Permit Modification Fact Sheet

Changes from the previous permit fact sheet are highlighted in grey.

General Information

Permit Number:	WI-0028207-08-2	
Permittee Name:	Town of Holland Sanitary District No. 1	
Address:	573 Holland Road	
City/State/Zip:	Kaukauna WI 54130	
Discharge Location:	SW ¼ of NE ¼, Sec 35, T21N, R19E, Town of Holland, Brown County	
Receiving Water:	Unnamed tributary to Plum Creek	
StreamFlow ($Q_{7,10}$):	0 cfs	
Stream Classification:	Limited aquatic life biological use classification	
Discharge Type:	Existing, continuous	
Design Flow(s)	Daily Maximum	0.54 MGD
	Weekly Maximum	0.50 MGD
	Monthly Maximum	0.42 MGD
	Annual Average	0.39 MGD
Significant Industrial Loading?	Yes, Arla Foods discharges wastewater from cheese production	
Operator at Proper Grade?	The Holland SD#1 WWTF is rated as an Advanced facility in subclasses A1 – Suspended Growth Processes, A4 – Ponds/Lagoons, B – Solids Separation, C – Biological Solids/Sludge Processing, P – Phosphorus Removal, and SS – Collection System Bruce Genskow is the current Operator-in-Charge of the facility, Certification #33233. He has advanced certification in A1, A2, A4, B, C, D, and P, and OIT certification in A3. Lucas Franck (#38876) staffs the plant 5 days a week and has Basic certification for A1, A4, B, C, P, and SS. He also has OIT certification for N.	
Approved Pretreatment Program?	N/A	

Facility Description

The Town of Holland Sanitary District No. 1 (Holland SD 1) owns and operates an advanced secondary wastewater treatment facility for treating domestic wastewaters from the unincorporated community of Holland in southwest Brown County, along with process wastewater from Arla Foods Production LLC, a dairy foods processing facility. An upgrade in 2022 has separated Arla Food's process wastewater from the Town of Holland Sanitary District No. 1's wastewater and is treating the two liquid streams separately.

The municipal treatment train includes its own lift station followed by preliminary treatment with fine-screening, biological treatment with an activated sludge system consisting of an aerobic selector basin followed by aeration basins and a single clarifier and phosphorus removal by chemical precipitation using Ferric Sulfate. This effluent is discharged to a tributary to Plum Creek via Outfall 003.

The Arla treatment train includes its own lift station followed by an aerated equalization tank, two selector tanks, aeration basin, and secondary clarifier. The effluent from the clarifier is sent to the Plant Effluent Pump Station and monitored at Sample Point 103 prior to being combined with the effluent from the District's compact plant and discharged via Outfall 003.

Alternatively, the combined effluent can be pumped to a pair of polishing lagoons for further treatment before discharge via Outfall 001 to a tributary to Plum Creek downstream from Outfall 003. Flow measurements at Outfall 001 are taken with a manual flow meter and composite samples at that sample point are prepared from manually collected grab samples.

Sludge treatment includes aerobic digestion, screw press, and storage, with agricultural land application of liquid or cake sludge. A belt press can also be used if needed.

Holland SD 1's permit includes a schedule for the facility to come into compliance with chronic limits for Whole Effluent Toxicity (WET). The permit has been modified to give the facility additional time to determine the source of toxicity and work with industrial contributors to reduce source loads coming into the plant. The modification goes into effect January 1, 2025.

Substantial Compliance Determination

Enforcement During Last Permit:

The department issued three Notices of Violation dated December 15, 2016, January 30, 2018, and October 9, 2020, to the Town of Holland Sanitary District No. 1 (Holland) for alleged violations of its Wisconsin Pollutant Discharge Elimination System Permit Numbers WI-0028207-06-0 and WI-0028207-07-0 (Permit).

The alleged violations included exceedances of BOD5, TSS, Phosphorus, Chloride and Ammonia. Holland has completed Section 4.1 of its Permit by constructing an upgrade of the treatment facilities. BOD5, TSS, Phosphorus, Chloride and Ammonia have met Permit requirements since the end of construction in the fall of 2022. The notice of violation was closed out in an August 13, 2023, letter.

After a desk top review of all discharge monitoring reports, CMARs, land application reports, compliance schedule items, and a site visit on November 10, 2022, the Holland SD 1 Wastewater Treatment Facility has been found to be in substantial compliance with their current permit except for their toxicity testing. There have been eight Whole Effluent Toxicity (WET) test failures at the facility since 2019. To bring the facility back into compliance, a WET Limit Compliance Schedule is being included in the permit reissuance to identify and remove the source of toxicity.

Compliance determination entered by Laura Gerold P.E., Senior Wastewater Engineer on November 7, 2023.

