WPDES PERMIT

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

PERMIT TO DISCHARGE UNDER THE WISCONSIN POLLUTANT DISCHARGE ELIMINATION SYSTEM

Dunn Paper - Ladysmith, LLC

is permitted, under the authority of Chapter 283, Wisconsin Statutes, to discharge from a facility located at
1215 EAST WORDEN AVENUE, LADYSMITH, WI
to
The Flambeau River in the Upper Chippewa River Basin in Rusk County and Approved Land Application Sites

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 _____
Jason Knutson, P.E.
Wastewater Section Chief

_____
Date Permit Signed/Issued

PERMIT TERM: EFFECTIVE DATE - January 01, 2024 **EXPIRATION DATE - December 31, 2028**

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1 Influent Requirements - Cooling Water Intake Structure (CWIS)

1.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)**
701	Sample point for untreated Flambeau River water taken into the paper mill to be used as non-contact cooling water and process water.

1.2 Monitoring Requirements and BTA Determinations

The permittee shall comply with the following monitoring requirements.
The intake(s) has been reviewed for compliance with BTA (Best Technology Available) standards and the BTA determination(s) is listed below.

1.2.1 Sampling Point 701 - Flambeau River Intake

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Calculated	
Intake Water Used Exclusively For Cooling		% Flow	Annual	Calculated	
Mercury, Total Recoverable		ng/L	Quarterly	Grab	

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.

1.2.1.2 CWIS - Authority to Operate and Description

The permittee shall at all times properly operate and maintain all water intake facilities. The permittee shall give advance notice to the Department of any planned changes in the location, design, operation, or capacity of the intake structure. The permittee is authorized to use the cooling water intake system which consists of the following:

- **Location:** The river water intake is located on the south side face of the Ladysmith dam (opposite the spillway) operated by XCEL Energy on the Flambeau River near the City of Ladysmith at approximately: 45.463960 latitude, 91.084224 longitude.
- **General Description:** Flambeau River water first passes through a bar screen with 1/4" wide vertical bars and 1.5" spacing. The screen width is 2.5' with a total height of 13.6'. The actual working surface area of

intake is dependent on river height. Debris and litter found on the bar screen is removed and disposed of by the facility. The river water flows through the bar screen into a 14" steel intake pipe through the dam structure into the mill where is it directed to the intake wet well (approximately: 5' x 6' x 20') used for pumping to the water treatment system. The intake pipe is directed to flow over a passive fixed fine bar screen which covers the entire top area of the wet well structure. The fine screen covering the wet well is a 100 mesh (0.149 mm). The screen allows for additional fine solids removal prior to draining into the wet well for facility use. The screen also provides passive flow through return to the river for anything which may pass through the course grates. Excess intake water also flows through a smaller overflow side channel adjacent to the wet well screen channel. Overflow water from the screen and side channel combine into a single discharge channel/outfall pipe for return to the river on the downstream side of the dam. The average intake overflow (river return) volume is 0.7 MGD. The amount of water that enters the structure but does not flow into the pump well is unknown and based solely on the depth of water in the river.

Zero percent of the intake water is used exclusively for cooling. Approximately 7% of the treated intake water is initially used for cooling before being directed to process use.

From the wet well the river water is pumped and processed by the facility's Krofta water treatment system. The wet well pump is set to a maximum pumpage rate of 1.6 MGD (maximum capacity 2 MGD). Actual annual average daily pumpage is 1.1 MGD as metered through the pump and treatment unit. The water intake flow is dependent on the river level (hydraulic head) and is not dependent on wet well pumpage rates.

- There is one additional emergency intake structure (identical intake size) for fire control use located adjacent to the mill process use intake on the dam. The emergency intake structure is BTA based on the nature of it being only used in emergency situations.
- **Process Description:** Existing once through passive system with bar screen, submerged intake, and fine screen filter. Water passing through the course filter drains into a wet well where the water is then pumped and used by the mill. Intake volume is dependent on the dam river elevation (head). Normal operating (nominal) level at the dam is 1114.5 feet Above Sea Level (ASL) and is reflective of actual (normal) conditions where: the flow rate is 1.8 MGD with an intake velocity of 0.16 fps. The pumpage rate from the wet well does not change intake flow volumes or velocities. During low flow river conditions at the dam 1108.75', intake volume is estimated at 1 MGD with an intake velocity of 0.36 fps due to the decreased surface area of the inlet screen. At high flows, flood stage, the river would be at 1119' to provide an intake volume of 2.0 MGD and an inlet flow velocity of 0.12 fps. The lower intake velocity is due to the increased effective surface area of the screen.
- **Maximum Design Intake Flow (DIF):** 2.0 MGD; The wet well pump is set to a maximum pumpage rate of 1.8 MGD
- **Actual Design Intake Flow (DIF):** 1.8 MGD
- **Maximum Design Intake Velocity:** 0.18 fps through the trash racks during the 7Q10 flow depths. The maximum design intake velocity through the horizontal fine mesh screen is unknown and is based on how many inches of water are on the horizontal screen which the water passes through via gravity into the wetwell.
- **Actual Design Intake Flow Velocity:** 0.16fps

1.2.1.3 Cooling Water Intake BTA (Best Technology Available) Determination

The Department has determined that the water intake structure, as described above in subsection 1.2.1.2, represents BTA for minimizing adverse environmental impact in accordance with the requirements in section s. 283.31(6), Wis. Stats. and section 316(b) of the Clean Water Act. This is a best professional judgment BTA determination made in accordance with s. NR 111.02(7), Wis. Adm. Code, and s. 281.31(6), Wis. Stats. See the BTA Determination in the Fact Sheet for more information on complying with BTA standards.

