooctane sulfonic acid |
| PFNS | Perfluorononane sulfonic acid |
| PFDS | Perfluorodecane sulfonic acid |
| PFDoS | Perfluorododecane sulfonic acid |
| TELOMER SULFONIC Acids | |
| 4:2 FTSA | 4:2 fluorotelomersulfonic acid |
| 6:2 FTSA | 6:2 fluorotelomersulfonic acid |
| 8:2 FTSA | 8:2 fluorotelomersulfonic acid |
| PERFLUOROOCTANCESULFONAMIDES (FOSAs) | |
| PFOSA | Perfluroroctane sulfonamide |
| N-MeFOSA | N-Methyl perfluoroocatane sulfonamide |
| N-EtFOSA | N-Ethyl perfluorooctane sulfonamide |
| PERFLUOROOCTANCESULFONAMIDOACETIC Acids | |
| N-MeFOSAA | N-Methyl perfluoroocatane sulfonamidoacetic acid |
| N-EtFOSAA | N-Ethyl perfluorooctane sulfonamidoacetic acid |
| NATIVE PERFLUOROOCTANCESULFONAMIDOETHANOLS (FOSEs) | |
| N-MeFOSE | N-Methyl perfluorooctane sulfonamideoethanol |
| N-EtFOSE | N-Ethyl perfluorooctane sulfonamidoethanol |
| PERFLUOROALKYLETHERCARBOXYLIC Acids (PFECAs) | |
| HFPO-DA | Hexafluoropropylene oxide dimer acid |
| DONA | 4,8-dioxa-3H-perfluorononanoic acid |

| CHLORO-PERFLUOROALKYLSULFONATE | |
|---|---|
| F-53B Major | 9-chloroehexadecafluoro-3-oxanone-1-sulfonic acid |
| F-53B Minor | 11-chloroelcosafluoro-3-oxaundecane-1-sulfonic acid |

Note: If WDNR Lab Certification removes a particular compound from the reporting list above and upon receiving written communication from the department, reporting for that compound is no longer required.

### 4.2.3.7 Sampling and Reporting Sludge Samples for PFAS

Representative sludge samples shall be collected at each sample point as listed. At minimum, liquid sludge storage/digesters should be thoroughly mixed prior to sampling. Cake sludge samples should consist of seven equal size discrete samples and be collected from different areas and depths then composited into one sample for laboratory analysis.

Note: If additional equipment is used for collecting sludge samples (i.e., shovels, compositing buckets, bottles, etc.), then a one-time equipment blank is recommended to be collected with the first sample. An equipment blank sample is collected by passing laboratory verified PFAS-free water over or through field sampling equipment before the collection of a representative sludge sample. The equipment blank result shall be reported on the annual Sludge Characteristics Form (3400-049) in the comment section when reporting PFAS concentrations in the sludge.

The permittee shall report each of the PFAS sludge monitoring results on the annual Sludge Characteristics and Monitoring Form (3400-049) as provided by the department. The permittee shall also report the summation of PFOS and PFOA on this same form. All results shall be reported in dry weight. The annual Sludge Characteristics and Monitoring Form (3400-049) are due January 31, of the year following the collection of the sludge samples.

The laboratory performing the analysis on any samples shall be certified for the applicable PFAS compounds in the solids matrix by the Wisconsin Laboratory Certification Program established under s. 299.11, Wis. Stats., and in accordance with s. NR 149.41, Wis. Adm. Code. If the EPA Office of Water publishes a 1600 series isotope dilution method for the analysis of PFAS in solids, the department recommends the use of the EPA method. The department may reject any sample results if results are produced by a laboratory that is not in compliance with certification requirements under ch. NR 149, Wis. Adm. Code.

### 4.2.3.8 PFAS Land Application Requirements

The department recommends the landspreading and/or land application of sludge be done in a manner consistent with the most recent version of the "Interim Strategy for Land Application of Biosolids and Industrial Sludges containing PFAS".

### 4.2.3.9 Lists 1, 2, 3, and 4

| **List 1**<br>**TOTAL SOLIDS AND METALS**<br>See the Monitoring Requirements and Limitations table above for monitoring frequency and limitations for the List 1 parameters |
|---|
| Solids, Total (percent) |
| Arsenic, mg/kg (dry weight) |
| Cadmium, mg/kg (dry weight) |
| Copper, mg/kg (dry weight) |
| Lead, mg/kg (dry weight) |
| Mercury, mg/kg (dry weight) |

| List 1<br>TOTAL SOLIDS AND METALS<br>See the Monitoring Requirements and Limitations table above for monitoring frequency and limitations for the List 1 parameters |
|---|
| Molybdenum, mg/kg (dry weight) |
| Nickel, mg/kg (dry weight) |
| Selenium, mg/kg (dry weight) |
| Zinc, mg/kg (dry weight) |

| List 2<br>NUTRIENTS<br>See the Monitoring Requirements and Limitations table above for monitoring frequency for the List 2 parameters |
|---|
| Solids, Total (percent) |
| Nitrogen Total Kjeldahl (percent) |
| Nitrogen Ammonium (NH4-N) Total (percent) |
| Phosphorus Total as P (percent) |
| Phosphorus, Water Extractable (as percent of Total P) |
| Potassium Total Recoverable (percent) |

**List 3**
**PATHOGEN CONTROL FOR CLASS A SLUDGE**

The permittee shall implement pathogen control as listed in List 3. The Department shall be notified of the pathogen control utilized and shall be notified when the permittee decides to utilize alternative pathogen control.

The following requirements shall be met prior to land application or distribution of sludge.

| Parameter | Unit | Limit |
|---|---|---|
| Fecal Coliform* | MPN/gTS | 1000 |
| **OR** | | |
| Salmonella | MPN/4gTS | 3 |
| **AND**, ONE OF THE FOLLOWING PROCESS OPTIONS | | |
| Temp/Time based on % Solids | Alkaline Treatment | |
| Prior test for Enteric Virus/Viable Helminth Ova | Post test for Enteric Virus/Viable Helminth Ova | |
| Composting | Heat Drying | |
| Heat Treatment | Thermophilic Aerobic Digestion | |
| Beta Ray Irradiation | Gamma Ray Irradiation | |
| Pasteurization | PFRP Equivalent Process | |
| * The Fecal Coliform limit shall be reported as discrete sample results and shall not be reported as a geometric mean. | | |

**List 4**
**VECTOR ATTRACTION REDUCTION**

The permittee shall implement any one of the vector attraction reduction options specified in List 4. The Department shall be notified of the option utilized and shall be notified when the permittee decides to utilize an alternative option.

One of the following shall be satisfied prior to, or at the time of land application or distribution as specified in List 4.

| Option | Limit | Where/When it Shall be Met |
|---|---|---|
| Volatile Solids Reduction | ≥38% | Across the process |
| Specific Oxygen Uptake Rate | ≤1.5 mg $O_2$/hr/g TS | On aerobic stabilized sludge |
| Anaerobic bench-scale test | <17 % VS reduction | On anaerobic digested sludge |
| Aerobic bench-scale test | <15 % VS reduction | On aerobic digested sludge |
| Aerobic Process | >14 days, Temp >40°C and Avg. Temp > 45°C | On composted sludge |
| pH adjustment | >12 S.U. (for 2 hours) and >11.5 (for an additional 22 hours) | During the process |
| Drying without primary solids | >75 % TS | When applied or bagged |
| Drying with primary solids | >90 % TS | When applied or bagged |
| Equivalent Process | Approved by the Department | Varies with process |
| Injection | - | When applied |
| Incorporation | - | Within 6 hours of application |

### 4.2.3.10 Daily Logs

**Daily Land Application Log:** The permittee shall maintain a daily land application log for biosolids land applied each day when land application occurs. See section 4.2.5.1 for the minimum records that must be kept, in addition to all analytical results for the biosolids land applied. The log book records shall form the basis for the annual land application report requirements.

**Daily Log of Hauled Sludge:** The permittee shall maintain a daily log of hauled sludge. See section 4.2.5.2 for the minimum records that must be kept. The log book records shall form the basis for hauled sludge reports submitted on Form 3400-52 "Other Methods of Disposal or Distribution Report" following each year that sludge is hauled.

## 4.2.4 Sampling Point (Outfall) 008 - CLASS B ALGAE LAND APPLICATION

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

| Monitoring Requirements and Limitations | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Limit Type** | **Limit and Units** | **Sample Frequency** | **Sample Type** | **Notes** |
| Mercury Dry Wt | High Quality | 17 mg/kg | Annual | Composite | |
| Molybdenum Dry Wt | Ceiling | 75 mg/kg | Annual | Composite | |
| Nickel Dry Wt | Ceiling | 420 mg/kg | Annual | Composite | |
| Nickel Dry Wt | High Quality | 420 mg/kg | Annual | Composite | |
| Selenium Dry Wt | Ceiling | 100 mg/kg | Annual | Composite | |
| Selenium Dry Wt | High Quality | 100 mg/kg | Annual | Composite | |
| Zinc Dry Wt | Ceiling | 7,500 mg/kg | Annual | Composite | |
| Zinc Dry Wt | High Quality | 2,800 mg/kg | Annual | Composite | |
| Nitrogen, Total Kjeldahl | | Percent | Annual | Composite | |
| Nitrogen, Ammonium ($NH_4$-N) Total | | Percent | Annual | Composite | |
| Phosphorus, Total | | Percent | Annual | Composite | |
| Phosphorus, Water Extractable | | % of Tot P | Annual | Composite | |
| Potassium, Total Recoverable | | Percent | Annual | Composite | |
| PFOA + PFOS | | µg/kg | Annual | Calculated | Report the sum of PFOA and PFOS. See PFAS Permit Sections for more information. |
| PFAS Dry Wt | | | Annual | Grab | Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS Permit Sections for more information. |

| Other Sludge Requirements | |
|---|---|
| **Sludge Requirements** | **Sample Frequency** |
| **List 3 Requirements – Pathogen Control:** The requirements in List 3 shall be met prior to land application of sludge. | **Annual During Years Sludge is Land Applied** |
| **List 4 Requirements – Vector Attraction Reduction:** The vector attraction reduction shall be satisfied prior to, or at the time of land application as specified in List 4. | **Annual During Years Sludge is Land Applied** |

### 4.2.4.1 List 2 Analysis

If the monitoring frequency for List 2 parameters is more frequent than "Annual" then the sludge may be analyzed for the List 2 parameters just prior to each land application season rather than at the more frequent interval specified.

### 4.2.4.2 Changes in Feed Sludge Characteristics

If a change in feed sludge characteristics, treatment process, or operational procedures occurs which may result in a significant shift in sludge characteristics, the permittee shall reanalyze the sludge for List 1, 2, 3 and 4 parameters each time such change occurs.

### 4.2.4.3 Multiple Sludge Sample Points (Outfalls)

If there are multiple sludge sample points (outfalls), but the sludges are not subject to different sludge treatment processes, then a separate List 2 analysis shall be conducted for each sludge type which is land applied, just prior to land application, and the application rate shall be calculated for each sludge type. In this case, List 1, 3, and 4 and PCBs need only be analyzed on a single sludge type, at the specified frequency. If there are multiple sludge sample points (outfalls), due to multiple treatment processes, List 1, 2, 3 and 4 and PCBs shall be analyzed for each sludge type at the specified frequency.

### 4.2.4.4 Sludge Which Exceeds the High Quality Limit

Cumulative pollutant loading records shall be kept for all bulk land application of sludge which does not meet the high quality limit for any parameter. This requirement applies for the entire calendar year in which any exceedance of Table 3 of s. NR 204.07(5)(c), is experienced. Such loading records shall be kept for all List 1 parameters for each site land applied in that calendar year. The formula to be used for calculating cumulative loading is as follows:

[(Pollutant concentration (mg/kg) x dry tons applied/ac) ÷ 500] + previous loading (lbs/acre) = cumulative lbs pollutant per acre

When a site reaches 90% of the allowable cumulative loading for any metal established in Table 2 of s. NR 204.07(5)(b), the Department shall be so notified through letter or in the comment section of the annual land application report (3400-55).