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)**
701	0.208 MGD October 2018-September 2023	INFLUENT - 24-hr flow proportional samples and flow rate collected from lift station #1 (dairy industry) wetwell.
702	0.061 MGD October 2021-September 2023	INFLUENT - 24-hr flow proportional samples and flow rate collected from the NEW lift station #2 (municipality) wetwell.

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)**
001	0.0145 MGD October 2018-September 2023	EFFLUENT- LAGOONS- Representative samples shall be collected from the effluent side of the former chlorine contact chamber, prior to discharge via the cascade aerator. Grab samples are collected for pH and DO analysis. Composite samples, for other parameters, are prepared from manually collected grab samples.
002	Back-up discharge point. Discharge not expected during permit term.	SEWAGE SLUDGE: Aerobically digested, gravity thickened liquid sludge samples shall be collected from the INDUSTRIAL aerobic digester. Limits applicable only for years when liquid sludge is land applied.
003	0.249 MGD October 2018-September 2023	EFFLUENT- COMBINED ARLA AND DISTRICT MECHANICAL PLANTS- 24-hour flow proportional samples and flow rate collected from the effluent wet well located after the Holland Sanitary District and mechanical plant Arla Clarifiers and prior to the discharge to surface water. Grab samples are collected for pH and DO analysis.
004	1260 cubic yards land applied in 2023	SEWAGE SLUDGE: Aerobically digested, thickened cake sludge samples shall be collected from the storage building.
103	Flow not reported at this sample point	ARLA PLANT - 24-hour time proportional and grab samples are collected from the manhole after the Arla Clarifier prior to combination with discharge from District Mechanical Plant.
005	Flow not reported at this sample point.	Sample point for determining compliance with the TMDL-based limits for Total Suspended Solids and Total Phosphorus, calculated as a combined discharge from the mechanical plant and lagoons. Loadings are calculated as the sum of the mass discharged at sample points 001 and 003.
006	New Sample Point	SEWAGE SLUDGE: Aerobically digested, gravity thickened liquid sludge samples shall be collected from the MUNICIPAL aerobic digester. Limits applicable only for years when liquid sludge is land applied.

1 Influent – Monitoring Requirements

1.1 Sample Point Number: 701- Influent - Lift Station #1 and 702- Influent - Lift Station #2

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
BOD5, Total		mg/L	3/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total		mg/L	3/Week	24-Hr Flow Prop Comp	

1.1.1 Changes from Previous Permit:

No changes made from previous permit.

1.1.2 Explanation of Limits and Monitoring Requirements

Influent monitoring is needed to assess loading to the facility and treatment performance. Requirements for flow, BOD, and TSS are established in accordance with ch. NR 210.04(2), Wis. Adm. Code. Sample Point 702 was added as a new influent lift station #2 was constructed in 2021. All domestic wastewater was routed to lift station #2 and a new sampler and flow meter were added at this lift station at that time. Only industrial wastewater from Arla is now routed to the previous lift station #1, Sample Point 701.

2 Inplant - Monitoring and Limitations

2.1 Sample Point Number: 103- Effluent - Arla Plant

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
BOD5, Total		mg/L	3/Week	24-Hr Comp	
Suspended Solids, Total		mg/L	3/Week	24-Hr Comp	
pH Field		su	5/Week	Grab	
Dissolved Oxygen		mg/L	5/Week	Grab	
Chloride		mg/L	4/Month	24-Hr Comp	Sampling done on 4 consecutive days one week per month. See chloride monitoring section in permit.
Phosphorus, Total		mg/L	3/Week	24-Hr Comp	
Nitrogen, Ammonia (NH3-N) Total		mg/L	3/Week	24-Hr Comp	

2.1.1 Changes from Previous Permit:

No changes made from previous permit.

2.1.2 Explanation of Limits and Monitoring Requirements

As part of the 2021/22 construction project, the treatment plant was split into two separate treatment trains. One treatment train treats the industrial wastewater from Arla, and the other treatment train treats the domestic wastewater from the town of Holland. As part of this construction project, a new sampler was added to sample the effluent industrial treatment train. This sampler is time proportional and is not associated with a flow meter.