1.3 Cooling Water Intake Structure Standard Requirements

The following requirements and provisions apply to all water intake structures identified as sampling points in subsection 1.1.

1.3.1 Future BTA for Cooling Water Intake Structure

BTA determinations for entrainment and impingement mortality at cooling water intake structures will be made in each permit reissuance, in accordance with ch. NR 111, Wis. Adm. Code. **In subsequent permit reissuance applications, the permittee shall provide all the information required in ss. NR 111.41(1), (2), and (13) and applicable provisions of ss. NR 111.41 (3) to (7) if the amount of water used exclusively for cooling is above 25% on an AIF-basis and the design intake flow exceeds 2 MGD at the time of permit application submittal.**

Exemptions from some permit application requirements are possible in accordance with s. NR 111.42, Wis. Adm. Code, where information already submitted is sufficient. If an exemption is desired, a request for reduced application material requirements must be submitted at least 2 years and 6 months prior to permit expiration. Past submittals and previously conducted studies may satisfy some or all of the application material requirements.

1.3.2 Intake Screen Discharges and Removed Substances

Floating debris and accumulated trash collected on the cooling water intake trash rack shall be removed and disposed of in a manner to prevent any pollutant from the material from entering the waters of the State pursuant to s. NR 205.07 (3) (a), Wis. Adm. Code, except that backwashes may contain fine materials that originated from the intake water source such as sand, silt, small vegetation or aquatic life.

1.3.3 Endangered Species Act

Nothing in this permit authorizes take for the purpose of a facility's compliance with the Endangered Species Act. Refer to 40 CFR §125.98 (b) (1) and (2).

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	Sample point for reporting results of analysis of the field blank sample collected at the same time as the treated wastewater effluent sample.

2.2 Monitoring Requirements and Limitations

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

2.2.1 Sampling Point 102 - Field Blank Sample

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Mercury, Total Recoverable		ng/L	Monthly	Blank	
PFOS		ng/L	Monthly	Blank	
PFOA		ng/L	Monthly	Blank	

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.

2.2.1.2 PFOS/PFOA Sampling and Reporting Requirements

When effluent PFOS and PFOA samples are collected using a composite sample, per s. NR 106.995, Wis. Adm. Code, an equipment blank shall be collected by passing laboratory-verified PFAS-free water over or through field sampling equipment before the collection of field samples to evaluate potential contamination from the equipment used during sample. An equipment blank only needs to be collected once per sampling setup. Additional equipment blanks will only need to be collected when any portion of the sampling equipment that comes in contact with the sample is replaced. The permittee shall notify the department in the comment section of the DMR if sampling equipment is/isn't changed during the reporting period.

3 Surface Water Requirements

3.1 Sampling Point(s)

The discharge(s) shall be limited to the waste type(s) designated for the listed sampling point(s).

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)**
001	Treated wastewater from wastepaper repulping, deinking, and tissue making process to be sampled at a point following final clarification but before discharge to the Flambeau River

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 - WWTP 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	Daily Max	2,743 lbs/day	5/Week	24-Hr Comp	
BOD_5, Total	Monthly Avg	1,492 lbs/day	5/Week	24-Hr Comp	
Suspended Solids, Total	Daily Max	3,320 lbs/day	5/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Monthly Avg	1,699 lbs/day	5/Week	24-Hr Flow Prop Comp	
pH (Minimum)	Daily Min	5.0 su	Daily	Continuous	
pH (Maximum)	Daily Max	9 su	Daily	Continuous	
pH (Continuous)			Daily	Continuous	See "Continuous pH Monitoring" below for pH limits and allowed excursions
pH Total Exceedance Time Minutes	Monthly Total	446 minutes	Daily	Calculated	
Temperature		deg F	Daily	Grab	
Phosphorus, Total	Rolling 12 Month Avg	1.0 mg/L	Weekly	24-Hr Comp	
Mercury, Total Recoverable	Monthly Avg	6.8 ng/L	Quarterly	Grab	
Mercury, Total Recoverable	Monthly Avg	32 mg/day	Quarterly	Grab	
Nitrogen, Ammonia (NH_3-N) Total	Daily Max	20 mg/L	Weekly	24-Hr Comp	
Nitrogen, Ammonia (NH_3-N) Total	Monthly Avg	20 mg/L	Weekly	24-Hr Comp	
PFOS		ng/L	Monthly	Grab	

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
PFOA		ng/L	Monthly	24-Hr Comp	
Acute WET	Daily Max	1.0 TU_a	See Listed Quarters	24-Hr Comp	

3.2.1.1 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), 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.

3.2.1.2 PFOS/PFOA Sampling and Reporting Requirements

An equipment blank only needs to be collected once per sampling setup. Additional equipment blanks will only need to be collected when any portion of the sampling equipment that comes in contact with the sample is replaced.
The result of the equipment blank shall be reported under an in-plant sample point and documented in the reports submitted as part of the PFOS/PFOA Minimization Plan Determination of Need schedule of the permit.

3.2.1.3 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.