### 4.2.4.5 Sludge Monitoring for PFAS

Sampling shall occur for perfluoroalkyl and polyfluoroalkyl compounds (PFAS) listed in the table below and as indicated in sampling point sections above. Monitoring shall occur at each sample point when sludge is generated regardless of the end use (i.e. land applied, hauled to another facility, landfilled).

| PERFLUOROALKYLCARBOXILIC Acids (PFCAs) | |
|---|---|
| PFBA | Perfluorobutanoic acid |
| PFPeA | Perfluroropentanoic acid |
| PFHxA | Perfluorohexanoic acid |
| PFHpA | Perfluoroheptanoic acid |
| PFOA | Perfluorooctanoic acid |
| PFNA | Perfluorononanoic acid |
| PFDA | Perfluorodecanoic acid |
| PFUnA | Perfluroroundecanoic acid |
| PFDoA | Perfluorododecanoic acid |
| PFTriA | Perfluorotridecanoic acid |
| PFTeDA | Perfluorotetradecanoic acid |
| PERFLUOROALKYLSULFONIC Acids (PFSAs) | |
| PFBS | Perfluorobutane sulfonic acid |
| PFPeS | Perfluroropentane sulfonic acid |
| PFHxS | Perfluorohexane sulfonic acid |

| | |
|---|---|
| PFHpS | Perfluoroheptane sulfonic acid |
| PFOS | Perfluorooctane sulfonic acid |
| PFNS | Perfluorononane sulfonic acid |
| PFDS | Perfluorodecane sulfonic acid |
| PFDoS | Perfluorododecane sulfonic acid |
| TELOMER SULFONIC Acids | |
| 4:2 FTSA | 4:2 fluorotelomersulfonic acid |
| 6:2 FTSA | 6:2 fluorotelomersulfonic acid |
| 8:2 FTSA | 8:2 fluorotelomersulfonic acid |
| PERFLUOROOCTANCESULFONAMIDES (FOSAs) | |
| PFOSA | Perfluroroctane sulfonamide |
| N-MeFOSA | N-Methyl perfluoroocatane sulfonamide |
| N-EtFOSA | N-Ethyl perfluorooctane sulfonamide |
| PERFLUOROOCTANCESULFONAMIDOACETIC Acids | |
| N-MeFOSAA | N-Methyl perfluoroocatane sulfonamidoacetic acid |
| N-EtFOSAA | N-Ethyl perfluorooctane sulfonamidoacetic acid |
| NATIVE PERFLUOROOCTANCESULFONAMIDOETHANOLS (FOSEs) | |
| N-MeFOSE | N-Methyl perfluorooctane sulfonamideoethanol |
| N-EtFOSE | N-Ethyl perfluorooctane sulfonamidoethanol |
| PERFLUOROALKYLETHERCARBOXYLIC Acids (PFECAs) | |
| HFPO-DA | Hexafluoropropylene oxide dimer acid |
| DONA | 4,8-dioxa-3H-perfluorononanoic acid |
| CHLORO-PERFLUOROALKYLSULFONATE | |
| F-53B Major | 9-chloroehexadecafluoro-3-oxanone-1-sulfonic acid |
| F-53B Minor | 11-chloroelcosafluoro-3-oxaundecane-1-sulfonic acid |

Note: If WDNR Lab Certification removes a particular compound from the reporting list above and upon receiving written communication from the department, reporting for that compound is no longer required.

### 4.2.4.6 Sampling and Reporting Sludge Samples for PFAS

Representative sludge samples shall be collected at each sample point as listed. At minimum, liquid sludge storage/digesters should be thoroughly mixed prior to sampling. Cake sludge samples should consist of seven equal size discrete samples and be collected from different areas and depths then composited into one sample for laboratory analysis.

Note: If additional equipment is used for collecting sludge samples (i.e., shovels, compositing buckets, bottles, etc.), then a one-time equipment blank is recommended to be collected with the first sample. An equipment blank sample is collected by passing laboratory verified PFAS-free water over or through field sampling equipment before the collection of a representative sludge sample. The equipment blank result shall be reported on the annual Sludge Characteristics Form (3400-049) in the comment section when reporting PFAS concentrations in the sludge.

The permittee shall report each of the PFAS sludge monitoring results on the annual Sludge Characteristics and Monitoring Form (3400-049) as provided by the department. The permittee shall also report the summation of PFOS and PFOA on this same form. All results shall be reported in dry weight. The annual Sludge Characteristics and Monitoring Form (3400-049) are due January 31, of the year following the collection of the sludge samples.

The laboratory performing the analysis on any samples shall be certified for the applicable PFAS compounds in the solids matrix by the Wisconsin Laboratory Certification Program established under s. 299.11, Wis. Stats., and in accordance with s. NR 149.41, Wis. Adm. Code. If the EPA Office of Water publishes a 1600 series isotope dilution method for the analysis of PFAS in solids, the department recommends the use of the EPA method. The department may reject any sample results if results are produced by a laboratory that is not in compliance with certification requirements under ch. NR 149, Wis. Adm. Code.

### 4.2.4.7 PFAS Land Application Requirements

The department recommends the landspreading and/or land application of sludge be done in a manner consistent with the most recent version of the "Interim Strategy for Land Application of Biosolids and Industrial Sludges containing PFAS".

### 4.2.4.8 Lists 1, 2, 3, and 4

| **List 1**<br>**TOTAL SOLIDS AND METALS**<br>See the Monitoring Requirements and Limitations table above for monitoring frequency and limitations for the List 1 parameters |
|---|
| Solids, Total (percent) |
| Arsenic, mg/kg (dry weight) |
| Cadmium, mg/kg (dry weight) |
| Copper, mg/kg (dry weight) |
| Lead, mg/kg (dry weight) |
| Mercury, mg/kg (dry weight) |
| Molybdenum, mg/kg (dry weight) |
| Nickel, mg/kg (dry weight) |
| Selenium, mg/kg (dry weight) |
| Zinc, mg/kg (dry weight) |

| **List 2**<br>**NUTRIENTS**<br>See the Monitoring Requirements and Limitations table above for monitoring frequency for the List 2 parameters |
|---|
| Solids, Total (percent) |
| Nitrogen Total Kjeldahl (percent) |
| Nitrogen Ammonium (NH4-N) Total (percent) |
| Phosphorus Total as P (percent) |
| Phosphorus, Water Extractable (as percent of Total P) |
| Potassium Total Recoverable (percent) |

**List 3**
**PATHOGEN CONTROL FOR CLASS B SLUDGE**

The permittee shall implement pathogen control as listed in List 3. The Department shall be notified of the pathogen control utilized and shall be notified when the permittee decides to utilize alternative pathogen control.

The following requirements shall be met prior to land application of sludge.

| Parameter | Unit | Limit |
|---|---|---|
| Fecal Coliform* | MPN/gTS or CFU/gTS | 2,000,000 |
| **OR**, ONE OF THE FOLLOWING PROCESS OPTIONS | | |
| Aerobic Digestion | Air Drying | |
| Anaerobic Digestion | Composting | |
| Alkaline Stabilization | PSRP Equivalent Process | |

***** The Fecal Coliform limit shall be reported as the geometric mean of 7 discrete samples on a dry weight basis.

**List 4**
**VECTOR ATTRACTION REDUCTION**

The permittee shall implement any one of the vector attraction reduction options specified in List 4. The Department shall be notified of the option utilized and shall be notified when the permittee decides to utilize an alternative option.

One of the following shall be satisfied prior to, or at the time of land application as specified in List 4.

| Option | Limit | Where/When it Shall be Met |
|---|---|---|
| Volatile Solids Reduction | ≥38% | Across the process |
| Specific Oxygen Uptake Rate | ≤1.5 mg $O_2$/hr/g TS | On aerobic stabilized sludge |
| Anaerobic bench-scale test | <17 % VS reduction | On anaerobic digested sludge |
| Aerobic bench-scale test | <15 % VS reduction | On aerobic digested sludge |
| Aerobic Process | >14 days, Temp >40°C and Avg. Temp > 45°C | On composted sludge |
| pH adjustment | >12 S.U. (for 2 hours) and >11.5 (for an additional 22 hours) | During the process |
| Drying without primary solids | >75 % TS | When applied or bagged |
| Drying with primary solids | >90 % TS | When applied or bagged |
| Equivalent Process | Approved by the Department | Varies with process |
| Injection | - | When applied |
| Incorporation | - | Within 6 hours of application |

## 4.2.5 Daily Logs – All Outfalls

### 4.2.5.1 Daily Land Application Log

| Daily Land Application Log | | |
|---|---|---|
| **Discharge Monitoring Requirements**<br>The permittee shall maintain a daily land application log for biosolids land applied each day when land application or distribution occurs. The following minimum records must be kept, in addition to all analytical results for the biosolids land applied. The log book records shall form the basis for the annual land application or distribution report requirements**.** | | |
| **Parameters** | **Units** | **Sample Frequency** |
| DNR Site Number(s) | Number | Daily as used |
| Outfall number applied | Number | Daily as used |
| Acres applied | Acres | Daily as used |
| Amount applied | As appropriate * /day | Daily as used |
| Application rate per acre | unit */acre | Daily as used |
| Nitrogen applied per acre | lb/acre | Daily as used |
| Method of Application | Injection, Incorporation, or surface applied | Daily as used |

*gallons, cubic yards, dry US Tons or dry Metric Tons

### 4.2.5.2 Daily Log of Hauled Sludge

| Daily Log of Hauled Sludge | | |
|---|---|---|
| The permittee shall maintain a daily log of hauled sludge. The following minimum records must be kept. The log book records shall form the basis for hauled sludge reports submitted on Form 3400-52 "Other Methods of Disposal or Distribution Report" following each year that sludge is hauled. | | |
| **Log Book Item** | **Units** | **Reporting Frequency** |
| Outfall Number | Number | Per Occurrence |
| Date Sludge is Hauled | Date | Per Occurrence |
| Volume of Sludge Hauled | unit */day | Per Occurrence |
| Mass of Sludge Hauled | unit */day | Per Occurrence |
| Name of ~~Facility~~ Entity Receiving Sludge | n/a | Per Occurrence |
| WPDES Permit Number of Receiving Facility (if applicable) | n/a | Per Occurrence |

*gallons, cubic yards, dry US Tons or dry Metric Tons

# 5 Schedules

## 5.1 Total Phosphorus WQBELs Compliance

The permittee shall achieve compliance with total phosphorus WQBELs as specified.

| Required Action | Due Date |
|---|---|
| **Achieve Compliance with Total Phosphorus WQBELs:** The permittee shall achieve compliance with total phosphorus WQBELs as soon as possible but no later than the date specified. | 01/01/2025 |

## 5.2 Chloride WQBELs Compliance

Pursuant to s. NR 106.117(3)(d), Wis. Adm. Code, this schedule of compliance requires the permittee to evaluate chloride pollution and waste minimization measures as a means for complying with the final chloride effluent limitations specified below.

| Required Action | Due Date |
|---|---|
| **Annual Chloride Progress Report:** Submit an annual chloride progress report on chloride pollution and waste minimization measures implemented during the previous year with conclusions regarding compliance with final chloride effluent limitations. The annual chloride progress report shall:<br><br>Identify chloride pollution and waste minimization measures that have been implemented and assess the effectiveness of such measures in making progress towards meeting final chloride effluent limitations.<br><br>Include an analysis of trends in weekly, monthly and annual average chloride concentrations and total mass discharge of chloride based on chloride sampling and flow data; and<br><br>Include an analysis of how effluent chloride varies with time and with significant loadings of chloride.<br><br>The weekly average chloride limitations of 495 mg/L and 7,420 lbs/day in the current permit are effective upon permit reissuance until the effective date of the chloride limitations specified below.<br><br>The first annual chloride progress report is to be submitted by the Date Due. | 01/31/2024 |
| **Annual Chloride Progress Report #2:** Submit a chloride progress report as specified above with conclusions regarding compliance. If the report concludes that final chloride limitations can be met with the permittee's current treatment processes this permit shall be modified to include the final chloride limitations specified below. | 01/31/2025 |
| **Annual Chloride Progress Report #3:** Submit a chloride progress report as specified above with conclusions regarding compliance. If the report concludes that final chloride limitations can be met with the permittee's current treatment processes this permit shall be modified to include the final chloride limitations specified below. | 01/31/2026 |
| **Annual Chloride Progress Report #4:** Submit a chloride progress report as specified above with conclusions regarding compliance. If the report concludes that final chloride limitations can be met with the permittee's current treatment processes this permit shall be modified to include the final chloride limitations specified below. | 01/31/2027 |
| **Comply With Final Chloride WQBELs:** Weekly and monthly average chloride effluent limits of 472 mg/L, and weekly average limits of 7,300 lbs/day and 22,500 lbs/day based on wet weather conditions become effective. | 07/01/2028 |