3 Surface Water - Monitoring and Limitations

3.1 Sample Point Number: 001- Effluent-Lagoons

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Total Daily	See Section 3.2.1.1.
BOD5, Total	Weekly Avg	30 mg/L	3/Week	8-Hr Comp	See Section 6.4.6 for percent removal requirement.
BOD5, Total	Monthly Avg	20 mg/L	3/Week	8-Hr Comp	See Section 6.4.6 for percent removal requirement.
Suspended Solids, Total	Weekly Avg	30 mg/L	3/Week	8-Hr Comp	See Section 6.4.6 for percent removal requirement.
Suspended Solids, Total	Monthly Avg	20 mg/L	3/Week	8-Hr Comp	See Section 6.4.6 for percent removal requirement.
Suspended Solids, Total		lbs/day	3/Week	Calculated	See Section 3.2.3.1.
pH Field	Daily Min	6.0 su	5/Week	Grab	See Section 3.2.1.3.
pH Field	Daily Max	9.0 su	5/Week	Grab	See Section 3.2.1.3.
Dissolved Oxygen	Daily Min	4.0 mg/L	5/Week	Grab	
Chloride	Daily Max	940 mg/L	4/Month	8-Hr Comp	Alternative Effluent Limit. Sampling shall be done on four consecutive days one week per month. See Chloride Variance permit section and the Schedules section for applicable chloride target value.
Chloride	Weekly Avg	690 mg/L	4/Month	8-Hr Comp	Alternative Effluent Limit. Sampling shall be done on four consecutive days one week per month. See

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					Chloride Variance permit section and the Schedules section for applicable chloride target value.
Chloride		lbs/day	4/Month	Calculated	Sampling shall be done on four consecutive days one week per month. See Chloride Variance permit section and in the Schedules section for applicable chloride target value.
Phosphorus, Total	Monthly Avg	1.0 mg/L	3/Week	8-Hr Comp	TBEL.
Phosphorus, Total		lbs/day	3/Week	Calculated	See Section 3.2.3.1.
Nitrogen, Ammonia (NH3-N) Total	Daily Max - Variable	mg/L	3/Week	8-Hr Comp	See Section 3.2.1.4.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	7.7 mg/L	3/Week	8-Hr Comp	Applies October- March.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	5.7 mg/L	3/Week	8-Hr Comp	Applies April- May.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	4.1 mg/L	3/Week	8-Hr Comp	Applies June- September.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	3.1 mg/L	3/Week	8-Hr Comp	Applies October- March.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	2.3 mg/L	3/Week	8-Hr Comp	Applies April- May.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	1.7 mg/L	3/Week	8-Hr Comp	Applies June- September.
Nitrogen, Ammonia Variable Limit		mg/L	3/Week	8-Hr Comp	
Nitrogen, Total Kjeldahl		mg/L	Per Occurrence	24-Hr Flow Prop Comp	See Nitrogen Series Monitoring permit section.
Nitrogen, Nitrite + Nitrate Total		mg/L	Per Occurrence	24-Hr Flow Prop Comp	See Nitrogen Series Monitoring permit section.
Nitrogen, Total		mg/L	Per Occurrence	Calculated	See Nitrogen Series Monitoring permit section. Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					Total Nitrite + Nitrate Nitrogen.
PFOS		ng/L	Annual	Grab	See PFOS/PFOA Sampling and Reporting Requirements section below.
PFOA		ng/L	Annual	Grab	See PFOS/PFOA Sampling and Reporting Requirements section below.
Acute WET		TUa	Per Occurrence	8-Hr Comp	See Section 3.2.1.8 in the permit for WET testing requirements and schedule.
Chronic WET	Monthly Avg	1.0 TUc	Per Occurrence	8-Hr Comp	Monitoring and limit to go into effect after completion of TRE. See Section 3.2.1.8 in the permit for WET testing requirements and schedule 5.2.

3.1.1 Changes from Previous Permit

Chloride- Mass in lbs/day will be calculated for days concentration data is reported. A daily max concentration limit of 940 mg/L has been approved for this permit term under a variance to the WQBEL limit.

Total Nitrogen Monitoring (NO2+NO3, TKN and Total N)- Monitoring is required once each year discharge occurs.

PFOS and PFOA- Monitoring once every two months is included in the permit in accordance with s. NR 106.98(2)(b), Wis. Adm. Code. The monitoring frequency has been reduced from 1/ 2 Months to Annual.

WET- Monitoring for acute and chronic WET tests has been set to "Per Occurrence". Monitoring and limit of 1.0 TUc set to go into effect after the completion of TRE per schedule 5.2.

3.1.2 Explanation of Limits and Monitoring Requirements

Refer to the WQBEL memo for the detailed calculations, prepared by the Water Quality Bureau dated March 14, 2024, used for this reissuance.

BOD_5, Total Suspended Solids (TSS), pH and Dissolved Oxygen- Categorical limits for BOD_5, TSS, pH and Dissolved Oxygen are outlined in s. NR 210.04, Wis. Adm. Code, and are carried over from the previous permit term. These limits are not subject to change at this time because the receiving water characteristics have not changed.

