

Permit Fact Sheet

General Information

Permit Number	WI-0029971-10-0
Permitted Facility Name and Address	City of Waukesha 600 Sentry Dr Waukesha WI 53186
Permit Term	August 01, 2025 to June 30, 2030
Discharge Location	Outfall 001 – East bank of the Fox (IL) River, one half mile downstream of the Prairie Street Bridge in Waukesha, WI (Latitude: 42.999843° N Longitude: 88.254037° W) Outfall 006 – Root River downstream of 60 th Street and Oakwood in Franklin, WI (Latitude: 42.854991° N Longitude: 87.988216° W)
Receiving Water	Outfall 001 - Fox (IL) River (Upper Fox (IL) River Watershed, Fox (IL) River Basin) in Waukesha County. Outfall 006 - Root River (Root River Watershed, Root-Pike River Basin) in Milwaukee County.
Stream Flow (Q _{7,10})	Fox River (Outfall 001) – 14 cfs Root River (Outfall 006) – 2.4 cfs
Stream Classification	Fox River (Outfall 001) – warm water sport fish community, non-public water supply Root River (Outfall 006) – warm water sport fish community, non-public water supply
Discharge Type	Existing, Continuous
Annual Average Design Flow (MGD)	Waukesha Clean Water Plant – 14.0 MGD Outfall 001 – 4.7 MGD Outfall 006 - 9.3 MGD
Industrial or Commercial Contributors	Yes. As a control authority, Waukesha currently regulates 11 significant industrial users under the City's pretreatment program. There is a total of 18 categorical industrial users. Waukesha WWTP also accepts domestic and industrial hauled wastes which include landfill leachate, contaminated groundwater, septic tank and holding tank wastes.
Plant Classification	Advanced: A1 - Suspended Growth Processes; B - Solids Separation; C - Biological Solids/Sludges; P - Total Phosphorus; D - Disinfection; L - Laboratory; SS - Sanitary Sewage Collection System
Approved Pretreatment Program?	Yes. June 27, 1985.

Facility Description

The City of Waukesha (“City”) Clean Water Plant (CWP) operates a 14 MGD extended aeration activated sludge wastewater treatment facility (WWTF). The WWTF provides service to an estimated population of 73,000 people, as well as 18 categorical and 11 significant industrial users. Wastewater treatment processes currently include screening and grit removal, influent pumping, primary clarification, primary effluent pumping, activated sludge, chemical phosphorus removal with coagulation, secondary clarification and tertiary filtration, ultraviolet light disinfection, and post aeration before discharge to the Fox (IL) River (Outfall 001). Biosolids treatment processes include waste activated sludge (WAS) thickening by dissolved air flotation, anaerobic digestion of primary solids and WAS, liquid sludge storage, centrifuge dewatering, and dewatered biosolids cake storage. Biosolids are land-applied to Department of Natural Resources (DNR) - approved agricultural sites. A backup power supply and sludge dryer upgrade will occur in the next three years.

As a condition of the 2016 S. Lawrence-Great Lakes River Water Resources Compact approval (Approval), Waukesha must return to the Root River, a daily quantity of treated wastewater equivalent to or in excess of the previous calendar year’s average daily diversion. On any days when the total quantity of treated wastewater is insufficient to meet this target, all treated wastewater must be returned to the Root River. The selected return flow discharge location is the Root River near Franklin, WI. The return flow discharge is referred to as Outfall 006. The City is limited to withdrawing no more than 8.2 MGD from Lake Michigan under the terms of the Approval, but the amount of the return flow includes water from infiltration and other sources typical of wastewater collection systems. In order to meet the return flow requirements of the Approval and allow an equivalent return volume of water to Lake Michigan, there are times when the permittee will need to return more water than what was withdrawn due to typical diurnal fluctuations of wastewater flows. A return flow rate of 9.3 MGD as the maximum annual average was calculated as the amount needed to meet the approval requirements for the future Lake Michigan water demand.

Substantial Compliance Determination

After a desk top review of all discharge monitoring reports, CMARs, land app reports, compliance schedule items, and a site visit on **March 12, 2024**, this facility has been found to be in substantial compliance with their current permit.

Compliance determination made by Nick Lent, Wastewater Engineer, on June 5, 2024.

Sample Point Descriptions

Sample Point Designation		
Sample Point Number	Discharge Flow, Units, and Averaging Period	Sample Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)
702	8 MGD (2023 Average)	INFLUENT: 24-hr flow proportional composite samples shall be collected after screening and grit removal and prior to the addition of recycled flows (i.e. filter backwash, sludge centrate water, sludge thickener supernatant and clarifier drains).
001	7 MGD (2023 Average)	EFFLUENT: 24-Hr flow proportional composite samples shall be collected from the effluent chamber after the UV disinfection system but before the Parshall flume. Grab samples shall be collected from the effluent drop box, after Parshall flume.
002	1506 dry U.S. Tons (2024 Permit	Class B, anaerobically digested, centrifuge thickened, cake sludge. Representative samples shall be collected and composited from the