## 5.3 PFOS/PFOA Minimization Plan Determination of Need

| Required Action | Due Date |
|---|---|
| **Report on Effluent Discharge:** Submit a report on effluent PFOS and PFOA concentrations and include an analysis of trends in monthly and annual average PFOS and PFOA concentrations. This analysis should also include a comparison to the applicable narrative standard in s. NR 102.04(8)(d), Wis. Adm. Code.<br><br>This report shall include all additional PFOS and PFOA data that may be collected including any influent, intake, in-plant, collection system sampling, and blank sample results. | 12/31/2024 |
| **Report on Effluent Discharge and Evaluation of Need:** Submit a final report on effluent PFOS and PFOA concentrations and include an analysis of trends in monthly and annual average PFOS and PFOA concentrations of data collected over the last 24 months. The report shall also provide a comparison on the likelihood of the facility needing to develop a PFOS/PFOA minimization plan.<br><br>This report shall include all additional PFOS and PFOA data that may be collected including any influent, intake, in-plant, collection system sampling, and blank sample results.<br><br>The permittee shall also submit a request to the department to evaluate the need for a PFOS/PFOA minimization plan.<br><br>If the Department determines a PFOS/PFOA minimization plan is needed based on a reasonable potential evaluation, the permittee will be required to develop a minimization plan for Department approval no later than 90 days after written notification was sent from the Department. The Department will modify or revoke and reissue the permit to include PFOS/PFOA minimization plan reporting requirements along with a schedule of compliance to meet WQBELs. Effluent monitoring of PFOS and PFOA shall continue as specified in the permit until the modified permit is issued.<br><br>If, however, the Department determines there is no reasonable potential for the facility to discharge PFOS or PFOA above the narrative standard in s. NR 102.04(8)(d), Wis. Adm. Code, no further action is required and effluent monitoring of PFOS and PFOA shall continue as specified in the permit. | 12/31/2025 |

## 5.4 Sludge Management Plan

A sludge management plan is required.

| Required Action | Due Date |
|---|---|
| **Sludge Management (SMP) Plan Submittal:** Submit a sludge management plan (SMP) to optimize the treatment and disposal of sludge by the Due Date.<br><br>The SMP shall include a description of the facilities management program for department approval pursuant to s. NR 204.11(1), Wis. Adm. Code. The plan shall include separate sections for each type of sewage sludge including liquid, cake, algae liquid, dried algae, etc. If there will be designated land application sites for each waste type, they should be listed by legal location and department assigned site number.<br><br>The SMP shall provide standardized information for communication to operators and the department for no less than the following:<br><br>1) Sample point, influent point and outfall monitoring locations shown on a schematic and with photos; | ~~03/31/2024~~<br><br>12/31/2024 |

| | |
|---|---|
| 2) Monitoring requirements at each influent point(s), sampling point(s) and outfall location(s);<br><br>3) Sampling protocols for each location and parameters at each location including treatment temperature, moisture content (total solids), fecal concentration as required;<br><br>4) Monitoring frequencies at each sample point, influent point and outfall;<br><br>5) Analytical methods with appropriate hold times and chain of custody procedures;<br><br>6) Multiple operational algae drying durations that include start up, operation and shutdown of treatment facilities that facilitates Waupun's operator need for flexibility.<br><br>7) Provide planned moisture content intervals for each option;<br><br>8) Provide documentation relating to temperature monitoring data recording, retrieval and printing out the data when requested;<br><br>9) Storage, pickup and transportation details associated with all outfalls and influent locations;<br><br>10) Dryer start up instructions and details associated with overcoming lack of appropriate temperatures or when exceeding moisture content limits;<br><br>11) Provide documentation of a system for collection, storage, disposal/buyer information for cake algae detailing deliveries; and<br><br>12) Collection, storage, and disposal processes of dried algae when algae does not meet minimum requirements to meet Class A and EQ requirements.<br><br>The SMP shall be developed to have inherent flexibility and to allow for frequent updates as processing may change.<br><br>An extension for submitting the SMP may be requested to allow for startup and compliance of the algae dryer. | |

## 5.5 Land Application Management Plan

A land application management plan is required for the land application system.

| Required Action | Due Date |
|---|---|
| **Land Application Management Plan Submittal:** Submit a land application management plan for Department approval pursuant to s. NR 204.11(1), Wis. Adm. Code. The plan shall include a description of the facility's sludge management program and how the permittee plans to operate the facility in compliance with the requirements of ch. NR 204, Wis. Adm. Code. The plan shall include, among others, separate sections for municipal sewage cake sludge, municipal sewage liquid sludge and algae that addresses expected nutrient values and predicted loading rates. If there will be designated landspreading sites for each waste type, they should be listed by legal location and department spreading site number. | ~~03/31/2024~~<br><br>12/31/2024 |

# 6 Standard Requirements

**NR 205, Wisconsin Administrative Code:** The conditions in ss. NR 205.07(1) and NR 205.07(2), Wis. Adm. Code, are included by reference in this permit. The permittee shall comply with all of these requirements. Some of these requirements are outlined in the Standard Requirements section of this permit. Requirements not specifically outlined in the Standard Requirement section of this permit can be found in ss. NR 205.07(1) and NR 205.07(2).

## 6.1 Reporting and Monitoring Requirements

### 6.1.1 Monitoring Results

Monitoring results obtained during the previous month shall be summarized and reported on a Department Wastewater Discharge Monitoring Report. The report may require reporting of any or all of the information specified below under 'Recording of Results'. This report is to be returned to the Department no later than the date indicated on the form. A copy of the Wastewater Discharge Monitoring Report Form or an electronic file of the report shall be retained by the permittee.

Monitoring results shall be reported on an electronic discharge monitoring report (eDMR). The eDMR shall be certified electronically by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report form is true, accurate and complete.

If the permittee monitors any pollutant more frequently than required by this permit, the results of such monitoring shall be included on the Wastewater Discharge Monitoring Report.

The permittee shall comply with all limits for each parameter regardless of monitoring frequency. For example, monthly, weekly, and/or daily limits shall be met even with monthly monitoring. The permittee may monitor more frequently than required for any parameter.

### 6.1.2 Sampling and Testing Procedures

Sampling and laboratory testing procedures shall be performed in accordance with Chapters NR 218 and NR 219, Wis. Adm. Code and shall be performed by a laboratory certified or registered in accordance with the requirements of ch. NR 149, Wis. Adm. Code. Groundwater sample collection and analysis shall be performed in accordance with ch. NR 140, Wis. Adm. Code. The analytical methodologies used shall enable the laboratory to quantitate all substances for which monitoring is required at levels below the effluent limitation. If the required level cannot be met by any of the methods available in NR 219, Wis. Adm. Code, then the method with the lowest limit of detection shall be selected. Additional test procedures may be specified in this permit.

### 6.1.3 Recording of Results

The permittee shall maintain records which provide the following information for each effluent measurement or sample taken:

- the date, exact place, method and time of sampling or measurements;
- the individual who performed the sampling or measurements;
- the date the analysis was performed;
- the individual who performed the analysis;
- the analytical techniques or methods used; and
- the results of the analysis.

### 6.1.4 Reporting of Monitoring Results

The permittee shall use the following conventions when reporting effluent monitoring results:

- Pollutant concentrations less than the limit of detection shall be reported as < (less than) the value of the limit of detection. For example, if a substance is not detected at a detection limit of 0.1 mg/L, report the pollutant concentration as < 0.1 mg/L.
- Pollutant concentrations equal to or greater than the limit of detection, but less than the limit of quantitation, shall be reported and the limit of quantitation shall be specified.
- For purposes of calculating NR 101 fees, the 2 mg/l lower reporting limits for BOD5 and Total Suspended Solids shall be considered to be limits of quantitation
- For the purposes of reporting a calculated result, average or a mass discharge value, the permittee may substitute a "0" (zero) for any pollutant concentration that is less than the limit of detection. However, if the effluent limitation is less than the limit of detection, the department may substitute a value other than zero for results less than the limit of detection, after considering the number of monitoring results that are greater than the limit of detection and if warranted when applying appropriate statistical techniques.
- If no discharge occurs through an outfall, flow related parameters (e.g. flow rate, hydraulic application rate, volume, etc.) should be reported as "0" (zero) at the required sample frequency specified for the outfall. For example: if the sample frequency is daily, "0" would be reported for any day during the month that no discharge occurred.

## 6.1.5 Compliance Maintenance Annual Reports

Compliance Maintenance Annual Reports (CMAR) shall be completed using information obtained over each calendar year regarding the wastewater conveyance and treatment system. The CMAR shall be submitted and certified by the permittee in accordance with ch. NR 208, Wis. Adm. Code, by June 30, each year on an electronic report form provided by the Department.

In the case of a publicly owned treatment works, a resolution shall be passed by the governing body and submitted as part of the CMAR, verifying its review of the report and providing responses as required. Private owners of wastewater treatment works are not required to pass a resolution; but they must provide an Owner Statement and responses as required, as part of the CMAR submittal.

The CMAR shall be certified electronically by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The certification verifies that the electronic report is true, accurate and complete.

## 6.1.6 Records Retention

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings or electronic data records for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit for a period of at least 3 years from the date of the sample, measurement, report or application. All pertinent sludge information, including permit application information and other documents specified in this permit or s. NR 204.06(9), Wis. Adm. Code shall be retained for a minimum of 5 years.

## 6.1.7 Other Information

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or correct information to the Department.

## 6.1.8 Reporting Requirements – Alterations or Additions

The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is only required when:

- The alteration or addition to the permitted facility may meet one of the criteria for determining whether a facility is a new source.
- The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification requirement applies to pollutants which are not subject to effluent limitations in the existing permit.
- The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use of disposal sites not reported during the permit application process nor reported pursuant to an approved land application plan. Additional sites may not be used for the land application of sludge until department approval is received.

## 6.2 System Operating Requirements

### 6.2.1 Noncompliance Reporting

Sanitary sewer overflows and sewage treatment facility overflows shall be reported according to the 'Sanitary Sewer Overflows and Sewage Treatment Facility Overflows' section of this permit.
The permittee shall report the following types of noncompliance by a telephone call to the Department's regional office within 24 hours after becoming aware of the noncompliance:

- any noncompliance which may endanger health or the environment;
- any violation of an effluent limitation resulting from a bypass;
- any violation of an effluent limitation resulting from an upset; and
- any violation of a maximum discharge limitation for any of the pollutants listed by the Department in the permit, either for effluent or sludge.

A written report describing the noncompliance shall also be submitted to the Department's regional office within 5 days after the permittee becomes aware of the noncompliance. On a case-by-case basis, the Department may waive the requirement for submittal of a written report within 5 days and instruct the permittee to submit the written report with the next regularly scheduled monitoring report. In either case, the written report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times; the steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance; and if the noncompliance has not been corrected, the length of time it is expected to continue.
A scheduled bypass approved by the Department under the 'Scheduled Bypass' section of this permit shall not be subject to the reporting required under this section.
**NOTE:** Section 292.11(2)(a), Wisconsin Statutes, requires any person who possesses or controls a hazardous substance or who causes the discharge of a hazardous substance to notify the Department of Natural Resources immediately of any discharge not authorized by the permit. **The discharge of a hazardous substance that is not authorized by this permit or that violates this permit may be a hazardous substance spill. To report a hazardous substance spill, call DNR's 24-hour HOTLINE at 1-800-943-0003.**

### 6.2.2 Flow Meters

Flow meters shall be calibrated annually, as per s. NR 218.06, Wis. Adm. Code.

### 6.2.3 Raw Grit and Screenings

All raw grit and screenings shall be disposed of at a properly licensed solid waste facility or picked up by a licensed waste hauler. If the facility or hauler are located in Wisconsin, then they shall be licensed under chs. NR 500-555, Wis. Adm. Code.