3.2.1.4 Continuous pH Monitoring

The permittee shall maintain the pH of the discharge within the range of 5.0 to 9.0 standard units (s.u.) except excursions are permitted subject to the following conditions:

- The pH is monitored continuously;
- The total time during which the pH is outside the range of 5.0 to 9.0 s.u. shall not exceed 446 minutes in any calendar month;
- No individual pH excursion outside the range of 5.0 to 9.0 s.u. shall exceed 60 minutes in duration;
- No individual pH excursion shall be outside the range of 4.0 to 11.0 s.u.; and
- On a daily basis, the permittee shall report the minimum and maximum pH, the total time that the pH is outside the range of 5.0 to 9.0 s.u. and the number of pH excursions outside the range of 5.0 to 9.0 that exceed 60 minutes in duration.

3.2.1.5 Additives

The permittee shall maintain a record of the dosage rate of all additives used on a monthly basis. The additives may be changed during the term of the permit following procedures in the 'Additives' subsection of the Standard Requirements.

3.2.1.6 Whole Effluent Toxicity (WET) Testing

Primary Control Water: Flambeau River

Instream Waste Concentration (IWC): 240:1

Acute Mixing Zone Concentration: Not applicable.

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.

WET Testing Frequency:

Acute tests are required during the following quarters:

- **Acute:** 3rd quarter 2024 2nd quarter 2025, 1st quarter 2026, 4th quarter 2027, 3rd quarter 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 **3rd quarter 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: $TU_a = 100 \div LC_{50}$.

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).

3.2.1.7 Chlorophenolic Containing Biocides

The permittee shall certify to the Department no later than 180 days prior to permit expiration that no chlorophenolic containing biocides are used pursuant to s. NR 284.12(3)(d), Wis. Adm. Code. The permittee may include this certification with its permit reissuance application.

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)**
002	The dewatered mixture of dissolved air flotation deink sludge, wastewater treatment plant primary and secondary sludge for land application/spreading on Department approved sites

4.2 Monitoring Requirements and Limitations

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

4.2.1 Sampling Point (Outfall) 002 - WWTP Sludge

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Solids, Total		Percent	1/ 6 Months	Grab Comp	
pH Field		su	1/ 6 Months	Grab Comp	
Nitrogen, Total Kjeldahl		mg/kg	1/ 6 Months	Grab Comp	
Nitrogen, Ammonia (NH_3-N) Total		mg/kg	1/ 6 Months	Grab Comp	
Phosphorus, Water Extractable		mg/kg	1/ 6 Months	Grab Comp	
Phosphorus, Total		mg/kg	1/ 6 Months	Grab Comp	
Potassium, Total Recoverable		mg/kg	1/ 6 Months	Grab Comp	
Calcium Dry Wt		mg/kg	1/ 6 Months	Grab Comp	
Zinc Dry Wt		mg/kg	1/ 6 Months	Grab Comp	
PCB. Total Dry Wt		mg/kg	1/ 6 Months	Grab Comp	
Dioxin, 2,3,7,8-TCDD Dry Wt		ng/kg	1/ 6 Months	Grab	
Furan, 2,3,7,8-TCDF Dry Wt		ng/kg	1/ 6 Months	Grab	
Chloride		mg/kg	Annual	Grab Comp	
Lead, Dry Wt		mg/kg	Annual	Grab Comp	
Copper, Dry Wt		mg/kg	Annual	Grab Comp	
Nickle, Dry Wt		mg/kg	Annual	Grab Comp	
Cadmium Dry Wt		mg/kg	Annual	Grab Comp	
Chromium, Dry Wt		mg/kg	Annual	Grab Comp	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Dioxin, 2,3,7,8-TCDD TE		ng/kg	Annual	Calculated	Used for reporting the calculated sludge TCDD TEQ using the sample results of the seventeen 2,3,7,8-substituted dioxins and furans.
PFAS Dry Wt			1/ 6 Months	Grab	Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS Section below for more information.
Dioxins & Furans (all congeners)			Once	Composite	As specified in ch. NR 106.115, Wis. Adm. Code. See "Calculating Dioxin Toxic Equivalence (TEQ)" section for a list of congeners.
Priority Pollutant Scan			Once	Grab	As specified in ch. NR 215.03 (1-6), Wis. Adm. Code (excluding asbestos). Use grab samples for mercury, cyanide and VOCs. Use 24-hr flow proportional samples for all other parameters.

Daily Log – Monitoring Requirements and Limitations

All discharge and monitoring activity shall be documented on log sheets. Originals of the log sheets shall be kept by the permittee as described under "Records Retention" in the Standard Requirements section, and if requested, made available to the Department.

Parameters	**Limit**	**Units**	**Sample Frequency**	**Sample Type**
DNR Site Number(s)	-	Number	Daily	Log
Acres Applied	-	Acres	Daily	Log
Application Rate	-	Tons/Acre/Day	Daily	Calculated

Annual Report – Summary of Monitoring Requirements and Limitations The Annual Report is due by January 31st of each year for the previous calendar year. See the 'Annual Land Application Report' subsection in Standard Requirements.				
Parameters	**Limit**	**Units**	**Reporting Frequency**	**Sample Type**
DNR Site Number(s)	-	Number	-	-
Acres Land Applied	-	Acres	Annual	-
Total Amount Per Site	-	Tons	Annual	Total Annual
Total Kjeldahl Nitrogen per Site	165, or alternate approved in writing	Pounds/Acre/Year	Annual	Calculated
Total Chloride per Site	340	Pounds/Acre per 2 Years	Annual	Calculated

4.2.1.1 For details on nitrogen loading requirements

When the facility applies to DNR approved sites, it is required to fill out Form 3400-055, including approval of an alternate nitrogen pounds/acre/year site loading; see the "Nitrogen Requirements for any Liquid Wastes, By-Product Solids". When the facility applies to non DNR approved sites under their DATCP certification the application must be reported on Form 3400-052. Sampling requirements listed in this section are applicable regardless of the site onto which the facility applies sludge.