Sample Point Designation		
Sample Point Number	Discharge Flow, Units, and Averaging Period	Sample Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)
	Application)	centrifuge and sludge storage bays prior to land application.
005	0 dry U.S. Tons (2024 Permit Application) Note: Liquid sludge is only from cleaning digesters or storage tank. Normal sludge produced is dewatered.	Class B, anaerobically digested, liquid sludge. Representative samples shall be collected from the sludge storage tank recirculation pump. This outfall is included as an emergency outfall and the facility will need to notify the Department if this outfall needs to be used. Sampling is required annually during the calendar year only if discharge from this outfall occurs.
006	5.3 MGD (2024 Average - first full year of active outfall)	EFFLUENT: Sampling shall be the same as Outfall 001 except monitoring for dissolved oxygen, temperature, and additional pH shall be conducted at the outfall to the Root River after aeration. Flow is monitored at the treatment plant.
101	N/A	FIELD BLANK: Collect mercury field blank using standard sample handling procedures.
104	0 MGD (2023 Data)	In-Plant Diversion OTHER BYPASS: Sample point for reporting diverted flow which bypasses existing tertiary treatment process of coagulation, flocculation & sedimentation, and granular media filtration prior to ultraviolet disinfection.
105	5.0 MGD (Oct 2024 – Feb 2025)	LAKE MICHIGAN WATER SUPPLY: A grab sample of raw Lake Michigan water shall be collected from the water supply facility, prior to receiving any treatment.

Permit Requirements

1 Influent – Monitoring Requirements

1.1 Sample Point Number: 702- INFLUENT

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
BOD5, Total		mg/L	Daily	24-Hr Flow Prop Comp	
Suspended Solids, Total		mg/L	Daily	24-Hr Flow Prop Comp	
Mercury, Total Recoverable		ng/L	Monthly	24-Hr Flow Prop Comp	See ‘Mercury Monitoring’ section in permit.
Cadmium, Total		ug/L	Quarterly	24-Hr Flow	

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Recoverable				Prop Comp	
Chromium, Total Recoverable		ug/L	Quarterly	24-Hr Flow Prop Comp	
Copper, Total Recoverable		ug/L	Monthly	24-Hr Flow Prop Comp	
Lead, Total Recoverable		ug/L	Quarterly	24-Hr Flow Prop Comp	
Nickel, Total Recoverable		ug/L	Quarterly	24-Hr Flow Prop Comp	
Zinc, Total Recoverable		ug/L	Monthly	24-Hr Flow Prop Comp	

1.1.1 Changes from Previous Permit:

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

1.1.2 Explanation of Limits and Monitoring Requirements

BOD₅ and Total Suspended Solids: Tracking of BOD₅, and Suspended Solids are required for percent removal requirements found in s. NR 210.05, Wis. Adm. Code and in the Standard Requirements section of the permit.

Cadmium, Chromium, Copper, Lead, Nickel, and Zinc: Since Waukesha is a control authority subject to state and federal pretreatment requirements, the proposed permit will continue to include monitoring of influent for Cadmium, Chromium, Copper, Lead, Mercury, Nickel and Zinc as part of the pretreatment program.

Mercury, Total Recoverable: Mercury monitoring is included in the permit pursuant to s. NR 106.145, Wis. Adm. Code. Required field blanks for Mercury monitoring per ss. NR 106.145(9) and (10), Wis. Adm. Code, requirements. The permittee shall collect a mercury field blank for each set of mercury samples (a set of samples may include a combination of water supply, influent, effluent or other samples all collected on the same day). In accordance with s. NR 106.145(9)(a), Wis. Adm. Code, the sample type may be grab or 24-hr composite. Influent mercury concentrations reported from 2014-2018 at the Clean Water Plant averaged 200 ng/L, therefore a high level of sensitivity is not required and the 24-hr composite sample is sufficient.

2 Inplant - Monitoring and Limitations

2.1 Sample Point Number: 101- FIELD BLANK

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Mercury, Total Recoverable		ng/L	Monthly	Blank	See 'Mercury Monitoring' section in permit.

2.1.1 Changes from Previous Permit:

In-plant monitoring requirements were evaluated for this permit term and no changes were required in this permit section.

2.1.2 Explanation of Limits and Monitoring Requirements

Mercury Field Blank: Monitoring is included in the permit pursuant to s. NR 106.145, Wis. Adm. Code. Field blanks must meet the requirements under s. NR 106.145(9) and (10), Wis. Adm. Code. The permittee shall collect a mercury field blank for each set of mercury samples (a set of samples may include a combination of influent, effluent or other samples all collected on the same day). Field blanks are required to verify a sample has not been contaminated during collection, transportation or analysis.

2.2 Sample Point Number: 104- InPlant Diversion-Other Bypass

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Per Occurrence	Continuous	Start flow measurement at the commencement of bypass operations. Measure flow in daily increments until operation ends and report daily bypass flow on the eDMR. See section 'Other Bypass Requirements' in permit.
Time		hours	Per Occurrence	Calculated	Report the total duration of 'Other Bypass' within any given day (12:00am - 11:59pm) in which the 'Other Bypass' occurs. See section 'Other Bypass Requirements' in permit.

2.2.1 Changes from Previous Permit:

In-plant monitoring requirements were evaluated for this permit term and no changes were required in this permit section.

2.2.2 Explanation of Limits and Monitoring Requirements

The department has determined that a partial bypass of existing tertiary treatment process of coagulation, flocculation & sedimentation, and granular media filtration may occur at this facility and is considered an 'other bypass' as defined in s. NR 205.07(1)(u)3, Wis. Adm. Code. Sample point 104 was included for measuring diverted flow during wet weather or other high flow conditions whenever the 'other bypass' operations are in effect, typically when flows are in excess of 32 MGD. A bypass that is defined as a controlled diversion in s. NR 205.07(1)(v), Wis. Adm. Code, is not included under this sample point. See permit section 2.2.2.1 for additional requirements.