### 6.2.4 Sludge Management

All sludge management activities shall be conducted in compliance with ch. NR 204 "Domestic Sewage Sludge Management", Wis. Adm. Code.

## 6.2.5 Prohibited Wastes

Under no circumstances may the introduction of wastes prohibited by s. NR 211.10, Wis. Adm. Code, be allowed into the waste treatment system. Prohibited wastes include those:

- which create a fire or explosion hazard in the treatment work;
- which will cause corrosive structural damage to the treatment work;
- solid or viscous substances in amounts which cause obstructions to the flow in sewers or interference with the proper operation of the treatment work;
- wastewaters at a flow rate or pollutant loading which are excessive over relatively short time periods so as to cause a loss of treatment efficiency; and
- changes in discharge volume or composition from contributing industries which overload the treatment works or cause a loss of treatment efficiency.

## 6.2.6 Bypass

This condition applies only to bypassing at a sewage treatment facility that is not a scheduled bypass, approved blending as a specific condition of this permit, a sewage treatment facility overflow or a controlled diversion as provided in the sections titled 'Scheduled Bypass', 'Blending' (if approved), 'SSO's and Sewage Treatment Facility Overflows' and 'Controlled Diversions' of this permit. Any other bypass at the sewage treatment facility is prohibited and the Department may take enforcement action against a permittee for such occurrences under s. 283.89, Wis. Stats. The Department may approve a bypass if the permittee demonstrates all the following conditions apply:

- The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
- There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities or adequate back-up equipment, retention of untreated wastes, reduction of inflow and infiltration, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance. When evaluating feasibility of alternatives, the department may consider factors such as technical achievability, costs and affordability of implementation and risks to public health, the environment and, where the permittee is a municipality, the welfare of the community served; and
- The bypass was reported in accordance with the Noncompliance Reporting section of this permit.

## 6.2.7 Scheduled Bypass

Whenever the permittee anticipates the need to bypass for purposes of efficient operations and maintenance and the permittee may not meet the conditions for controlled diversions in the 'Controlled Diversions' section of this permit, the permittee shall obtain prior written approval from the Department for the scheduled bypass. A permittee's written request for Department approval of a scheduled bypass shall demonstrate that the conditions for bypassing specified in the above section titled 'Bypass' are met and include the proposed date and reason for the bypass, estimated volume and duration of the bypass, alternatives to bypassing and measures to mitigate environmental harm caused by the bypass. The department may require the permittee to provide public notification for a scheduled bypass if it is determined there is significant public interest in the proposed action and may recommend mitigation measures to minimize the impact of such bypass.

## 6.2.8 Controlled Diversions

Controlled diversions are allowed only when necessary for essential maintenance to assure efficient operation. Sewage treatment facilities that have multiple treatment units to treat variable or seasonal loading conditions may shut

down redundant treatment units when necessary for efficient operation. The following requirements shall be met during controlled diversions:

- Effluent from the sewage treatment facility shall meet the effluent limitations established in the permit. Wastewater that is diverted around a treatment unit or treatment process during a controlled diversion shall be recombined with wastewater that is not diverted prior to the effluent sampling location and prior to effluent discharge;
- A controlled diversion does not include blending as defined in s. NR 210.03(2e), Wis. Adm. Code, and as may only be approved under s. NR 210.12. A controlled diversion may not occur during periods of excessive flow or other abnormal wastewater characteristics;
- A controlled diversion may not result in a wastewater treatment facility overflow; and
- All instances of controlled diversions shall be documented in sewage treatment facility records and such records shall be available to the department on request.

## 6.2.9 Blending

The Department has determined that blending as defined in s. NR 210.03(2e), Wis. Adm. Code, may occur at this sewage treatment facility. The following requirements shall apply whenever blending operations are in effect:

- Blending may occur temporarily only during wet weather or other high flow conditions when peak wastewater flow to the sewage treatment facility exceeds the maximum design and operating capacity of the biological treatment processes and when necessary to avoid severe property damage to the sewage treatment facility as described in NR 210.12, Wis. Adm. Code.;
- Untreated, or partially treated wastewater that is routed around the biological treatment process, or a portion of a biological treatment process, shall be recombined with the biologically treated wastewater and the combined flow shall be disinfected, if required by this permit, prior to discharge;
- Effluent from the sewage treatment facility shall be monitored to include all wastewater that is discharged from the facility, including those wastewaters that are diverted around the biological treatment process. Final discharged effluent shall meet the effluent limitations for outfalls included in this permit; and
- Blending under this section and the circumstances that lead to blending shall be reported to the Department by telephone or email no later than 24 hours from the time each blending operation ceases at the sewage treatment facility. Permittees shall also report the time, duration and volume of wastewater routed around the biological treatment process on the wastewater Discharge Monitoring Report (DMR) forms.

## 6.2.10 Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training as required in ch. NR 114, Wis. Adm. Code, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

## 6.2.11 Operator Certification

The wastewater treatment facility shall be under the direct supervision of a state certified operator. In accordance with s. NR 114.53, Wis. Adm. Code, every WPDES permitted treatment plant shall have a designated operator-in-charge holding a current and valid certificate. The designated operator-in-charge shall be certified at the level and in all subclasses of the treatment plant, except laboratory. Treatment plant owners shall notify the department of any changes in the operator-in-charge within 30 days. Note that s. NR 114.52(22), Wis. Adm. Code, lists types of facilities that are excluded from operator certification requirements (i.e. private sewage systems, pretreatment facilities

discharging to public sewers, industrial wastewater treatment that consists solely of land disposal, agricultural digesters and concentrated aquatic production facilities with no biological treatment).

# 6.3 Sewage Collection Systems

## 6.3.1 Sanitary Sewage Overflows and Sewage Treatment Facility Overflows

### 6.3.1.1 Overflows Prohibited

Any overflow or discharge of wastewater from the sewage collection system or at the sewage treatment facility, other than from permitted outfalls, is prohibited. The permittee shall provide information on whether any of the following conditions existed when an overflow occurred:

- The sanitary sewer overflow or sewage treatment facility overflow was unavoidable to prevent loss of life, personal injury or severe property damage;
- There were no feasible alternatives to the sanitary sewer overflow or sewage treatment facility overflow such as the use of auxiliary treatment facilities or adequate back-up equipment, retention of untreated wastes, reduction of inflow and infiltration, or preventative maintenance activities;
- The sanitary sewer overflow or the sewage treatment facility overflow was caused by unusual or severe weather related conditions such as large or successive precipitation events, snowmelt, saturated soil conditions, or severe weather occurring in the area served by the sewage collection system or sewage treatment facility; and
- The sanitary sewer overflow or the sewage treatment facility overflow was unintentional, temporary, and caused by an accident or other factors beyond the reasonable control of the permittee.

### 6.3.1.2 Permittee Response to Overflows

Whenever a sanitary sewer overflow or sewage treatment facility overflow occurs, the permittee shall take all feasible steps to control or limit the volume of untreated or partially treated wastewater discharged, and terminate the discharge as soon as practicable. Remedial actions, including those in NR 210.21 (3), Wis. Adm. Code, shall be implemented consistent with an emergency response plan developed under the CMOM program.

### 6.3.1.3 Permittee Reporting

Permittees shall report all sanitary sewer overflows and sewage treatment overflows as follows:

- The permittee shall notify the department by telephone, fax or email as soon as practicable, but no later than 24 hours from the time the permittee becomes aware of the overflow;
- The permittee shall, no later than five days from the time the permittee becomes aware of the overflow, provide to the department the information identified in this paragraph using department form number 3400-184. If an overflow lasts for more than five days, an initial report shall be submitted within 5 days as required in this paragraph and an updated report submitted following cessation of the overflow. At a minimum, the following information shall be included in the report:
    - The date and location of the overflow;
    - The surface water to which the discharge occurred, if any;
    - The duration of the overflow and an estimate of the volume of the overflow;
    - A description of the sewer system or treatment facility component from which the discharge occurred such as manhole, lift station, constructed overflow pipe, or crack or other opening in a pipe;
    - The estimated date and time when the overflow began and stopped or will be stopped;
    - The cause or suspected cause of the overflow including, if appropriate, precipitation, runoff conditions, areas of flooding, soil moisture and other relevant information;

- Steps taken or planned to reduce, eliminate and prevent reoccurrence of the overflow and a schedule of major milestones for those steps;
- A description of the actual or potential for human exposure and contact with the wastewater from the overflow;
- Steps taken or planned to mitigate the impacts of the overflow and a schedule of major milestones for those steps;
- To the extent known at the time of reporting, the number and location of building backups caused by excessive flow or other hydraulic constraints in the sewage collection system that occurred concurrently with the sanitary sewer overflow and that were within the same area of the sewage collection system as the sanitary sewer overflow; and
- The reason the overflow occurred or explanation of other contributing circumstances that resulted in the overflow event. This includes any information available including whether the overflow was unavoidable to prevent loss of life, personal injury, or severe property damage and whether there were feasible alternatives to the overflow.

**NOTE:** A copy of form 3400-184 for reporting sanitary sewer overflows and sewage treatment facility overflows may be obtained from the department or accessed on the department's web site at http://dnr.wi.gov/topic/wastewater/SSOreport.html. As indicated on the form, additional information may be submitted to supplement the information required by the form.

- The permittee shall identify each specific location and each day on which a sanitary sewer overflow or sewage treatment facility overflow occurs as a discrete sanitary sewer overflow or sewage treatment facility overflow occurrence. An occurrence may be more than one day if the circumstances causing the sanitary sewer overflow or sewage treatment facility overflow results in a discharge duration of greater than 24 hours. If there is a stop and restart of the overflow at the same location within 24 hours and the overflow is caused by the same circumstance, it may be reported as one occurrence. Sanitary sewer overflow occurrences at a specific location that are separated by more than 24 hours shall be reported as separate occurrences; and
- A permittee that is required to submit wastewater discharge monitoring reports under NR 205.07 (1) (r) shall also report all sanitary sewer overflows and sewage treatment facility overflows on that report.

#### 6.3.1.4 Public Notification

The permittee shall notify the public of any sanitary sewer and sewage treatment facility overflows consistent with its emergency response plan required under the CMOM (Capacity, Management, Operation and Maintenance) section of this permit and s. NR 210.23 (4) (f), Wis. Adm. Code. Such public notification shall occur promptly following any overflow event using the most effective and efficient communications available in the community. At minimum, a daily newspaper of general circulation in the county(s) and municipality whose waters may be affected by the overflow shall be notified by written or electronic communication.

### 6.3.2 Capacity, Management, Operation and Maintenance (CMOM) Program

- The permittee shall have written documentation of the Capacity, Management, Operation and Maintenance (CMOM) program components in accordance with s. NR 210.23(4), Wis. Adm. Code. Such documentation shall be available for Department review upon request. The Department may request that the permittee provide this documentation or prepare a summary of the permittee's CMOM program at the time of application for reissuance of the WPDES permit.
- The permittee shall implement a CMOM program in accordance with s. NR 210.23, Wis. Adm. Code.
- The permittee shall at least annually conduct a self-audit of activities conducted under the permittee's CMOM program to ensure CMOM components are being implemented as necessary to meet the general standards of s. NR 210.23(3), Wis. Adm. Code.

### 6.3.3 Sewer Cleaning Debris and Materials

All debris and material removed from cleaning sanitary sewers shall be managed to prevent nuisances, run-off, ground infiltration or prohibited discharges.

- Debris and solid waste shall be dewatered, dried and then disposed of at a licensed solid waste facility.
- Liquid waste from the cleaning and dewatering operations shall be collected and disposed of at a permitted wastewater treatment facility.
- Combination waste including liquid waste along with debris and solid waste may be disposed of at a licensed solid waste facility or wastewater treatment facility willing to accept the waste.

## 6.4 Surface Water Requirements

### 6.4.1 Permittee-Determined Limit of Quantitation Incorporated into this Permit

For pollutants with water quality-based effluent limits below the Limit of Quantitation (LOQ) in this permit, the LOQ calculated by the permittee and reported on the Discharge Monitoring Reports (DMRs) is incorporated by reference into this permit. The LOQ shall be reported on the DMRs, shall be the lowest quantifiable level practicable, and shall be no greater than the minimum level (ML) specified in or approved under 40 CFR Part 136 for the pollutant at the time this permit was issued, unless this permit specifies a higher LOQ.