4.2.1.2 Dry Weight Basis

All sludge monitoring results shall be reported on a dry weight basis.

4.2.1.3 Test Methods

For those parameters not listed in Table EM of Ch. NR 219, Wis. Adm. Code, the permittee may use SW-846 methods as listed in Tables B, C, and D of Ch. NR 219. The permittee may also use any other test method that is approved by the Department prior to use.

4.2.1.4 PFAS Sampling

The permittee is required to sample the sludge once per six months at Outfall 002 for perfluoroalkyl and polyfluoroalkyl substances (PFAS) listed in and using the protocols in the department's PFAS Update-Default Reporting List for Sampling and Analysis Requirements and Expectations (current version dated March 1, 2021).

4.2.1.5 Sample Type

The permittee may use a composite of grab samples that are obtained over a period of one to five days for all sludge parameters except pH.

4.3 Sludge Application Rate Limitations

The permittee shall comply with the following sludge application rate limitations. Additional land application rate limitations are provided in the Standard Requirements section of this permit.

4.3.1 Nitrogen Loading Limitations

The total pounds of nitrogen applied per acre per year shall be limited to the nitrogen needs of the cover crop minus any other nitrogen added to the land application site, including fertilizer or manure. Nitrogen applied can be

calculated on the basis of plant available nitrogen, as long as the release of nitrogen from the organic material is credited to future years.

If plant available nitrogen is not taken into consideration, the Total Kjeldahl Nitrogen (TKN) applied to a site from all sources during a calendar year shall not exceed 165 pounds per acre per year, except when alternative numerical nitrogen loading limits are approved in writing via the Department's land application management plan approval. Calculate TKN loading as follows:

$$\frac{\text{lbs of TKN}}{\text{Acre}} = (\text{lbs of wet solids}) \times \frac{(\%\ \text{solids})}{(\text{acres applied})} \times \frac{(\text{mg/kg TKN})}{(100)\quad(1{,}000{,}000)}$$

4.3.1.1 Biennial Site Chloride Loading Limitations

The total pounds of chloride applied shall be limited to 170 pounds per acre per year. Calculate the chloride loading as follows:

$$\frac{\text{lbs of Chloride}}{\text{Acre}} = (\text{lbs of wet solids}) \times \frac{(\%\ \text{solids})}{(\text{acres applied})} \times \frac{(\text{mg/kg Chloride})}{(100)\quad(1{,}000{,}000)}$$

4.3.2 Metals Limitations

The cumulative amount of cadmium, copper, lead, nickel, and zinc spread on any site may not exceed the amount specified in s. NR 214.18(4)(g) Table 4, Wis. Adm. Code. The permittee may substitute a zero for any metal that is not detected using the appropriate analysis method for calculation of cumulative loadings. Calculate the metal loading as follows (for % metal in decimal form, use an average of the previous four quarters of analysis)

$$\frac{\text{lbs of Metal}}{\text{Acre}} = (\text{lbs of wet solids}) \times \frac{(\%\ \text{solids})}{(\text{acres applied})} \times \frac{(\text{mg/kg Metal})}{(100)\quad(1{,}000{,}000)}$$

4.3.3 Total Dioxin Equivalents (TDE) Limitations

- The maximum total dioxin equivalents (TDE) concentration shall not exceed 1.2 ng/kg in the soil profile after application and incorporation of the permittee's wastewater treatment system sludge on **agricultural** sites. Agricultural sites include lands used to grow crops for human consumption or silage to feed animals whose products are consumed by humans. The soil profile shall include the sludge plus underlying litter and soil to a depth of 15 centimeters below the litter-soil interface.
- The maximum TDE concentration shall not exceed 0.5 ng/kg in the soil profile after application of the permittee's wastewater treatment system sludge on sites where **livestock will graze**. Sites where livestock will graze include pasture or forage lands where livestock will graze seven or more months of the year and whose products are consumed by humans. The soil profile shall include the sludge plus underlying litter and soil to a depth of 2 centimeters below the litter soil interface if livestock graze on the site before the sludge is incorporated or 15 centimeters below the litter soil interface if livestock graze on the site after the sludge is incorporated.
- TDE for wastewater treatment plant sludge applied to agricultural sites and sites where livestock will graze shall be calculated as follows:

  TDE (ng/kg) = 2,3,7,8-TCDD (ng/kg) + (0.1 × 2,3,7,8-TCDF (ng/kg))
- The maximum TDE loading rate shall not exceed 1.3 mg/ha (0.53 mg/acre) after application of the permittee's wastewater treatment plant sludge on **silvicultural** sites. Silvicultural sites include lands used to grow and cultivate trees.
- The TDE loading rate for silvicultural sites shall be calculated as follows:

  TDE (mg/ha) = 2,3,7,8-TCDD (mg/ha) + (0.0013 × 2,3,7,8-TCDF (mg/ha))

4.3.4 Priority Pollutant Scan

The permittee shall perform a priority pollutant scan during the 2027 calendar year.

4.4 Soil Monitoring Requirements

The permittee shall comply with the following monitoring requirements for land application sites.