2.3 Sample Point Number: 105- Lake Michigan Water Supply

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MG	Monthly	Calculated	Report the sum of the total monthly intake flows.
Mercury, Total Recoverable		ng/L	Monthly	Grab	See 'Mercury Monitoring' section in permit.
Mercury, Total Recoverable		grams/mo	Monthly	Calculated	See 'Mercury Mass Calculation' section in permit.
Mercury, Total Recoverable		grams/yr	Annual	Calculated	Report the sum of the total monthly intake mass loading for the calendar year.

2.3.1 Changes from Previous Permit:

Monitoring requirements were evaluated for this permit term and no changes were required in this permit section.

2.3.2 Explanation of Limits and Monitoring Requirements

The monitoring requirements for sample point 105 are included to collected data and allow for calculation of the total recoverable mercury mass balance between what is being withdrawn for the water supply and returned to Lake Michigan. The conversion factor in the equation in permit section 2.2.3.2, used to derive the mass of mercury in grams/month was determined using the following equation:

$$\frac{1 \text{ mg/L}}{1000000 \text{ ng/L}} \times \frac{453.6 \text{ grams}}{1 \text{ lb}} \times 8.34 = 0.00378$$

3 Surface Water - Monitoring and Limitations

3.1 Sample Point Number: 001- EFFLUENT - Fox River

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Calculated	Flow rate calculated by subtracting the flow from 006 meter from the total plant flow meter.
BOD5, Total	Weekly Avg	10 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective November through April each year.
BOD5, Total	Weekly Avg	7.9 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective May through October each year.
BOD5, Total	Monthly Avg	10 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective November through April each year.
BOD5, Total	Monthly Avg	7.9 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective May through October each year.
BOD5, Total	Weekly Avg	310 lbs/day	Daily	Calculated	
Suspended Solids, Total	Weekly Avg	10 mg/L	Daily	24-Hr Flow Prop Comp	
Suspended Solids, Total	Monthly Avg	10 mg/L	Daily	24-Hr Flow Prop Comp	
pH Field	Daily Max	9.0 su	Daily	Grab	
pH Field	Daily Min	6.0 su	Daily	Grab	
E. coli	Geometric Mean - Monthly	126 #/100 ml	3/Week	Grab	Limit effective May through September each year.
E. coli	% Exceedance	10 Percent	Monthly	Calculated	Limit effective May through September each year. See the 'E. coli Percent Limit' section in permit below. Enter the result in the DMR on the last day of the month.
Dissolved Oxygen	Daily Min	7.0 mg/L	Daily	Grab	
Nitrogen, Ammonia (NH3-N) Total	Daily Max	17 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective November through April each year.

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	10 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective April each year.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	8.5 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective May each year.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	5.6 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective June each year.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	3.9 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective July each year.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	4.2 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective August each year.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	5.8 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective September each year.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	9.2 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective October each year.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	12 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective November & February each year.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	11 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective December & January each year.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	13 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective March each year.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	5.6 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective April each year.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	4.9 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective May & December each year.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	3.1 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective June each year.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	2.0 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective July each year.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	2.1 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective August each year.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	2.9 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective September each year.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	4.0 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective October each year.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	5.1 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective November each year.

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	5.0 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective January each year.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	5.2 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective February each year.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	6.0 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective March each year.
Phosphorus, Total	Monthly Avg	0.225 mg/L	Daily	24-Hr Flow Prop Comp	
Phosphorus, Total	6-Month Avg	0.075 mg/L	Daily	24-Hr Flow Prop Comp	
Phosphorus, Total	6-Month Avg	2.94 lbs/day	Daily	Calculated	
Chloride	Weekly Avg	620 mg/L	4/Month	24-Hr Flow Prop Comp	This is an interim limit effective December 2025 through April 2026. See 'Chloride QBELs Compliance' schedule in permit.
Chloride	Weekly Avg	570 mg/L	4/Month	24-Hr Flow Prop Comp	This is an interim limit effective immediately and through November 2025, and effective again May through October 2026. See 'Chloride QBELs Compliance' schedule in permit.
Chloride	Weekly Avg	470 mg/L	4/Month	24-Hr Flow Prop Comp	Limit effective beginning November 1, 2026. See 'Chloride QBELs Compliance' schedule in permit.
Chloride	Monthly Avg	470 mg/L	4/Month	24-Hr Flow Prop Comp	Limit effective beginning November 1, 2026. See 'Chloride QBELs Compliance' schedule in permit.
Chloride, Variable Limit		lbs/day	4/Month	See Table	Beginning November 1, 2026, look up the chloride mass from the 'Variable Chloride Mass' table and report the variable limit in the 'Chloride Variable