### 6.4.2 Appropriate Formulas for Effluent Calculations

The permittee shall use the following formulas for calculating effluent results to determine compliance with average concentration limits and mass limits and total load limits:

**Weekly/Monthly/Six-Month/Annual Average Concentration** = the sum of all daily results for that week/month/six-month/year, divided by the number of results during that time period. [Note: When a six-month average effluent limit is specified for Total Phosphorus the applicable periods are May through October and November through April.]

**Weekly Average Mass Discharge (lbs/day):** Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the week.

**Monthly Average Mass Discharge (lbs/day):** Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the month.

**Six-Month Average Mass Discharge (lbs/day):** Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the six-month period. [Note: When a six-month average effluent limit is specified for Total Phosphorus the applicable periods are May through October and November through April.]

**Annual Average Mass Discharge (lbs/day):** Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the entire year.

**Total Monthly Discharge:** = monthly average concentration (mg/L) x total flow for the month (MG/month) x 8.34.

**Total Annual Discharge:** = sum of total monthly discharges for the calendar year.

**12-Month Rolling Sum of Total Monthly Discharge:** = the sum of the most recent 12 consecutive months of Total Monthly Discharges.

### 6.4.3 Effluent Temperature Requirements

**Weekly Average Temperature** – If temperature limits are included in this permit, Weekly Average Temperature shall be calculated as the sum of all daily maximum results for that week divided by the number of daily maximum results during that time period.

**Cold Shock Standard** – Water temperatures of the discharge shall be controlled in a manner as to protect fish and aquatic life uses from the deleterious effects of cold shock pursuant to Wis. Adm. Code, s. NR 102.28. 'Cold Shock' means exposure of aquatic organisms to a rapid decrease in temperature and a sustained exposure to low temperature that induces abnormal behavior or physiological performance and may lead to death.

**Rate of Temperature Change Standard** – Temperature of a water of the state or discharge to a water of the state may not be artificially raised or lowered at such a rate that it causes detrimental health or reproductive effects to fish or aquatic life of the water of the state pursuant to Wis. Adm. Code, s. NR 102.29.

## 6.4.4 Visible Foam or Floating Solids

There shall be no discharge of floating solids or visible foam in other than trace amounts.

## 6.4.5 Surface Water Uses and Criteria

In accordance with NR 102.04, Wis. Adm. Code, surface water uses and criteria are established to govern water management decisions. Practices attributable to municipal, industrial, commercial, domestic, agricultural, land development or other activities shall be controlled so that all surface waters including the mixing zone meet the following conditions at all times and under all flow and water level conditions:

a) Substances that will cause objectionable deposits on the shore or in the bed of a body of water, shall not be present in such amounts as to interfere with public rights in waters of the state.

b) Floating or submerged debris, oil, scum or other material shall not be present in such amounts as to interfere with public rights in waters of the state.

c) Materials producing color, odor, taste or unsightliness shall not be present in such amounts as to interfere with public rights in waters of the state.

d) Substances in concentrations or in combinations which are toxic or harmful to humans shall not be present in amounts found to be of public health significance, nor shall substances be present in amounts which are acutely harmful to animal, plant or aquatic life.

## 6.4.6 Percent Removal

During any 30 consecutive days, the average effluent concentrations of $BOD_5$ and of total suspended solids shall not exceed 15% of the average influent concentrations, respectively. This requirement does not apply to removal of total suspended solids if the permittee operates a lagoon system and has received a variance for suspended solids granted under NR 210.07(2), Wis. Adm. Code.

## 6.4.7 Chloride Notification

The permittee shall notify the Department in writing of any proposed changes which may affect the characteristics of the wastewater, which results in an increase in the concentration of chloride, under the authority of sections 283.31(4)(b) and 283.59(1), Stats. This notification shall include a description of the proposed source of chlorides and the anticipated increase in concentration. Following receipt of the notification, the Department may propose a modification to the permit.

## 6.4.8 *E. coli*

The monthly limit for *E. coli* shall be expressed as a geometric mean. In calculating the geometric mean, a value of 1 is used for any result of 0.

## 6.4.9 Seasonal Disinfection

Disinfection shall be provided from May 1 through September 30 of each year. Monitoring requirements and the limitations for Fecal Coliform (interim) and *E. coli* apply only during the period in which disinfection is required. Whenever chlorine is used for disinfection or other uses, the limitations and monitoring requirements for residual chlorine shall apply. A dechlorination process shall be in operation whenever chlorine is used.

## 6.4.10 PFOS and PFOA Requirements

The laboratory performing the analysis on any samples shall be certified for the applicable PFAS compounds in the aqueous matrix by the Wisconsin Laboratory Certification Program established under s. 299.11, Wis. Stats., in accordance with s. NR 149.41, Wis. Adm. Code. If the EPA Office of Water publishes a 1600 series isotope dilution method for the analysis of PFAS in wastewater, the department recommends the use of the EPA method.
The Department may reject any sample results if results are produced by a laboratory that is not in compliance with certification requirements under ch. NR 149, Wis. Adm. Code.

## 6.4.11 Applicability of Alternative Wet Weather Mass Limitations

An alternative wet weather mass limitation applies when:

- The applicable mass limitation (based on annual average design flow) is exceeded; and
- The permittee demonstrates to the satisfaction of the Department that the discharge exceedance is caused by and occurs during a wet weather event. For the purposes of this demonstration, a wet weather event occurs during and immediately following periods of precipitation or snowmelt, including but not limited to rain, sleet, snow, hail or melting snow during which water from the precipitation, snowmelt or elevated groundwater enters the sewerage system through infiltration or inflow, or both. The permittee shall present demonstrations to the Department by attaching them to the Wastewater Discharge Monitoring Report Form(s).

Note: In making this demonstration, the permittee may want to consider presenting a discussion of normal effluent flow rates, the effluent flow rates that resulted in the exceedance and identification of the event, including intensity and duration, which caused the high flow rates. A graph of effluent flow over time may also be helpful.

### Total Residual Chlorine Requirements

When total residual chlorine (TRC) limit(s) or monitoring are included in a permit, the permittee shall comply with the following conditions:

a) The permittee shall perform TRC monitoring required in this permit using an approved method from ch. NR 219, Wis. Adm. Code, which produces a detection limit that is less than or equal to the permitted limit or produces the lowest economically feasible detection limit if the approved methods cannot meet the permit limit. If the facility cannot achieve a detection limit less than or equal to the permit limit using the approved methods, contact the laboratory accreditation program for guidance.

b) The permittee shall determine the limit of detection (LOD) as specified in s. NR 149.48 (2)(b), Wis. Adm. Code, or the permittee shall contact the laboratory accreditation program for information on how to determine a verified detection limit allowed just for TRC. If the verified detection limit is determined using the special procedure, then the LOD and limit of quantitation (LOQ) shall be set to be equal to the verified detection limit determined from this special procedure.

c) The permittee shall determine compliance with the TRC limit(s) as follows:

1. If the facility determines a statistical LOD as specified in s. NR 149.48 (2)(b), Wis. Adm. Code, and the measured TRC levels are less than the LOD, the permittee shall report the results as less than the LOD (<LOD). For this situation the LOQ shall be established at 3.33 times the LOD or at the concentration of the lowest standard in the calibration curve. TRC levels that are < LOD are in compliance with the TRC limit.

2. If the facility determines the verified detection limit using the laboratory accreditation program special procedure, this verified detection limit shall be reported as the LOD and LOQ. If the measured TRC levels are less than the LOD, the permittee shall report the results as < LOD. TRC levels that are < LOD are in compliance with the TRC limit.

3. If the facility determines the statistical LOD as specified in s. NR 149.48 (2)(b), Wis. Adm. Code, and the measured TRC levels are greater than the statistical LOD but less than the LOQ, TRC levels are in

compliance with the TRC limit - except when the measured levels are consistently reported between the LOD and LOQ. When the measured TRC levels are consistently reported between the LOD and LOQ, the facility shall take action to determine the reliability of detected results (such as resampling and/or re-calculating dosages) and shall adjust the chemical feed system if necessary to reduce the chances of detecting levels between the statistical LOD and LOQ.

4. If the facility determines the statistical LOQ as specified in s. NR 149.48 (2)(b), Wis. Adm. Code, or determines the verified detection limit using the laboratory accreditation program special procedure, TRC measured levels that are greater than the statistical LOQ and the TRC limit, are not in compliance with the TRC limit. The permittee shall report the level as a limit exceedance.

5. If the facility determines the statistical LOD as specified in s. NR 149.48 (2)(b), Wis. Adm. Code, and the measured level is < LOD, then a "0" (zero) value may be substituted for any test result less than the statistical LOD when calculating the average or mass discharge values. Calculated values shall then be compared directly to the average or mass limits to determine compliance.

6. If the facility determines the verified detection limit using the laboratory accreditation program special procedure and the measured level is < LOD (set equal to the verified detection limit), then a "0" (zero) value may be substituted for any test result less than the LOD when calculating the average or mass discharge values. Calculated values shall then be compared directly to the average or mass limits to determine compliance.

## 6.4.12 Whole Effluent Toxicity (WET) Monitoring Requirements

In order to determine the potential impact of the discharge on aquatic organisms, static-renewal toxicity tests shall be performed on the effluent in accordance with the procedures specified in the *"State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, 2nd Edition" (PUB-WT-797*, November 2004) as required by NR 219.04, Table A, Wis. Adm. Code). All of the WET tests required in this permit, including any required retests, shall be conducted on the *Ceriodaphnia dubia* and fathead minnow species. Receiving water samples shall not be collected from any point in contact with the permittee's mixing zone and every attempt shall be made to avoid contact with any other discharge's mixing zone.

## 6.4.13 Whole Effluent Toxicity (WET) Identification and Reduction

Within 60 days of a retest which showed positive results, the permittee shall submit a written report to the Biomonitoring Coordinator, Bureau of Water Quality, 101 S. Webster St., PO Box 7921, Madison, WI 53707-7921, which details the following:

- A description of actions the permittee has taken or will take to remove toxicity and to prevent the recurrence of toxicity;
- A description of toxicity reduction evaluation (TRE) investigations that have been or will be done to identify potential sources of toxicity, including the following actions:

    a) Evaluate the performance of the treatment system to identify deficiencies contributing to effluent toxicity (e.g., operational problems, chemical additives, incomplete treatment)

    b) Identify the compound(s) causing toxicity. Conduct toxicity screening tests on the effluent at a minimum of once per month for six months to determine if toxicity recurs. Screening tests are WET tests using fewer effluent concentrations conducted on the most sensitive species. If any of the screening tests contain toxicity, conduct a toxicity identification evaluation (TIE) to determine the cause. TIE methods are available from USEPA “Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures (EPA/600/6-91/003) and “Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I” (EPA/600/6-91/005F).

    c) Trace the compound(s) causing toxicity to their sources (e.g., industrial, commercial, domestic)

d) Evaluate, select, and implement methods or technologies to control effluent toxicity (e.g., in-plant or pretreatment controls, source reduction or removal)

- Where corrective actions including a TRE have not been completed, an expeditious schedule under which corrective actions will be implemented;
- If no actions have been taken, the reason for not taking action.

The permittee may also request approval from the Department to postpone additional retests in order to investigate the source(s) of toxicity. Postponed retests must be completed after toxicity is believed to have been removed.

## 6.5 Land Application Requirements

### 6.5.1 Sludge Management Program Standards And Requirements Based Upon Federally Promulgated Regulations

In the event that new federal sludge standards or regulations are promulgated, the permittee shall comply with the new sludge requirements by the dates established in the regulations, if required by federal law, even if the permit has not yet been modified to incorporate the new federal regulations.

### 6.5.2 General Sludge Management Information

The General Sludge Management Form 3400-48 shall be completed and submitted prior to any significant sludge management changes.

### 6.5.3 Sludge Samples

All sludge samples shall be collected at a point and in a manner which will yield sample results which are representative of the sludge being tested, and collected at the time which is appropriate for the specific test.