4.4.1 Soil Cumulative Loading Monitoring Requirements

The permittee shall maintain records of the cumulative total metals loadings, the cumulative TDE loadings, the total annual nitrogen loading, the total annual chloride loading, and the total PCB loadings (lbs per acre) at each land application site. When soil monitoring results for metals, nutrients, and dioxins are available, the permittee shall use the results in the calculation of cumulative loadings or in place of a calculated loading if the soil testing was performed after sludge was applied. The sludge management plan shall outline a comprehensive method to ensure continued compliance with the soil loading limitations for dioxins, metals, and nutrients.

4.4.2 Prediction of TDE Loading Prior to Application

Prior to the application of sludge to a site, the permittee shall predict the cumulative total dioxin equivalents (TDE) loading that will result from application of the sludge using use the applicable equation specified in the "Total Dioxin Equivalents (TDE) Limitations" section of the permit.
As part of the prediction, the permittee shall assume all TDE from previous applications of sludge are still present in the soil profile unless soil from the application site has been tested for 2,3,7,8-TCDD and 2,3,7,8-TCDF. If the soil from the application site was tested for 2,3,7,8-TCDD and 2,3,7,8-TCDF prior to application of sludge, the soil test results, and any sludge application subsequent to the soil test, must be used in the prediction of TDE loads.
If the predicted cumulative total dioxin equivalents (TDE) loading exceeds **1.2 ng/kg** in the soil profile for agricultural sites or **0.5 ng/kg** for grazing sites, the permittee shall test the application site for 2,3,7,8-TCDD and 2,3,7,8-TCDF prior to application of sludge. If the calculated cumulative TDE loading for the application site, when using the soil monitoring results then exceeds 1.2 ng/kg for agricultural sites and 0.50 ng/kg for grazing sites, sludge shall not be applied to that site. If soil sampling for TDE is performed, the results of the soil monitoring and calculated cumulative TDE loadings shall be submitted to the Department as part of the annual cumulative loadings report due January 31 each year.

4.4.3 Calculating Dioxin Toxic Equivalence (TEQ)

When testing for the seventeen 2,3,7,8-substituted dioxin and furan congeners in the sludge, all congener results shall be calculated and converted to dioxin toxic equivalence (TCDD TEQ). The sludge concentration shall not exceed 80 ng/kg TCDD TEQ. The permittee shall report the calculated TCDD TEQ under "2,3,7,8-TCDD TE" on the DMR's. The TCDD TEQ for sludge shall be calculated as follows:

Dioxin toxic equivalence (TCDD TEQ) in ng/kg = $\sum C_x \times TEF_x$

Where: C_x = Concentration of congener "x" in units of ng/kg. When a congener is not detected, a zero may be used in the above equation for the concentration of the congener.

TEF_x = Toxicity equivalency factor for congener "x" as provided in the following table.

Dioxin Congener	TEF	Furan Congener	TEF
2,3,7,8-TCDD	1	2,3,7,8-TCDF	0.1
1,2,3,7,8-PeCDD	1	1,2,3,7,8-PeCDF	0.03
1,2,3,4,7,8-HxCDD	0.1	2,3,4,7,8-PeCDF	0.3
1,2,3,6,7,8-HxCDD	0.1	1,2,3,4,7,8- HxCDF	0.1
1,2,3,7,8,9-HxCDD	0.1	1,2,3,6,7,8- HxCDF	0.1
1,2,3,4,6,7,8-HpCDD	0.01	1,2,3,7,8,9- HxCDF	0.1
OCDD	0.0003	2,3,4,6,7,8- HxCDF	0.1
		1,2,3,4,6,7,8-HpCDF	0.01
		1,2,3,4,7,8,9- HpCDF	0.01
		OCDF	0.0003

4.5 Application Site Restrictions

In addition to complying with the sludge application site criteria as specified in s. NR 214.18(2), Wis. Adm. Code, the permittee shall comply with the following site location criteria:

- Sludge shall not be applied within 1,200 feet of a public water supply when the sludge contains detectable concentrations of either 2,3,7,8-TCDD or 2,3,7,8-TCDF.
- Sludge with a TDE concentration greater than 10 ng/kg shall not be applied within the range of Prairie Chickens (*Tymanuchus cupido*), or any other threated or endangered wildlife species, unless the sludge is incorporated into the soil within 21 days of application.

4.6 Reporting Requirements

The permittee shall comply with the following reporting requirements. Additional reporting requirements are provided in the Standard Requirements section of this permit.

4.6.1 Daily Log

Daily Log – Monitoring Requirements and Limitations

All discharge and monitoring activity shall be documented on log sheets. Originals of the log sheets shall be kept by the permittee as described under "Records Retention" in the Standard Requirements section, and if requested, made available to the Department.

Parameters	Units	Sample Frequency	Sample Type
DNR Site Number(s)	Number	Daily	Log
To-Scale Site Drawing	-	-	-
Acres Applied	Acres	Daily	Log
Tons of Sludge Applied	Dry US Tons	Daily	Log
Application Rate	Tons/Acre/Day	Daily	Calculated
Dates of Application	Date	Daily	Log
Date of Incorporation	Date	Daily	Log

4.6.2 Annual Land Application Report (Form 3400-055)

The annual totals for the land application loadings of sludge to field spreading sites shall be submitted electronically on the Annual Land Application Report Form 3400-055 by **January 31** each year whether or not waste is land applied. Amounts of waste shall be reported as dry weight. To calculate the dry weight, the permittee shall use the average of the last four total solids samples and multiply that average percentage by the amount of wet tons of sludge.