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
					Limit' column on the eDMR.
Chloride	Weekly Avg - Variable	lbs/day	4/Month	Calculated	Report the weekly average mass Chloride result in the Chloride column of the eDMR. Limit effective November 1, 2026. See 'Chloride Mass Limit – Non-Wet Weather and Alternative Wet Weather Mass Limit' section in permit below.
Nitrogen, Total Kjeldahl		mg/L	Quarterly	24-Hr Flow Prop Comp	
Nitrogen, Nitrite + Nitrate Total		mg/L	Quarterly	24-Hr Flow Prop Comp	
Nitrogen, Total		mg/L	Quarterly	Calculated	Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen.
Cadmium, Total Recoverable		ug/L	Quarterly	24-Hr Flow Prop Comp	
Chromium, Total Recoverable		ug/L	Quarterly	24-Hr Flow Prop Comp	
Copper, Total Recoverable		ug/L	Monthly	24-Hr Flow Prop Comp	
Lead, Total Recoverable		ug/L	Quarterly	24-Hr Flow Prop Comp	
Nickel, Total Recoverable		ug/L	Quarterly	24-Hr Flow Prop Comp	
Zinc, Total Recoverable		ug/L	Monthly	24-Hr Flow Prop Comp	
Mercury, Total Recoverable		ng/L	Monthly	24-Hr Flow Prop Comp	See 'Mercury Monitoring' section in permit.
PFOS		ng/L	Monthly	Grab	Monitoring only. See 'PFOS/PFOA Minimization Plan Determination of Need'

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
					schedule in permit.
PFOA		ng/L	Monthly	Grab	Monitoring only. See 'PFOS/PFOA Minimization Plan Determination of Need' schedule in permit.
Acute WET		TUa	See Listed Qtr(s)	24-Hr Flow Prop Comp	See WET section in the permit.
Chronic WET	Monthly Avg	1.5 TUc	See Listed Qtr(s)	24-Hr Flow Prop Comp	See WET section in the permit.
Temperature Maximum		deg F	Daily	Continuous	Monitoring in calendar year 2028.

3.1.1 Changes from Previous Permit

Effluent limitations and monitoring requirements were evaluated for this permit term and the following changes were made from the previous permit. See additional explanation of limits under “Explanation of Limits and Monitoring Requirements” below.

- **Flow Rate:** Sample type changed from Continuous to Calculated. An area velocity meter was installed in 2023 on the effluent line after disinfection which measures the total plant flow before the split of the returned flow to the Root River. The original ultrasonic level sensor and Parshall flume remains in the Outfall 001 effluent channel, but this serves only as a backup instrument. Alternatively, the flow at Outfall 001 is calculated by subtracting the measured Outfall 006 flow at the return flow pump station from the total plant flow measured by the more recently installed flow meter.
- **E. coli:** Fecal coliform monitoring and limits have been replaced with *Escherechia coli* (*E. coli*) monitoring and limits. *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.
- **Chloride:** Final concentration and mass limits added to permit with a compliance schedule.
- **Mercury:** Sample type changed from Grab to 24-Hr Flow Prop Comp. This is a correction made to the sample type listed in the previous permit. Samples are collected as a grabbed aliquot from the collected 24-Hr flow proportional composite sampler and is not an instantaneous grab of the effluent at the time of sampling.
- **PFOS/PFOA:** Monthly monitoring is included in the permit in accordance with s. NR 106.98(2)(a), Wis. Adm. Code.
- **Temperature:** Sample frequency changed from 3/week to Daily.

3.1.2 Explanation of Limits and Monitoring Requirements

Detailed discussions of limits and monitoring requirements can be found in the attached water quality-based effluent limits (WQBEL) memo dated December 4, 2024.

Monitoring Frequencies – The [Monitoring Frequencies for Individual Wastewater Permits](#) guidance (April 12, 2021) recommends that standard monitoring frequencies be included in individual wastewater permits based on the size and type of the facility, in order to characterize effluent quality and variability, to detect events of noncompliance, and to ensure

consistency in permits issued across the state. Guidance and requirements in administrative code were considered when determining the appropriate monitoring frequencies for pollutants that have final effluent limits in effect during this permit term. Changes were made to the temperature sample frequency. The permittee has a continuous temperature probe and therefore is required to report the daily collected data.

Expression of Limits – In accordance with the federal regulation 40 CFR 122.45(d) and s. NR 205.065, Wis. Adm. Code, limits in this permit are to be expressed as weekly average and monthly average limits whenever practicable.

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

PFOS and PFOA – NR 106 Subchapter VIII – Permit Requirements for PFOS and PFOA Dischargers became effective on August 1, 2022. At the first reissuance of a WPDES permit after August 1, 2022, the new rule requires WPDES permits for major municipal dischargers, with an average flow rate greater than or equal to 5 MGD, at a minimum sample effluent on a monthly basis for PFOS and PFOA pursuant s. NR 106.98(2)(a), Wis. Adm. Code. 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.

Future Total Maximum Daily Load (TMDL) – There is an effort underway to improve water quality in the Fox (IL) River Basic. The framework for this effort is a Total Maximum Daily Load (TMDL), which is the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards. The TMDL will set phosphorus wasteload allocations (WLAs) for dischargers throughout the project area. WLA-derived limits must be included in future reissued WPDES permits once the TMDL has been approved by USEPA, which may result in limits different than those calculated in the WQBEL memo used for this reissuance. TMDL-based limits may be included in lieu of or in addition to the calculated limits upon permit reissuance or modification, according to ss. NR 217.16 and NR 212.76, Wis. Adm. Code.