### 6.5.4 Land Application Characteristic Report

Each report shall consist of a Characteristic Form 3400-49 and Lab Report. The Characteristic Report Form 3400-49 shall be submitted electronically by January 31 following each year of analysis.

Following submittal of the electronic Characteristic Report Form 3400-49, this form shall be certified electronically via the 'eReport Certify' page by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report is true, accurate and complete. The Lab Report must be sent directly to the facility's DNR sludge representative or basin engineer unless approval for not submitting the lab reports has been given.

The permittee shall use the following convention when reporting sludge monitoring results: Pollutant concentrations less than the limit of detection shall be reported as < (less than) the value of the limit of detection. For example, if a substance is not detected at a detection limit of 1.0 mg/kg, report the pollutant concentration as < 1.0 mg/kg .

All results shall be reported on a dry weight basis.

### 6.5.5 Calculation of Water Extractable Phosphorus

When sludge analysis for Water Extractable Phosphorus is required by this permit, the permittee shall use the following formula to calculate and report Water Extractable Phosphorus:
Water Extractable Phosphorus (% of Total P) =
[Water Extractable Phosphorus (mg/kg, dry wt) ÷ Total Phosphorus (mg/kg, dry wt)] x 100

### 6.5.6 Monitoring and Calculating PCB Concentrations in Sludge

When sludge analysis for "PCB, Total Dry Wt" is required by this permit, the PCB concentration in the sludge shall be determined using either congener-specific analysis or Aroclor analysis. The permittee may decide which of these analyses is performed. Analyses shall be performed in accordance with the following provisions and Table EM in s. NR 219.04, Wis. Adm. Code:

- If congener-specific analysis is employed: All PCB congeners shall be delineated. Non-detects shall be treated as zero. The values that are between the limit of detection (LOD) and the limit of quantitation shall be used when calculating the total value of all congeners. All results shall be added together and the total PCB concentration by dry weight reported.
- If Aroclor analysis is employed, reporting protocols, consistent with s. NR 106.07(6)(e), should be as follows: If all Aroclors are less than the LOD, then the Total PCB Dry Wt result should be reported as less than the highest LOD. If a single Aroclor is detected, then that is what should be reported for the Total PCB result. If multiple Aroclors are detected, they should be summed and reported as Total PCBs. If the LOD cannot be achieved after using the appropriate clean up techniques, a reporting limit that is achievable for the Aroclors or each congener for the sample shall be determined. This reporting limit shall be reported and qualified indicating the presence of an interference.

## 6.5.7 Annual Land Application Report

Land Application Report Form 3400-55 shall be submitted electronically by January 31, each year whether or not non-exceptional quality sludge is land applied. Non-exceptional quality sludge is defined in s. NR 204.07(4), Wis. Adm. Code. Following submittal of the electronic Annual Land Application Report Form 3400-55, this form shall be certified electronically via the 'eReport Certify' page by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report form is true, accurate and complete.

## 6.5.8 Other Methods of Disposal or Distribution Report

The permittee shall submit electronically the Other Methods of Disposal or Distribution Report Form 3400-52 by January 31, each year whether or not sludge is hauled, landfilled, incinerated, or exceptional quality sludge is distributed or land applied. Following submittal of the electronic Report Form 3400-52, this form shall be certified electronically via the 'eReport Certify' page by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report form is true, accurate and complete.

## 6.5.9 Approval to Land Apply

Bulk non-exceptional quality sludge as defined in s. NR 204.07(4), Wis. Adm. Code, may not be applied to land without a written approval letter or Form 3400-122 from the Department unless the Permittee has obtained permission from the Department to self approve sites in accordance with s. NR 204.06 (6), Wis. Adm. Code. Analysis of sludge characteristics is required prior to land application. Application on frozen or snow covered ground is restricted to the extent specified in s. NR 204.07(3) (l), Wis. Adm. Code.

## 6.5.10 Soil Analysis Requirements

Each site requested for approval for land application must have the soil tested prior to use. Each approved site used for land application must subsequently be soil tested such that there is at least one valid soil test in the four years prior to land application. All soil sampling and submittal of information to the testing laboratory shall be done in accordance with UW Extension Bulletin A-2100. The testing shall be done by the UW Soils Lab in Madison or Marshfield, WI or at a lab approved by UW. The test results including the crop recommendations shall be submitted to the DNR contact listed for this permit, as they are available. Application rates shall be determined based on the crop nitrogen recommendations and with consideration for other sources of nitrogen applied to the site.

## 6.5.11 Land Application Site Evaluation

For non-exceptional quality sludge, as defined in s. NR 204.07(4), Wis. Adm. Code, a Land Application Site Request Form 3400-053 shall be submitted to the Department for the proposed land application site. The Department will evaluate the proposed site for acceptability and will either approve or deny use of the proposed site. The permittee may obtain permission to approve their own sites in accordance with s. NR 204.06(6), Wis. Adm. Code.

## 6.5.12 Class A Sludge: Fecal Coliform Density Requirement

The fecal coliform density which must be < 1000 MPN/g TS as required in s. NR 204.07, Wis. Adm. Code, shall be satisfied immediately after the treatment process is completed. If the material is bagged or distributed at that time, no re-testing is required. If the material is bagged, distributed or land applied at a later time, the sludge shall be re-tested and this requirement satisfied at that time also, to ensure that regrowth of bacteria has not occurred. See Municipal Wastewater Sludge Guidance Memo #3 (Fecal Coliform Monitoring - Sampling and Analytical Procedures).

## 6.5.13 Class A Sludge: Heat Drying Process

Dry the sludge by direct or indirect contact with hot gases to reduce the moisture content of the sludge to 10% or lower. Either the temperature of the sewage sludge particles shall exceed 80° C or the wet bulb temperature of the gas in contact with the sludge as the sludge leaves the dryer shall exceed 80° C.

## 6.5.14 Class B Sludge: Fecal Coliform Limitation

Compliance with the fecal coliform limitation for Class B sludge shall be demonstrated by calculating the geometric mean of at least 7 separate samples. (Note that a Total Solids analysis must be done on each sample). The geometric mean shall be less than 2,000,000 MPN or CFU/g TS. Calculation of the geometric mean can be done using one of the following 2 methods.

Method 1:

Geometric Mean = $(X_1 \times X_2 \times X_3 \ldots \times X_n)^{1/n}$

Where X = Coliform Density value of the sludge sample, and where n = number of samples (at least 7)

Method 2:

Geometric Mean = $\text{antilog}[(X_1 + X_2 + X_3 \ldots + X_n) \div n]$

Where X = $\log_{10}$ of Coliform Density value of the sludge sample, and where n = number of samples (at least 7)

Example for Method 2

| Sample Number | Coliform Density of Sludge Sample | $\log_{10}$ |
|---|---|---|
| 1 | $6.0 \times 10^5$ | 5.78 |
| 2 | $4.2 \times 10^6$ | 6.62 |
| 3 | $1.6 \times 10^6$ | 6.20 |
| 4 | $9.0 \times 10^5$ | 5.95 |
| 5 | $4.0 \times 10^5$ | 5.60 |
| 6 | $1.0 \times 10^6$ | 6.00 |
| 7 | $5.1 \times 10^5$ | 5.71 |

The geometric mean for the seven samples is determined by averaging the $\log_{10}$ values of the coliform density and taking the antilog of that value.

$(5.78 + 6.62 + 6.20 + 5.95 + 5.60 + 6.00 + 5.71) \div 7 = 5.98$

The antilog of $5.98 = 9.5 \times 10^5$

## 6.5.15 Class B Sludge: Anaerobic Digestion

Treat the sludge in the absence of air for a specific mean cell residence time at a specific temperature. Values for the mean cell residence time and temperature shall be between 15 days at 35° C to 55° C and 60 days at 20° C. Straight-line interpolation to calculate mean cell residence time is allowable when the temperature falls between 35° C and 20° C.

## 6.5.16 Vector Control: Volatile Solids Reduction

The mass of volatile solids in the sludge shall be reduced by a minimum of 38% between the time the sludge enters the digestion process and the time it either exits the digester or a storage facility. For calculation of volatile solids reduction, the permittee shall use the Van Kleeck equation or one of the other methods described in "Determination of Volatile Solids Reduction in Digestion" by J.B. Farrell, which is Appendix C of EPA's *Control of Pathogens in Municipal Wastewater Sludge* (EPA/625/R-92/013). The Van Kleeck equation is:

$$VSR\% = \frac{VS_{IN} - VS_{OUT}}{VS_{IN} - (VS_{OUT} \times VS_{IN})} \times 100$$

Where: $VS_{IN}$ = Volatile Solids in Feed Sludge (g VS/g TS)

$VS_{OUT}$ = Volatile Solids in Final Sludge (g VS/g TS)

VSR% = Volatile Solids Reduction, (Percent)

## 6.5.17 Vector Control: Drying Without Primary Solids

Dry the sludge to 75% total solids when the sludge contains no unstabilized solids from primary treatment. This shall be met at the time the sludge is bagged, distributed, land applied or disposed of.

## 6.5.18 Class A Sludge - Vector Control: Injection

The sludge shall be injected within 8 hours after being discharged from the pathogen treatment process. No significant amount of the sewage sludge shall be present on the land surface within one hour after the sludge is injected.

## 6.5.19 Class B Sludge - Vector Control: Injection

No significant amount of the sewage sludge shall be present on the land surface within one hour after the sludge is injected.

## 6.5.20 Class A Sludge - Vector Control: Incorporation

Class A sludge shall be surface applied within 8 hours after being discharged from a pathogen treatment process and then be incorporated within 6 hours of surface application.

## 6.5.21 Class B Sludge - Vector Control: Incorporation

Class B sludge shall be incorporated within 6 hours of surface application, or as approved by the Department.

## 6.5.22 Landfilling of Sludge

General: Sewage sludge may not be disposed of in a municipal solid waste landfill unless the landfill meets the requirements of chs. NR 500 to 536, Wis. Adm. Code, and is an approved facility as defined in s. 289.01(3), Wis. Stats. Any facility accepting sewage sludge shall be approved by the Department in writing to accept sewage sludge. Disposal of sewage sludge in a municipal solid waste landfill shall be in accordance with ss. NR 506.13 and 506.14. Sewage sludge may not be disposed of in a surface disposal unit as defined in s. NR 204.03(62).

Approval: The permittee shall obtain approval from the Department prior to the disposal of sludge at a Wisconsin licensed landfill.

## 6.5.23 Sludge Landfilling Reports

The permittee shall report the volume of sludge disposed of at any landfill facility on Form 3400-52. The permittee shall include the name and address of the landfill, the Department license number or other state's designation or

license number for all landfills used during the report period and a letter of acceptability from the landfill owner. In addition, any permittee utilizing landfills as a disposal method shall submit to the Department any test results used to indicate acceptability of the sludge at a landfill. Form 3400-52 shall be submitted annually by January 31, each year whether or not sludge is landfilled.

## 6.5.24 Sludge Hauling

The permittee is required to submit Form 3400-52 to the Department. If sludge is hauled to another facility, information shall include the quantity of sludge hauled, the name, address, phone number, contact person, and permit number of the receiving facility. Form 3400-52 shall be submitted annually by January 31 each year whether or not sludge is hauled.

## 6.5.25 Land Application of Sludge Which Contains Elevated Levels of Radium-226

Sludge containing Radium 226 shall be land applied in accordance with the requirements in s. NR 204.07(3)(n), Wis. Adm. Code.