4.6.3 Other Methods of Disposal or Distribution Report (Form 3400-052)

The annual totals of sludge hauled to another facility, landfilled, incinerated, or land applied outside of Wisconsin shall be submitted electronically on the Other Methods of Disposal or Distribution Form 3400-052 by **January 31** of each year. The permittee shall report amounts as dry weight.

4.6.4 Cumulative Loadings Report

By **January 31** each year, the permittee shall submit an annual report summarizing the cumulative total metals loadings, the cumulative TDE loadings, the total annual nitrogen loading, the total annual chloride loading, and the total PCB loadings (lbs per acre) at each land application site. Any soil testing results of dioxins and furans shall be included with the report. The report shall describe any adverse effects and explain any violation that may have occurred during the previous year due to sludge application.

4.7 Sludge Management Plan

The permittee's sludge program and all land application sites used for sludge shall be operated in accordance with a Department approved management plan.

4.8 Beneficial Use

Only sludges that have been exempted from the solid waste landspreading requirements of Ch. NR 518, Wis. Adm. Code, that do not have detrimental effects on the soil, crops, or groundwater, and that have been shown to have beneficial properties as a soil conditioner or fertilizer may be spread on the land.

5 Schedules

5.1 Land Application Management Plan

A management plan is required for the land application system.

Required Action	Due Date
Land Application Management Plan: Submit an update to the management plan to optimize the land application system performance and demonstrate compliance with Wisconsin Administrative Code NR 214.	01/01/2025

5.2 Annual Certification Statement

Permittees not using chlorophenolic − containing biocides shall certify to the department that they are not using these biocides.

Required Action	Due Date
Annual Certification Statement: The permittee shall submit a signed annual certification statement to the Department by January 31st of the following year that the facility did not use chlorophenolic − containing biocides for the previous year. If the facility plans to start using chlorophenolic − containing biocides then the facility must notify the department in advance so the permit may be modified prior to discharging chlorophenolic − containing biocides.	

5.3 Cumulative Loadings Report

The permittee must submit a Cumulative Loadings Report summarizing the cumulative total metals, TDE, nitrogen, chloride, and PCB loadings. To allow the Department to electronically track submittals, the submittal dates are included as a schedule of compliance.

Required Action	Due Date
Submit Annual Cumulative Loadings Report #1: The permittee must submit a Cumulative Loadings Report summarizing the cumulative total metals, TDE, nitrogen, chloride, and PCB loadings by January 31st for the previous calendar year.	01/31/2024
Submit Annual Cumulative Loadings Report #2: The permittee must submit a Cumulative Loadings Report summarizing the cumulative total metals, TDE, nitrogen, chloride, and PCB loadings by January 31st for the previous calendar year.	01/31/2025
Submit Annual Cumulative Loadings Report #3: The permittee must submit a Cumulative Loadings Report summarizing the cumulative total metals, TDE, nitrogen, chloride, and PCB loadings by January 31st for the previous calendar year.	01/31/2026
Submit Annual Cumulative Loadings Report #4: The permittee must submit a Cumulative Loadings Report summarizing the cumulative total metals, TDE, nitrogen, chloride, and PCB loadings by January 31st for the previous calendar year.	01/31/2027
Submit Annual Cumulative Loadings Report #5: The permittee must submit a Cumulative Loadings Report summarizing the cumulative total metals, TDE, nitrogen, chloride, and PCB loadings by January 31st for the previous calendar year.	01/31/2028

6 Standard Requirements

NR 205, Wisconsin Administrative Code (Conditions for Industrial Dischargers): The conditions in ss. NR 205.07(1) and NR 205.07(3), 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(3).

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 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 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, except for sludge management forms and records, which shall be kept for a period of at least 5 years.

6.1.6 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.

6.1.7 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

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 as directed at the end of this permit 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 Bypass

Except for a controlled diversion as provided in the 'Controlled Diversions' section of this permit, any bypass 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.

6.2.3 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 unscheduled bypassing 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.

6.2.4 Controlled Diversions

Controlled diversions are allowed only when necessary for essential maintenance to assure efficient operation provided the following requirements are met:

- Effluent from the wastewater 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 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 wastewater treatment facility records and such records shall be available to the department on request.

6.2.5 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.

6.2.6 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).

6.2.7 Spill Reporting

The permittee shall notify the Department in accordance with ch. NR 706 (formerly NR 158), Wis. Adm. Code, in the event that a spill or accidental release of any material or substance results in the discharge of pollutants to the waters of the state at a rate or concentration greater than the effluent limitations established in this permit, or the spill or accidental release of the material is unregulated in this permit, unless the spill or release of pollutants has been reported to the Department in accordance with s. NR 205.07 (1)(s), Wis. Adm. Code.

6.2.8 Planned Changes

In accordance with ss. 283.31(4)(b) and 283.59, Stats., the permittee shall report to the Department any facility expansion, production increase or process modifications which will result in new, different or increased discharges of pollutants. The report shall either be a new permit application, or if the new discharge will not violate the effluent limitations of this permit, a written notice of the new, different or increased discharge. The notice shall contain a description of the new activities, an estimate of the new, different or increased discharge of pollutants and a description of the effect of the new or increased discharge on existing waste treatment facilities. Following receipt of this report, the Department may modify this permit to specify and limit any pollutants not previously regulated in the permit.