3.2 Sample Point Number: 006- EFFLUENT - Root River

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
BOD5, Total	Weekly Avg	10 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective November through April each year.
BOD5, Total	Weekly Avg	5.0 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective May through October each year.
BOD5, Total	Monthly Avg	10 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective November through April each year.
BOD5, Total	Monthly Avg	5.0 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective May through October each year.
Suspended Solids, Total	Weekly Avg	10 mg/L	Daily	24-Hr Flow Prop Comp	
Suspended Solids, Total	Monthly Avg	10 mg/L	Daily	24-Hr Flow Prop Comp	

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
pH Field	Daily Max	9.0 su	Daily	Grab	
pH Field	Daily Min	6.0 su	Daily	Grab	
E. coli	Geometric Mean - Monthly	126 #/100 ml	Weekly	Grab	Limit effective May through September each year. Limit becomes effective year-round per the 'Effluent Limitations for E. coli' schedule in permit.
E. coli	% Exceedance	10 Percent	Monthly	Calculated	Limit effective May through September each year. Limit becomes effective year-round per the 'Effluent Limitations for E. coli' schedule in permit. See the 'E. coli Percent Limit' section in permit below. Enter the result in the DMR on the last day of the month.
Dissolved Oxygen	Daily Min	7.0 mg/L	Daily	Grab	
Nitrogen, Ammonia (NH3-N) Total	Daily Max	16 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective April each year.
Nitrogen, Ammonia (NH3-N) Total	Daily Max	14 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective May each year.
Nitrogen, Ammonia (NH3-N) Total	Daily Max	11 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective June & November through February each year.
Nitrogen, Ammonia (NH3-N) Total	Daily Max	10 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective July each year.
Nitrogen, Ammonia (NH3-N) Total	Daily Max	9.9 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective August & October each year.
Nitrogen, Ammonia (NH3-N) Total	Daily Max	9.5 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective September each year.
Nitrogen, Ammonia (NH3-N) Total	Daily Max	13 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective March each year.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	5.8 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective April each year.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	5.7 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective May each year.

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	4.0 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective June each year.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	3.3 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective July each year.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	3.5 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective August each year.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	4.2 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective September each year.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	6.7 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective October each year.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	9.7 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective November each year.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	9.8 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective December each year.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	11 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective January & February each year.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	13 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective March each year.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	2.4 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective April each year.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	2.5 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective May each year.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	1.8 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective June & September each year.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	1.4 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective July each year.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	1.5 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective August each year.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	2.8 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective October each year.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	4.0 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective November & December each year.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	5.0 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective January each year.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	5.1 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective February each year.

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Nitrogen, Ammonia (NH ₃ -N) Total	Monthly Avg	5.5 mg/L	Daily	24-Hr Flow Prop Comp	Limit effective March each year.
Phosphorus, Total	Monthly Avg	0.18 mg/L	Daily	24-Hr Flow Prop Comp	
Phosphorus, Total	6-Month Avg	0.06 mg/L	Daily	24-Hr Flow Prop Comp	
Phosphorus, Total	6-Month Avg	4.65 lbs/day	Daily	Calculated	
Chloride	Weekly Avg	620 mg/L	4/Month	24-Hr Flow Prop Comp	This is an interim limit effective December 2025 through April 2026. See 'Chloride QBELs Compliance' in the schedules section in permit.
Chloride	Weekly Avg	570 mg/L	4/Month	24-Hr Flow Prop Comp	This is an interim limit effective immediately and through November 2025, and effective again May through October 2026. See 'Chloride QBELs Compliance' in the schedules section in permit.
Chloride	Weekly Avg	400 mg/L	4/Month	24-Hr Flow Prop Comp	Limit effective beginning November 1, 2026. See 'Chloride QBELs Compliance' in the schedules section in permit.
Chloride	Monthly Avg	400 mg/L	4/Month	24-Hr Flow Prop Comp	Limit effective beginning November 1, 2026. See 'Chloride QBELs Compliance' in the schedules section in permit.
Chloride, Variable Limit		lbs/day	4/Month	See Table	Beginning November 1, 2026, look up the chloride mass from the 'Variable Chloride Mass' table and report the variable limit in the 'Chloride Variable Limit' column on the eDMR.
Chloride	Weekly Avg - Variable	lbs/day	4/Month	Calculated	Report the weekly average mass Chloride result in the Chloride column of the

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
					eDMR. Limit effective November 1, 2026. See ‘Chloride Mass Limit – Non-Wet Weather and Alternative Wet Weather Mass Limit’ section in permit.
Cadmium, Total Recoverable		ug/L	Quarterly	24-Hr Flow Prop Comp	
Chromium, Total Recoverable		ug/L	Quarterly	24-Hr Flow Prop Comp	
Copper, Total Recoverable		ug/L	Monthly	24-Hr Flow Prop Comp	
Lead, Total Recoverable		ug/L	Quarterly	24-Hr Flow Prop Comp	
Nickel, Total Recoverable		ug/L	Quarterly	24-Hr Flow Prop Comp	
Zinc, Total Recoverable		ug/L	Monthly	24-Hr Flow Prop Comp	
Mercury, Total Recoverable		ng/L	Monthly	24-Hr Flow Prop Comp	See ‘Mercury Monitoring’ section in permit.
Mercury, Total Recoverable		grams/mo	Monthly	Calculated	See ‘Mercury Mass Calculation’ section in permit.
Mercury, Total Recoverable		grams/yr	Annual	Calculated	Report the sum of the total monthly effluent mass loading for the calendar year on the Annual report form. See ‘Mercury Mass Calculation’ section in permit.
PFOS		ng/L	Monthly	Grab	Monitoring only. See ‘PFOS/PFOA Minimization Plan Determination of Need’ schedule in permit.
PFOA		ng/L	Monthly	Grab	Monitoring only. See ‘PFOS/PFOA Minimization Plan Determination of Need’ schedule in permit.
Acute WET		TUa	See Listed	24-Hr Flow	See WET section in the