# 7 Summary of Reports Due

FOR INFORMATIONAL PURPOSES ONLY

| Description | Date | Page |
|---|---|---|
| Total Phosphorus WQBELs Compliance -Achieve Compliance with Total Phosphorus WQBELs | January 1, 2025 | 37 |
| Chloride WQBELs Compliance -Annual Chloride Progress Report | January 31, 2024 | 37 |
| Chloride WQBELs Compliance -Annual Chloride Progress Report #2 | January 31, 2025 | 37 |
| Chloride WQBELs Compliance -Annual Chloride Progress Report #3 | January 31, 2026 | 37 |
| Chloride WQBELs Compliance -Annual Chloride Progress Report #4 | January 31, 2027 | 37 |
| Chloride WQBELs Compliance -Comply With Final Chloride WQBELs | July 1, 2028 | 37 |
| PFOS/PFOA Minimization Plan Determination of Need -Report on Effluent Discharge | December 31, 2024 | 38 |
| PFOS/PFOA Minimization Plan Determination of Need -Report on Effluent Discharge and Evaluation of Need | December 31, 2025 | 38 |
| Sludge Management Plan -Sludge Management (SMP) Plan Submittal | ~~March 31, 2024~~ December 31, 2024 | 38 |
| Land Application Management Plan -Land Application Management Plan Submittal | ~~March 31, 2024~~ December 31, 2024 | 39 |
| Compliance Maintenance Annual Reports (CMAR) | by June 30, each year | 41 |
| General Sludge Management Form 3400-48 | prior to any significant sludge management changes | 51 |
| Characteristic Form 3400-49 and Lab Report | by January 31 following each year of analysis | 51 |
| Land Application Report Form 3400-55 | by January 31, each year whether or not non-exceptional quality sludge is land applied | 52 |
| Other Methods of Disposal or Distribution Report Form 3400-52 | by January 31, each year whether or not sludge is hauled, landfilled, incinerated, or exceptional quality sludge is distributed or land applied | 52 |
| Wastewater Discharge Monitoring Report | no later than the date indicated on the form | 40 |

Report forms shall be submitted electronically in accordance with the reporting requirements herein. Any facility plans or plans and specifications for municipal, industrial, industrial pretreatment and non industrial wastewater

systems shall be submitted to the Bureau of Water Quality, P.O. Box 7921, Madison, WI 53707-7921. All other submittals required by this permit shall be submitted to:

South Central Region, 3911 Fish Hatchery Rd, Fitchburg, WI 53711-5397

# APPENDIX C: CORRESPONDENCE

Applied Technologies
Engineers - Architects

# TECHNICAL MEMORANDUM

WAUPUN UTILITIES

**Date:** August 30th, 2024 **Project #:** 6554

**To:** Steve Schramm / Waupun Utilities

**From:** Leo Kucek, P.E., Rachel Mason / Applied Technologies, Inc.

**CC:** Jim Smith, P.E. / Applied Technologies, Inc.

**Regarding:** Request for Conditional Approval of Adaptive Management

## Purpose

The intent of this memorandum is to provide a formal request for the Wisconsin Department of Natural Resources (WDNR) to conditionally approve Adaptive Management (AM) for Waupun Utilities' phosphorus compliance alternative, per the schedule described herein.

## Background

The Waupun Utilities Wastewater Treatment Facility (WWTF) serves the City of Waupun, which is located approximately 20 miles southwest of the City of Fond du Lac, Wisconsin. The address of the Waupun Utilities WWTF is 501 N Fond du Lac St. Waupun, WI 53963-0431.

Waupun Utilities is required to achieve compliance with effluent phosphorus limits based on the Rock River Total Maximum Daily Load (TMDL) in its Wisconsin Pollutant Discharge Elimination Systems (WPDES) permit. The effluent phosphorus limits vary based on the TMDL, with the lowest levels beneath 0.04 mg/L depending on the facility flows.

As detailed in the 2019 Final Compliance Alternatives Plan (CAP), Waupun Utilities is eligible for AM based on: 1) its demonstration that a major facility upgrade is required to meet total phosphorus (TP) limits at the Wastewater Treatment Facility (WWTF), and 2) the permittee's location within a nonpoint source-dominated watershed. To develop an Adaptive Management Plan (AMP), the required TP loading reductions must be established. The required reductions via AM are based on the difference between the allowable stream phosphorus load and the sum of the point source phosphorus load plus the average annual nonpoint phosphorus load.

The flows and effluent phosphorus levels at the WWTF were evaluated from 2017-2024. However, in July 2024, phosphorus levels in the South Branch of the Rock River were only available between 2017-2019. Waupun Utilities then completed sampling during August 2024 to determine current

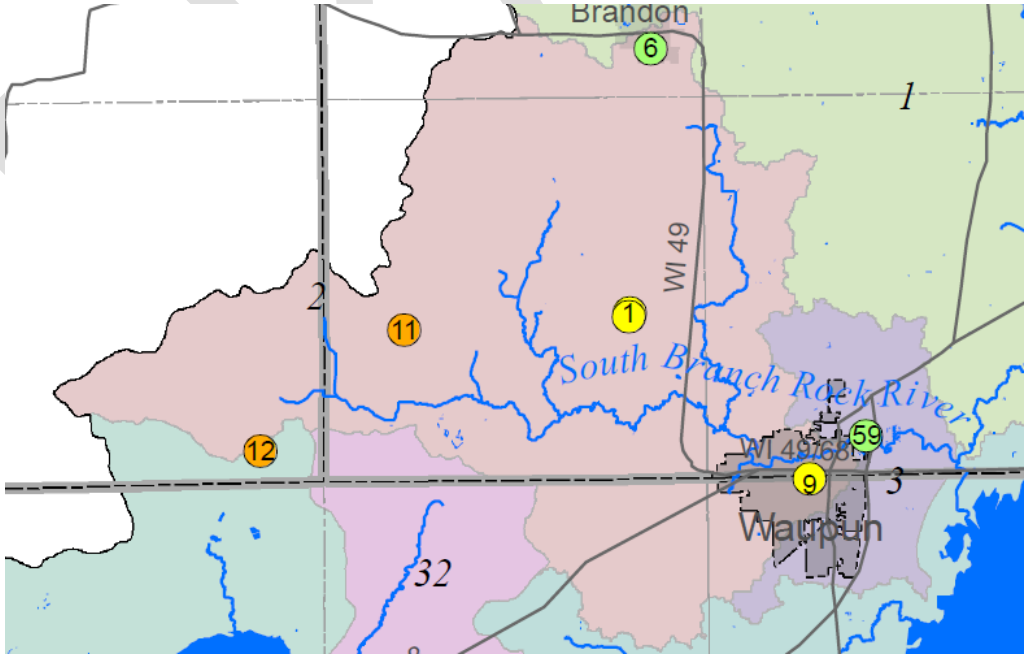
TP concentrations upstream of the WWTF. Consequently, data from 2017-2019 and August 2024 were compared to develop a range of anticipated required reductions.

## Action Area

To define areas in which new practices and improvements will be established, the Waupun AMP Action Area was identified. The specific areas of interest in the watershed are Reach 2 and Reach 3 of the Rock River TMDL, as shown in Figure 1. Reach 2 encompasses the South Branch of the Rock River upstream of the point of discharge from the Waupun WWTF. Reach 3 encompasses the remainder of the South Branch of the Rock River, including the area downstream of the Waupun WWTF to where it meets the West Branch of the Rock River southeast of the WWTF and upstream of Horicon Marsh.

Adaptive Management presents a unique opportunity for Waupun Utilities to demonstrate compliance with its WPDES permit. With AM, Waupun Utilities will work with local partners to reduce phosphorus loadings in the Rock River Basin, within its Action Area. Through both point and non-point load reductions over several permit terms, Waupun Utilities will seek to achieve the total phosphorus (TP) water quality criterion (WQC) of 0.075 mg/L at the point of compliance. The point of compliance will be the downstream-most point on the South Branch of the Rock River in Reach 3 of the Rock River TMDL.

**Figure 1**
**Waupun AMP Action Area:**
**Rock River TMDL Reaches 2 and 3**



## Monitoring Data

Monitoring phosphorus loading and flow data in both the WWTF effluent and the Rock River are essential to determining required reductions. Tables 1 and 2 present Rock River samples which are collected from DNR monitoring station "West Branch Rock River at STH 49 Near Waupun WI, Station ID 203131".

**Table 1**
**Downstream Rock River Data, 2017-2019**
**Waupun AMP**

| Date | Total Phosphorus (mg/L) | USGS Flow | | Total Phosphorus (lb/day) |
|---|---|---|---|---|
| | | CFS | MGD | |
| 9/17/2019 | 0.234 | 38.4 | 24.6 | 47.9 |
| 9/24/2019 | 0.311 | 28.1 | 18.0 | 46.6 |
| 10/5/2018 | 0.266 | 28.7 | 18.4 | 40.7 |
| 7/23/2018 | 0.229 | 29.6 | 19.9 | 36.2 |
| 6/5/2018 | 0.227 | 47.9 | 30.6 | 58.0 |
| 4/4/2018 | 0.081 | 28.2 | 18.0 | 12.2 |
| 10/5/2017 | 0.356 | 15.5 | 9.9 | 29.4 |
| 8/10/2017 | 0.231 | 20.2 | 12.9 | 24.9 |
| 6/29/2017 | 0.288 | 75.3 | 48.2 | 115.7 |
| 5/24/2017 | 0.246 | 66.5 | 42.5 | 87.3 |
| Average | 0.247 | 37.8 | 24.2 | 49.9 |

**Table 2**
**Downstream Rock River Data, August 2024**
**Waupun AMP**

| Date | Total Phosphorus (mg/L) | USGS Flow | | Total Phosphorus (lb/day) |
|---|---|---|---|---|
| | | CFS | MGD | |
| 8/13/2024 | 0.108 | 22.3 | 14.3 | 12.9 |
| 8/19/2024 | 0.140 | 22.3 | 14.3 | 16.7 |
| 8/26/2024 | 0.130 | 14.2 | 9.1 | 9.9 |
| Average | 0.126 | 19.6 | 12.5 | 13.1 |

Tables 3 and 4 present Waupun WWTF effluent flows and TP levels for 2017-2019 and 2021-2024, respectively. These values are used to determine the amount of TP loading in the Rock River that is contributed by the WWTF.

| Table 3<br>Waupun WWTF Average Effluent Data, 2017-2019<br>Waupun AMP | | | | |
|---|---|---|---|---|
| **Year** | **Total Phosphorus (mg/L)** | **Flow (mgd)** | **Total Phosphorus (lb/day)** | **Total Phosphorus (lb/yr)** |
| 2017 | 0.65 | 2.34 | 11.69 | 4,270 |
| 2018 | 0.67 | 2.46 | 13.58 | 4,980 |
| 2019 | 1.68 | 2.59 | 35.30 | 12,900 |
| Average | 0.99 | 2.46 | 20.18 | 7,370 |

| Table 4<br>Waupun WWTF Average Effluent Data, August 2021- July 2024<br>Waupun AMP | | | | |
|---|---|---|---|---|
| **Year** | **Total Phosphorus (mg/L)** | **Flow (mgd)** | **Total Phosphorus (lb/day)** | **Total Phosphorus (lb/yr)** |
| 2021 | 0.59 | 1.75 | 8.26 | 1,260 |
| 2022 | 0.52 | 2.02 | 8.30 | 3,030 |
| 2023 | 0.49 | 2.24 | 8.83 | 3,220 |
| 2024 | 0.28 | 2.87 | 7.05 | 1,500 |
| Average | 0.47 | 2.22 | 8.11 | 2,250 |

## Load Reduction Calculations

The guidance from Page 60 of the *"Wisconsin Department of Natural Resources (WDNR) Adaptive Management Guidance Handbook, Edition 2"* was followed to calculate the following:

- Current load in receiving water downstream of discharge point,
- WWTF percent contribution of load,
- Allowable load in receiving water,
- Required reduction in the receiving water and
- the WWTF's proportional share of the needed reduction.

The required reductions were calculated based on two different data sets to estimate the range of ultimate reduction required. The required reductions for the 2017-2019 data set were based on Waupun Utilities' effluent TP and Rock River TP data from 2017-2019. The required reductions for the 2024 data set were based on Waupun Utilities' effluent TP data from August 2021 to July 2024, and Rock River TP data from August 2024. Results are summarized in Table 5.

| Table 5<br>Estimated First-Term and Ultimate Phosphorus Reduction Required<br>Waupun AMP | | | | | | |
|---|---|---|---|---|---|---|
| **Term** | **Allowable Load in Rock River (lb P/yr)** | **WWTF Discharge (lb P/yr)** | **Load in River Downstream of WWTF (lb P/yr)** | **WWTF % Load Contribution** | **First-Term Reduction (lb P/yr)** | **Ultimate Reduction (lb P/yr)** |
| 2017-2019 | 5,900 | 7,370 | 25,600 | 29% | **5,690** | **19,600** |
| 2024[1] | 4,200 | 2,250 | 7,000 | 32% | **1,200** | **3,800** |

[1]The 2024 data only uses August river monitoring for analysis

The potential first-term and ultimate phosphorus reduction required were estimated using the Adaptive Management Handbook. First-term reduction required by the WWTF is determined by the Utilities percent contribution of load multiplied by the required reduction in the receiving water. As shown in Table 5, the first-term TP reduction required is much less for the 2024 data than for the 2017-2019 data. This is due to the lower TP loading levels in the Rock River and the lower WWTF effluent TP levels in 2024 than in 2017-2019.