6.2.9 Duty to Halt or Reduce Activity

Upon failure or impairment of treatment facility operation, the permittee shall, to the extent necessary to maintain compliance with its permit, curtail production or wastewater discharges or both until the treatment facility operations are restored or an alternative method of treatment is provided.

6.3 Surface Water Requirements

6.3.1 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.

6.3.2 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.

6.3.3 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.

6.3.4 Visible Foam or Floating Solids

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

6.3.5 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.

6.3.6 Compliance with Phosphorus Limitation

Compliance with the concentration limitation for phosphorus shall be determined as a rolling twelve-month average and shall be calculated as follows:

First, determine the pounds of phosphorus for an individual month by multiplying the average of all the concentration values for phosphorus (in mg/L) for that month by the total flow for the month in Million Gallons times the conversion factor of 8.34.

Then, the monthly pounds of phosphorus determined in this manner shall be summed for the most recent 12 months and inserted into the numerator of the following equation.

$$\text{Average concentration of P in mg/L} = \frac{\text{Total lbs of P discharged (most recent 12 months)}}{\text{Total flow in MG (most recent 12 months)} \times 8.34}$$

The compliance calculation shall be performed each month with a reported discharge volume after substituting data from the most recent month(s) for the oldest month(s). A calculated value in excess of the concentration limitation will be considered equivalent to a violation of a monthly average.

6.3.7 Additives

In the event that the permittee wishes to commence use of a water treatment additive, or increase the usage of the additives greater than indicated in the permit application, the permittee must get a written approval from the Department prior to initiating such changes. This written approval shall provide authority to utilize the additives at the specific rates until the permit can be either reissued or modified in accordance with s. 283.53, Stats. Restrictions on the use of the additives may be included in the authorization letter.

6.3.8 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.

6.3.9 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.

6.3.10 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 Land Application Requirements

6.4.1 General Sludge Management Information

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

6.4.2 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.

6.4.3 Land Application Characteristic Report

The analytical results from testing of liquid wastes, by-product solids and sludges that are land applied shall be reported annually on the Characteristic Report Form 3400 49. The report form shall be submitted electronically no later than the date indicated on the form. 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 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.
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 sludge results shall be reported on a dry weight basis.

6.4.4 Annual Land Application Report

The annual totals for the land application loadings of liquid wastes, by-product solids and sludges to field spreading sites shall be submitted electronically on the Annual Land Application Report Form 3400-55 by January 31, each year whether or not waste is land applied. 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 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.

6.4.5 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 waste is hauled to another facility, landfilled, incinerated, or stored in a manure pit. Following submittal of the electronic Report Form 3400-52, this form shall be certified electronically via the 'eReport Certify' page by a responsible executive 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.

6.4.6 Land Application Site Approval

The permittee is authorized to landspread permitted liquid wastes, by-product solids and sludges on sites approved in writing by the Department in accordance with ss. NR 214.17(2) and 214.18(2), Wis. Adm. Code. Any site use restrictions or granting of case-by-case exceptions shall be identified in the approval letter. If the permittee wishes to have approval for additional sites, application shall be made using Land Application Site Request Form 3400-053. Complete information shall be submitted about each site, including location maps and soil maps, any soil analyses results and other information showing that the site complies with all application requirements and permit conditions. Spreading on a site may commence upon receipt of Department approval. If an existing spreading site is found by the Department to be environmentally unacceptable, a written notice will be issued to withdraw approval of that site.

6.4.7 Operating Requirements/Management Plan

All land application sites used for treatment of liquid wastes, by-product solids and sludges shall be operated in accordance with a Department approved management plan. The management plan shall be consistent with the requirements of this permit, ss. NR 214.17 (3) and (6), and NR 214.18 (3) and (6), Wis. Adm. Code. If operational changes are needed, the land application management plan shall be amended by submitting a written request to the Department for approval. A land application management plan shall be submitted for approval at least 60 days prior to land application.

6.4.8 Chloride Requirements for Liquid Wastes and By-Product Solids

The total pounds of chloride applied shall be limited to 340 pounds per acre per 2 year period. Calculate the chloride loading as follows:

$$\text{Wet Weight Solids: } \frac{\text{lbs of solids} \times \%\text{solids} \times \%\text{chloride}}{\text{acres land applied} \times 100 \times 100} = \text{lbs chloride/acre}$$

$$\text{Liquid: } \frac{\text{mg/L chloride} \times (\text{millions of gallons}) \times 8.34}{\text{acres land applied}} = \text{lbs chloride/acre}$$

6.4.9 Nitrogen Requirements for Liquid Wastes and By-Product Solids and Sludges

NR 214.17(4) and NR 214.18(4) Wis. Adm. Code specify that the total pounds of nitrogen land applied per acre per year shall be limited to the nitrogen needs of the cover crop minus any other nitrogen added to the land application site, including fertilizer or manure. Nitrogen applied can be calculated on the basis of plant available nitrogen, as long as the release of nitrogen from the organic material is credited to future years. This permit requires that the Total Kjeldahl Nitrogen calendar year application amount shall not exceed 165 pounds per acre per year, except when alternate numerical nitrogen loading limits (consistent with the above sections of NR 214) are approved in writing via the Department's land application management plan approval. Calculate nitrogen loading as follows ("TKN" represents "Total Kjeldahl Nitrogen"):

$$\text{Wet Weight Solids and Sludges: } \frac{\text{lbs of solids} \times \%\text{solids} \times \%\text{ TKN}}{\text{acres land applied} \times 100 \times 100} = \text{lbs TKN/acre}$$

$$\text{Liquid: } \frac{\text{mg/L TKN} \times (\text{millions of gallons}) \times 8.34}{\text{acres land applied}} = \text{lbs TKN/acre}$$

6.4.10 Ponding

The volume of liquid wastes land applied shall be limited to prevent ponding, except for temporary conditions following rainfall events. If ponding occurs all land application shall cease immediately. The permittee shall land apply only the liquid wastes that are permitted.