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
			Qtr(s)	Prop Comp	permit.
Chronic WET		TUc	See Listed Qtr(s)	24-Hr Flow Prop Comp	See WET section in the permit.
Temperature Maximum		deg F	Daily	Continuous	Monitoring year round. Dissipative cooling study required in the calendar month of November. See 'Dissipative Cooling Study' schedule in permit.

3.2.1 Changes from Previous Permit

Effluent limitations and monitoring requirements were evaluated for this permit term and the following changes were made from the previous permit. See additional explanation of limits under "Explanation of Limits and Monitoring Requirements" below.

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

Pursuant to s. NR 210.06(1), Wis. Adm. Code, the period during which disinfection is required will be expanded to year-round to protect recreational uses and human health starting **October 1, 2027**. This is based on the known high level of human contact recreational activities occurring in the Root River at Horlick Dam which supports year-round fishing of stocked trout and salmon. A schedule is included in the permit to allow for evaluation of instream *E. coli* concentrations. If the department agrees there is not a risk presented to recreational uses and human health by not disinfecting the effluent outside of May through September, then the permit may be modified to remove the year-round disinfection requirements.

- **Chloride:** Monthly average limit added to permit.
- **PFOS/PFOA:** Monthly monitoring is included in the permit in accordance with s. NR 106.98(2)(a), Wis. Adm. Code.
- **Temperature:** Sample frequency changed from 3/week to Daily.

3.2.2 Explanation of Limits and Monitoring Requirements

Detailed discussions of limits and monitoring requirements can be found in the attached water quality-based effluent limits (WQBEL) memo dated December 4, 2024.

Monitoring Frequencies – The [Monitoring Frequencies for Individual Wastewater Permits](#) guidance (April 12, 2021) recommends that standard monitoring frequencies be included in individual wastewater permits based on the size and type of the facility, in order to characterize effluent quality and variability, to detect events of noncompliance, and to ensure consistency in permits issued across the state. Guidance and requirements in administrative code were considered when determining the appropriate monitoring frequencies for pollutants that have final effluent limits in effect during this permit term. Changes were made to the temperature sample frequency. The permittee has a continuous temperature probe and therefore is required to report the daily collected data.

Expression of Limits – In accordance with the federal regulation 40 CFR 122.45(d) and s. NR 205.065, Wis. Adm. Code, limits in this permit are to be expressed as weekly average and monthly average limits whenever practicable.

PFOS and PFOA – NR 106 Subchapter VIII – Permit Requirements for PFOS and PFOA Dischargers became effective on August 1, 2022. At the first reissuance of a WPDES permit after August 1, 2022, the new rule requires WPDES permits for major municipal dischargers, with an average flow rate greater than or equal to 5 MGD, at a minimum sample effluent on a monthly basis for PFOS and PFOA pursuant s. NR 106.98(2)(a), Wis. Adm. Code. 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.

4 Land Application - Monitoring and Limitations

Municipal Sludge Description						
Sample Point	Sludge Class (A or B)	Sludge Type (Liquid or Cake)	Pathogen Reduction Method	Vector Attraction Method	Reuse Option	Amount Reused/Disposed (Dry Tons/Year)
002	B	Cake	Fecal Coliform	Incorporation	Land Application	1,500 dry U.S. Tons
005	B	Liquid	Fecal Coliform	Landfilled or hauled to another facility and injected when land applied.		None reported.
Does sludge management demonstrate compliance? Yes.						
Is additional sludge storage required? No.						
Is Radium-226 present in the water supply at a level greater than 2 pCi/liter? No.						
Is a priority pollutant scan required? No, last priority pollutant scan was done in 2020.						
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.						

4.1 Sample Point Number: 002- Cake Sludge

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

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Lead Dry Wt	High Quality	300 mg/kg	Quarterly	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Quarterly	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Quarterly	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Quarterly	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Quarterly	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Quarterly	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Quarterly	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Quarterly	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Quarterly	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Quarterly	Composite	
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	Monitor once in calendar year 2026.
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	Monitor once in calendar year 2026.
Radium 226 Dry Wt		pCi/g	Quarterly	Composite	
Nitrogen, Total Kjeldahl		Percent	Quarterly	Composite	
Nitrogen, Ammonium (NH ₄ -N) Total		Percent	Quarterly	Composite	
Phosphorus, Total		Percent	Quarterly	Composite	
Phosphorus, Water Extractable		% of Tot P	Quarterly	Composite	
Potassium, Total Recoverable		Percent	Quarterly	Composite	
PFOA + PFOS		ug/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.

4.1.1 Changes from Previous Permit:

Sludge limitations and monitoring requirements were evaluated for this permit term and the following changes were made from the previous permit. See additional explanation of limits under “Explanation of Limits and Monitoring Requirements” below.