The ultimate reduction required is the total amount of phosphorus that needs to be removed to meet the TMDL. The ultimate reduction required for 2024 is a total of ~3,800 lb P/yr based on August 2024 river data, and 2017-2019 ultimate reduction required is ~19,600 lb P/yr based on 2017-2019 river data. Current projections show that TP loadings in both the Rock River and the Waupun WWTF effluent are decreasing. **Therefore, it is expected that the ultimate phosphorus reductions required will be less than 19,600 lb/yr, and possibly as low as 3,800 lb/yr.**

## Proposed Next Steps

An Adaptive Management Plan will be submitted to the WDNR by October 2024. With the 2024 monitoring data, a permit modification can be completed ahead of final limit implementation in January 2025.

To meet the TMDL phosphorus requirement, Waupun Utilities proposes to evaluate river data in the growing seasons of 2025 and 2026. Acquiring new data for both the river and the WWTF will be critical to determining the required TP reduction to meet the Water Quality Criterion (WQC). Therefore, continued sampling of the Rock River will be completed in 2025 and 2026.

Waupun Utilities then proposes to recalculate the ultimate reduction required by the end of 2026. Best management practices (BMPs) will be implemented by the end of the first permit term to meet the minimum first term requirements. Waupun Utilities proposes to calculate the minimum first term requirements based on the method presented in Table 5. After river monitoring is completed for the 2025 and 2026 growing seasons, a revised AM plan will be submitted based on the new monitoring results.

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

**Tony Evers, Governor**

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

WISCONSIN DEPT. OF NATURAL RESOURCES

Waupun Utilities
Applied Technologies, Inc.
<via email 9/6/2024>

Greetings, Leo and Steve:

On August 30, 2024, DNR received a technical memo from Applied Technologies (Leo Kucek) addressed to Waupun Utilities (Steve Schramm) that outlined initial considerations for development of an adaptive management plan for compliance with phosphorus water quality standards. The memo evaluates Waupun's eligibility to undertake adaptive management in accordance with NR 217.18 Wis. Adm. Code. The memo also presents effluent and in-stream phosphorus data to characterize the magnitude of needed phosphorus reductions and first permit term minimum reductions. The intent of this letter is to provide concurrence with adaptive management eligibility, provide feedback on the values presented in the memo, and communicate expectations for Waupun's adaptive management effort.

Adaptive Management Eligibility

The memo indicates that the City of Waupun meets adaptive management eligibility requirements:

1. The exceedance of phosphorus water quality standards is caused by both point and nonpoint sources.
2. Nonpoint sources comprise at least 50% of the total phosphorus load in the watershed.
3. The phosphorus water quality-based effluent limitation requires filtration or equivalent treatment technology to achieve.

DNR concurs that Waupun meets the above eligibility criteria. One final eligibility point remains undetermined:

4. Submit an adaptive management plan that identifies specific actions to be implemented that will achieve compliance with the applicable phosphorus criterion in s. NR 102.06 through verifiable reductions of phosphorus from point and nonpoint sources in the watershed.

*See requirements at NR 217.18(2), Wis. Adm. Code*

Data presented in the 8/30/2024 Technical Memo

The memo generally follows the calculation steps specified in the Adaptive Management Handbook, Edition 2. DNR has the following comments after reviewing the data presented:

- Waupun's average annual phosphorus load is best characterized as 3,032 lb/year as an annual average.
- DNR supports the use of best available in-stream data to inform the adaptive management plan. Data from 2017 thru 2019 represent usable data. The 2024 sampling should not be relied upon as a sole characterization of in-stream conditions. DNR would accept the average of August 2024 samples as a single datapoint in the larger dataset, which loosely follows WISCALM protocols.
    - Median Concentration = 0.234 mg/L
    - Average Streamflow = 23.2 MGD
    - Current load in the receiving water = 19,582 lb/year
    - Allowable load in the receiving water = 5,811 lb/year
    - Applicant's percent contribution of the total load = 15.5%
    - Needed reduction in the receiving water = 13,770 lb/year

- Applicant's proportional share of the needed reduction = 2,132 lb/ year

The above values would be an acceptable midpoint between historic conditions and August 2024 conditions. DNR recommends using these values to develop an adaptive management plan. If you have questions about the calculations, please reach out.

Expectations for Waupun's Adaptive Management Plan

For Waupun to pursue adaptive management, DNR will need an adaptive management plan submitted by October 11th, 2024. In addition to the general plan elements covered in adaptive management guidance, the adaptive management plan should acknowledge the following:

- Overall plan duration: 3 permit terms / 15 years
  - Federal requirements mandate that compliance be achieved as soon as possible based on site-specific factors. Overall plan duration can be revised in future permit terms if necessary.
- Reduction schedule: Front load permit-term load reduction milestones
  - An acceptable breakdown across permit terms would be roughly 50% , 25% , 25% for terms 1, 2, and 3 respectively.
- Reduction schedule: Annual milestones. Waupun will need to provide deliverables for annual progress towards implementing both point and nonpoint source reductions during the first permit term. These should consist of modeled load reductions from adaptive management actions taken each year. Recommended schedule as follows:
  - Year 1: 0 lb/year (Focus on outreach, project planning)
  - Year 2: 1721 lb/year
  - Year 3: 1721 lb/year (total = 3442 lb/year)
  - Year 4: 1721 lb/year (total = 5163 lb/year)
  - Year 5: 1721 lb/year (total = 6885 lb/year)

  *See requirements at NR 217.18(2)(d)2. Wis. Adm. Code*
- Source identification and prescription of BMPs: Waupun must identify sources of phosphorus in the watershed and prescribe the actions (BMPs) that will sufficiently curtail the sources to achieve P criteria.
  - Waupun will need to identify specific actions (types of BMPs, general locations) and ensure the above load reduction milestones are achieved with those BMPs.

  *See requirements at NR 217.18(2)(d) Wis. Adm. Code*
- Partner support: Waupun will need to engage with partners that have the capacity to implement agricultural nonpoint source pollution reductions.
  - The adaptive management plan will need a letter of support from a county LCD, farmer-led group, or other organization with a track record of successful nonpoint source work.
  - Executing a service agreement with the county or other nonpoint source partner is strongly recommended.

  *See requirements at NR 217.18(2)(d)4. Wis. Adm. Code*

Sincerely,

Matt Claucherty, Phosphorus Implementation Coordinator
Bureau of Water Quality

e-cc Betsyjo Howe, DNR
Jordan Main, DNR
Rachel Mason, Applied Technologies
Jim Smith, Applied Technologies

State of Wisconsin
Department of Natural Resources
Bureau of Watershed Management
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

# Watershed Adaptive Management Request

Form 3200-139 (R 01/12) 

**Notice**: Pursuant to s. NR 217.18, Wis. Adm. Code, this form must be completed and submitted to the Department at the time of the reissuance of an existing WPDES (Wisconsin pollutant discharge elimination system) permit to request adaptive management for phosphorus water quality based effluent limits (WQBEL).Failure to provide all requested information may result in denial of your request. Personal information collected will be used for administrative purposes and may be provided to requestors to the extent required by Wisconsin Open Records law [ss. 19.31-19.39, Wis. Stats.].

Type of Request:

- (●) **This is the formal adaptive management request as required in s. NR 217.18(2)**
- ( ) **This is a preliminary adaptive management request (to be submitted as part of facility planning.)**

## Facility and Permit Information

| Facility Name | WPDES Permit No. |
|---|---|
| Waupun Wastewater Treatment Facility | WI- 0 0 2 2 7 7 2 |

| Facility Address | City | State | ZIP Code |
|---|---|---|---|
| 501 Fond du Lac Street | Waupun | WI | 53963 |

Receiving Water: South Branch Rock River

## Owner Contact Information

| Last Name | First | MI | Phone No. (incl. area code) |
|---|---|---|---|
| Schramm | Steve | | (920) 324-7920 |

| Street Address | FAX Number |
|---|---|
| 817 S Madison St | |

| City | State | ZIP Code | E-mail address |
|---|---|---|---|
| Waupun | WI | 53963 | sschramm@waupunutilities.org |

## Facility Information

| Required for AM Request | Wis. Administrative code Reference | Conclusion | Evidence/Source of information (attach as needed) |
|---|---|---|---|
| 1. NPS contribute at least 50% of total P contribution | s. NR 217.18(2)(b) | (●) NPS contributes at least 50%<br>( ) NPS DOES **NOT** contribute at least 50% | Rock River TMDL |
| 2. WQBEL Requires Filtration | s. NR 217.18(2)(c) | (●) Filtration required<br>( ) Filtration **NOT** required | Preliminary Compliance Alternatives Plan (PCAP) |
| 3. AM Plan | s. NR 217.18(2)(d) | (●) Plan is Included - Page 3<br>( ) Plan is NOT Included *For a preliminary adaptive management request, AM plan not required* | Waupun Adaptive Management Plan (AMP) |

## Facility Operation and Performance

1. **Current P removal capability** – If the facility is currently required by a WPDES permit to monitor effluent phosphorus (P) provide a summary of the influent and effluent annual average P concentrations for each of the past three (3) years. If permit required P data is not available, the applicant should provide any other P data that may be applicable and available. If no data is available, the Department may estimate the P effluent concentration by based on data from other similar facilities

   July 2021-August 2024 Average Effluent Phosphorus: 0.47 mg/L

2. **Facility Operation** - Provide a summary description of overall facility operation. If not a continuously discharging facility, describe storage procedures and the time periods when effluent discharge occurs

Continuous facility operation including Primary Clarification, Trickling Filter, Secondary Clarification, Aeration, Final Clarification, Advanced Biological Nutrient Recovery Algae-Based System (consisting of Mix Tank, Photobioreactors, Membrane Separation), and finally Chlorine Disinfection.

3. **Previous Studies** - Reference or attach any facility planning or evaluation study that evaluated facility performance capabilities Note - Only include studies that are recent, within 5 years, or otherwise applicable for the evaluation of the existing facility and current conditions).

Preliminary and Final Compliance Alternatives Plan (CAP), Facilities Plan, Capacity Evaluation

## Adaptive Management Plan (s. NR 217.18(d))9.25

This section should summarize the Adaptive Management Plan for internal and external review. A complete Adaptive Management Plan should be attached. Note: If this is a preliminary adaptive management request, this section is not required.

| Watershed | Percent Contribution of Applicant Discharge |
|---|---|
| Rock River | 15% |

Action Area (include map)

Rock River TMDL Reaches 2 and 3

Watershed Characteristics and Timeline Justification

DNR Listed Waters for Multiple Priorities, including some as Implementation Priorities; 3 permit terms per typical AM guidance

Key Proposed Actions

Perennial vegetation, cover crops, grassed waterways, hay, and pasture establishment.

Key Goals and Measures for Determining Effectiveness

River quality evaluation - determine current levels, then support ongoing monitoring efforts

Optimize WWTF operation

Identify, rank, and implement nonpoint source BMPs

Partner(s)
Fond du Lac County Land and Water Conservation Department, Dodge County Land and Water Conservation Department, Fond du Lac County Watersheds Alliance, Dodge County Farmers for Healthy Soils Healthy Waters, Wings Over Wisconsin, DOC, ATI, USDA, DNR

Funding Sources
Waupun Utilities, Possibly Partners

## Adaptive Management Request and Certification

Based on the information provided, I am requesting the Watershed Adaptive Management option to achieve compliance with phosphorus water quality standards in accordance with s. NR 217.19, Wis. Adm. Code.
I certify that the information provided with this request is true, accurate and complete to the best of my knowledge.

| Print or type name of person submitting request* | Title |
|---|---|
| Steve Schramm | Superintendent |
| Signature of Official: Steve Schramm | Date Signed: 10/11/2024 |