6.4.11 Runoff

The volume of liquid wastes land applied shall be limited to prevent runoff. If runoff occurs all land application shall cease immediately. The permittee shall land apply only the liquid wastes that are permitted.

6.4.12 Soil Incorporation Requirements

- Liquid Sludge Requirements: The Department may require that liquid sludge be incorporated into the soil on specific land application sites when necessary to prevent surface runoff or objectionable odors. Requirements and procedures for incorporation of liquid sludge, when such incorporation may be necessary, shall be specified in the management plan or in specific site applications, subject to Department approval. The permittee shall comply with the requirements in the Department approved management plan, specific site-approval requirements and the terms and conditions of this permit.
- Cake Sludge Requirements: After land application, cake sludge shall be incorporated into the soil. The timing of such incorporation and other related requirements and procedures shall be specified in the management plan or in specific site applications, subject to Department approval. The permittee shall comply with the requirements in the Department approved management plan, specific site-approval requirements and the terms and conditions of this permit.
- Liquid Wastewater Requirements: The Department may require that liquid wastewater be incorporated or injected into the soil on specific land application sites when necessary to prevent surface runoff or objectionable odors. Requirements and procedures for injection or incorporation of liquid wastewater, when such injection or incorporation is necessary, shall be specified in the management plan or in specific site applications, subject to Department approval. The permittee shall comply with the requirements in the Department approved management plan, specific site-approval requirements and the terms and conditions of this permit.
- By-Product Solids Requirements: The Department may limit the volume of by-products solids that are landspread on a specific site when necessary to prevent surface runoff or leaching of contaminants to groundwater and objectionable odors. By-product solids shall, after application, be plowed, disced, or otherwise incorporated into the soil. Requirements and procedures for the incorporation of byproduct solids into the soil shall be specified in the management plan or in specific site applications, subject to Department approval. The permittee shall comply with the requirements in the Department approved management plan, specific site-approval requirements and the terms and conditions of this permit.

6.4.13 Field Stockpiles

The permittee is encouraged to landspread the by-product solids or sludges as they are transported to the fields; but if it becomes necessary to stockpile solids in the fields, the stockpiles shall be spread within 72 hours or as specified in the approved management plan.

6.4.14 By-Product Storage Sites

All sites used for storage of by-product solids shall be located such that surface water or groundwater pollution does not occur. Written Department approval is required prior to storage of more than 150 tons of by-product solids on a site at any one time.

6.4.15 Annual Inspections-Stacking Pads and Leachate Containment

Stacking pads for more than 1200 tons of silage and all leachate containment facilities shall be inspected annually for cracks and shall be repaired as necessary to prevent leakage from the containment system. The inspection reports shall be available for inspection by Department personnel for a period of three years, and shall include at a minimum the following information:

- date and name of person(s) performing the inspection
- description of what the inspection consisted of

- details of what was discovered during the inspection
- recommendations for repair or maintenance
- details or repair completed

6.4.16 Additional Requirements from ch. NR 214, Wis. Adm. Code

The requirements of s. NR 214.17 (4)(c) [pathogen prohibition for human consumption crop fields], (4)(d)1 [no adverse soil effects], (4)(d)10 [allowable whey spreading rates], and (4)(e)1-3 [by-product solids spreading within agricultural practices and not cause contamination] for landspreading of liquid wastes and by product solids and s. NR 214.18 (4)(b),(d)-(h) [application, nutrient, pH, metals, and PCB limitations] for sludge spreading systems are included by reference in this permit. The permittee shall comply with these requirements.

7 Summary of Reports Due

FOR INFORMATIONAL PURPOSES ONLY

Description	Date	Page
Land Application Management Plan -Land Application Management Plan	January 1, 2025	16
Annual Certification Statement -Annual Certification Statement	See Permit	16
Cumulative Loadings Report -Submit Annual Cumulative Loadings Report #1	January 31, 2024	16
Cumulative Loadings Report -Submit Annual Cumulative Loadings Report #2	January 31, 2025	16
Cumulative Loadings Report -Submit Annual Cumulative Loadings Report #3	January 31, 2026	16
Cumulative Loadings Report -Submit Annual Cumulative Loadings Report #4	January 31, 2027	16
Cumulative Loadings Report -Submit Annual Cumulative Loadings Report #5	January 31, 2028	16
General Sludge Management Form 3400-48	prior to any significant sludge management changes	24
Land Application Report Form 3400-55	January 31, each year whether or not waste is land applied	24
Other Methods of Disposal or Distribution Report Form 3400-52	by January 31, each year whether or not waste is hauled to another facility, landfilled, incinerated, or stored in a manure pit	24
Wastewater Discharge Monitoring Report	no later than the date indicated on the form	17

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:
Central Office, 101 S Webster St, P.O. Box 7921, Madison, WI 53707-7921