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

Radium 226: No change from previous permit. Concentrations of Radium-226 in the sludge have significantly decreased since changing the source of water supply. The average Radium-226 concentration in the sludge is now 6.275 pCi/g, which is a 70% reduction from before the water supply source was changed. Pursuant to s. NR 204.07(3)(n), Wis. Adm. Code, Quarterly monitoring is continued in the permit to track continued reductions until the sludge no longer contains radium as qualified by results consistently below levels of detection at 2 pCi/g.

4.1.2 Explanation of Limits and Monitoring Requirements

Requirements for land application of municipal sludge are determined in accordance with ch. NR 204 Wis. Adm. Code. Ceiling and high-quality limits for metals in sludge are specified in s. NR 204.07(5), Wis. Adm. Code. Requirements for pathogens are specified in s. NR 204.07(6) and in s. NR 204.07 (7), Wis. Adm. Code, for vector attraction requirements. Limitations for PCBs are addressed in s. NR 204.07(3)(k), Wis. Adm. Code.

PFAS – The presence and fate of PFAS in municipal and industrial sludges is an emerging public health concern. EPA is currently developing a risk assessment to determine future land application rates and expects to release this risk assessment by the end of 2024. In the interim, the department has developed the “Interim Strategy for Land Application of Biosolids and Industrial Sludges Containing PFAS.”

Collecting sludge data on PFAS concentrations from a wide range of wastewater treatment facilities will help protect public health from exposure to elevated levels of PFAS and determine the department’s implementation of EPA’s recommendations. To quantitate this risk, PFAS sampling has been included in this WPDES permit pursuant to ss. NR 214.18(5)(b) and NR 204.06(2)(b)9, Wis. Adm. Code.

4.2 Sample Point Number: 005- Liquid 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	
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	

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
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	

4.2.1 Changes from Previous Permit:

Sludge limitations and monitoring requirements were evaluated for this permit term and the following changes were made from the previous permit. See additional explanation of limits under “Explanation of Limits and Monitoring Requirements” below.

Radium 226: Removed testing requirements from permit due to the low volume of sludge generated and the highly infrequent occurrence of land applying the liquid sludge.

4.2.2 Explanation of Limits and Monitoring Requirements

List 1 (metals) and List 2 (nutrients) Analysis – This outfall is infrequently used and only during periods where the digesters are being cleaned or maintained. It is not used in normal operating conditions. Last use was 2015 where 33,000 gallons of liquid sludge was hauled to the Forest County Potawatomi Community (FCPC) Renewable Generation Digester to seed the digester which was then later centrifuged and landfilled. This outfall is identified as an emergency outfall and will be inactive at permit reissuance. The facility will need to notify the Department if this outfall needs to be used in order to activate and create electric monitor reports. Sampling is required annually during the calendar year only if discharge from this outfall occurs.

The permittee is not required to analyze for Total Kjeldahl Nitrogen, Ammonium, Total Phosphorus, Water Extractable Phosphorus, Total Recoverable Potassium, pathogens, and vector attraction parameters unless land application of sludge is initiated. As long as landfilling or hauling to another permitted facility are the sole disposal methods, only List 1 analysis is required prior to disposition. The metals limits in the table above do not apply to landfilled sludge. If sludge is land applied the sample frequency may increase based on the amount of sludge generated in accordance with Table A in s. NR 204.06, Wis. Adm. Code, and all limits and monitoring requirements listed in the table apply.

Requirements for disposal, including land application of municipal sludge, are determined in accordance with ch. NR 204, Wis. Adm. Code. Ceiling and high-quality limits for metals in sludge are specified in s. NR 204.07(5), 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.

5 Schedules

5.1 Dissipative Cooling Study for Outfall 006

Required Action	Due Date
Submit Dissipative Cooling Study Plan: The permittee shall submit an action plan for a Dissipative Cooling (DC) Study to be completed in the month of November. This plan should ensure that the DC requirements specified in s. NR 106.59, Wis. Adm. Code, are met. See Chapter 11 of the thermal guidance document for additional guidance on the information needed.	03/31/2027
Complete and Submit Dissipative Cooling Study: An updated dissipative cooling study for Outfall 006 meeting the following requirements shall be submitted by the date due for determining the need for sub-lethal effluent limitations at the time of next permit reissuance: 1) A written description of the physical characteristics of the receiving water or outfall that encourage rapid dilution, diffusion, dispersion, or dissipation of heat; 2) A written description of the presence or absence of other thermal loads to the receiving stream; 3) The minimum and maximum effluent temperature for each calendar week monitored. Note: The dissipative cooling study shall be conducted in the month of November. The study shall also include any site-specific information collected as part of the study, including: 1) Information regarding the biological quality of the animal and plant community of the receiving water including, but not limited to, species composition, richness, diversity, density, distribution, age structure, spawning incidence, and presence of any state or federally listed threatened or endangered species; 2) Data concerning the physical characteristics of the receiving water or permitted outfalls that encourage rapid dilution, diffusion, dispersion, and/or dissipation of heat; 3) The minimum and maximum temperature of the receiving water upstream of all permitted outfalls for each calendar month monitored.	03/31/2028

5.1.1 Explanation of Schedule

Waukesha submitted a Dissipative Cooling (DC) request for Outfall 006 in 2017 prior to the return flow commencing. This study showed that there would likely be rapid cooling of Waukesha's effluent. A DC study shall be completed during this permit term now that there is an active discharge. The study should be during the month of November. The reason for requiring a study specifically in November is because that is the month where the difference between the effluent temperature and the calculated weekly average limit is the greatest. Monitoring is required the entire permit term.

5.2 Water Quality Based Effluent Limits for Chloride- Outfalls 001 and 006

Required Action	Due Date
Chloride Progress Report #1: Submit a chloride progress report. The chloride progress report shall include: the chloride source reduction measures or activities that have been implemented; an analysis of trends in weekly and monthly average chloride concentrations and total mass discharge of chloride based on chloride sampling and flow data; and the actions the permittee plans to take to achieve compliance with the final chloride water quality based effluent limits.	10/31/2025

Achieve Compliance: The permittee shall comply with the final water quality-based chloride effluent limitations: 470 mg/L as both a weekly and monthly average for Outfall 001, and 400 mg/L as both a weekly and monthly average for Outfall 006. Additionally, the permittee shall comply with the non-wet weather and wet weather mass-based limits of 18,400 lbs/day and 75,000 lbs/day for Outfall 001, and 31,000 lbs/day and 64,000 lbs/day for Outfall 006, respectively.	11/01/2026
--	------------

5.2.1 Explanation of Schedule

A compliance schedule is continued in the reissued permit to meet final limits for chloride no later than three years from the final transition to Lake Michigan water supply occurring on November 2, 2023. The permittee initiated a service-wide, two-phased water softening optimization program under the previous permit. The second of these phases followed the final transition to Lake Michigan water supply and resulted in significant reductions in softener salt usage across the system. The average effluent chloride concentration from the plant decreased 26% from 2023 to 2024 and has remained below the most restrictive WQBEL of 400 mg/L. The schedule allows for continued implementation of the water softener optimization program and oversight of the City of Waukesha ordinance requiring all softeners to be fully optimized by January 1, 2025.

5.3 Year-Round Disinfection - Outfall 006

Required Action	Due Date
Submit Sampling Plan: Submit a plan for sampling instream <i>E. coli</i> bacteria concentrations of the Root River downstream of Outfall 006 to the Horlick Dam to support the evaluation of need for an extension of effluent disinfection beyond the period of May 1 through September 30 each year to protect recreational uses and human health pursuant to s. NR 210.06(1)(c), Wis. Adm. Code. The sampling plan shall include monitoring points at various locations between Outfall 006 and the Horlick Dam and before and after any other permitted wastewater outfalls and identified recreational sites. The plan shall include but is not limited to a map of proposed sample locations and a timeline for sampling to be conducted from October 1, 2025 through April 30, 2026 along with any other pertinent information.	08/31/2025
Initiate Downstream Sampling and Evaluation: The permittee shall initiate instream sampling in accordance with the approved sampling plan and begin evaluation of the degree and extent of <i>E. coli</i> bacteria present in the receiving water. The permittee shall notify the department when sampling efforts begin.	10/01/2025
Progress Report: Submit a progress report related to the sampling activities conducted from October 1, 2025 through April 30, 2026. Include available sample results of samples collected and identify any changes to the sampling plan that were made based on observations that occurred during sampling events.	05/31/2026
Submit Final Evaluation Report: The permittee shall submit a final evaluation report that includes the following: 1) The <i>E.coli</i> bacteria levels recorded at the sample points identified in the approved sampling plan along with any additional samples that were collected. 2) An analysis of the dilution and mixing characteristics of the effluent with the receiving water and other wastewater dischargers downstream of Outfall 006 to the Horlick Dam. 3) A conclusion on the likelihood the facility will need to maintain year-round disinfection or an extended disinfection period. The permittee shall submit a request to evaluate the need for an extension of effluent disinfection	01/31/2027

beyond the period of May 1 through September 30 each year to protect recreational uses and human health pursuant to s. NR 210.06(1)(c), Wis. Adm. Code. If the department determines there is no reasonable cause to extend the disinfection period, permit modification would be required to remove or alter the year-round disinfection requirement and remaining schedule actions.	
Commence Year-Round Disinfection: The year-round disinfection requirement becomes effective, and the permittee shall continue disinfection past September 30th to achieve compliance with the final year-round <i>E. coli</i> limitations.	10/01/2027

5.3.1 Explanation of Schedule

A schedule is included in the permit to allow for evaluation of instream *E. coli* concentrations near areas of known recreation. If the department agrees there is not a risk presented to recreational uses and human health by not disinfecting the effluent outside of May through September due to the bacteria water quality criteria being met, then the permit may be modified to remove the year-round disinfection requirements. Depending on the conclusion of the Evaluation Report, the recreational period might still be extended beyond the typical May – September, but less than year-round.

5.4 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. 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.	07/31/2026
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. 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. The permittee shall also submit a request to the department to evaluate the need for a PFOS/PFOA minimization plan. 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. 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.	07/31/2027

5.4.1 Explanation of Schedule

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.

Other Comments

None.

Attachments

Water Quality Based Effluent Limits – dated December 4, 2024 and prepared by Nicole Krueger.

Justification Of Any Waivers From Permit Application Requirements

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

Prepared By: Amy Garbe, Wastewater Engineer

Date: June 02, 2025

Date (post fact check): June 19, 2025

Date (post public notice):