Chloride- Acute (757 mg/L) and chronic (395 mg/L) chloride toxicity criteria for the protection of aquatic life are included in Tables 1 and 5 of ch. NR 105. Subchapter IV of ch. NR 106 establishes the procedure for calculating WQBELs for chloride. An analysis of chloride effluent data from Holland SD 1's current permit term is included in the September 25, 2023, WQBEL memo. Because the 1-day P_{99} and the 4-day P_{99} for Outfalls 001 and 003 exceed the calculated daily maximum and weekly average WQBELs for chloride, effluent limits are needed in accordance with s. NR 106.05(4)(a) and (b), Wis. Adm. Code. However, since chloride is not substantially reduced by standard wastewater treatment processes, and the installation and operation of alternative chloride removal processes may cause substantial and widespread adverse social and economic impacts in the area where the discharger is located, ch. NR 106, Subchapter VII,

provides for a variance from chloride limitations if a permittee submits an application requesting such a variance and the US EPA grants the variance, which is considered a variance from state water quality standards.

Holland SD 1 has submitted an application requesting a chloride variance and as a condition of this variance the permittee has committed to maintaining effluent chloride concentrations at or below the interim chloride limits of 940 mg/L (expressed as a daily maximum) and 690 mg/L (expressed as a weekly average) and implementing the Town of Holland's Planned Source Reduction Measures, dated March 01, 2024 (attached to this fact sheet). The Chloride Target Value Compliance Schedule details the additional details required with a target value of 620 mg/L.

Phosphorus- Chapter NR 217 of the Wis. Adm. Code addresses point source dischargers of phosphorus to surface waters. The code limits municipal dischargers of more than 150 pounds of phosphorus per month, to a 1.0 mg/L total phosphorus effluent limit unless an alternative limit is approved. This facility exceeds the 150 pounds/month threshold and is currently subject to the 1.0 mg/L technology based effluent limit (TBEL) for total phosphorus. That limit remains in effect in this permit.

This discharge is also subject to the Lower Fox River TMDL, approved by the Environmental Protection Agency (EPA) in May 2012. Phosphorus data collected at Sample Point 001 will be used to determine compliance with TMDL-based limits at Sample Point 005. See the discussion on TMDL Derived Limits for Sample Point 005, below, for more details about the inclusion of a TMDL-derived phosphorus WQBEL in this permit.

Ammonia- Acute and chronic ammonia toxicity criteria for the protection of aquatic life are included in Tables 2C and 4B of ch. NR 105, Wis. Adm. Code. Subchapter III of ch. NR 106 establishes the procedure for calculating WQBELs for ammonia. Effluent limits are necessary in accordance with the reasonable potential analysis, as presented in the WQBEL memo. The daily maximum limit is applied as a variable limit that is a function of effluent pH.

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

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 1 MGD but less than 5 MGD, at a minimum sample effluent once every two-months for PFOS and PFOA pursuant s. NR 106.98(2)(b), Wis. Adm. Code.

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

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

Pursuant to s. NR 205.066, Wis. Adm. Code, the department may specify the monitoring frequency for PFOS and PFOA on a case-by-case basis after the initial 24 months of sampling.

After a review of the data submitted with the Year 2 Report on Effluent Discharges, the department has determined that it is warranted to reduce the sampling frequency in this case. The department is requiring continued monitoring of these compounds to complete the permit term to ensure that the current effluent quality is maintained. At the next permit reissuance, the department will make another determination as to whether further reduction or removal of monitoring is warranted, based on the continued sampling results.

Whole Effluent Toxicity- Whole effluent toxicity (WET) testing requirements and limits (if applicable) are determined in accordance with ss. NR 106.08 and NR 106.09 Wis. Adm. Code, as revised August 2016. (See the current version of the

Whole Effluent Toxicity Program Guidance Document and checklist and WET information, guidance and test methods at http://dnr.wi.gov/topic/wastewater/wet.html)

Acute tests are required anytime discharge occurs for a day or more, but no more than once per year. When discharge occurs for one to two days, acute tests may be conducted with one sample. When discharge occurs for three days or more, acute tests shall be conducted with a minimum of two samples.

Chronic tests are required anytime discharge occurs for three or more days after the completion of Schedule 5.2, but no more than once per quarter. When discharge occurs for more than three days, but less than six days, chronic tests may be conducted with two samples. When discharge occurs for six days or more, chronic tests shall be conducted with a minimum of three samples.

3.2 Sample Point Number: 003- Effluent-Mechanical Plant

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	See permit Section 3.2.2.1
BOD5, Total	Weekly Avg	30 mg/L	3/Week	24-Hr Flow Prop Comp	See permit Section 6.4.6 for percent removal requirement.
BOD5, Total	Monthly Avg	20 mg/L	3/Week	24-Hr Flow Prop Comp	See permit Section 6.4.6 for percent removal requirement.
Suspended Solids, Total	Weekly Avg	30 mg/L	3/Week	24-Hr Flow Prop Comp	See permit Section 6.4.6 for percent removal requirement.
Suspended Solids, Total	Monthly Avg	20 mg/L	3/Week	24-Hr Flow Prop Comp	See permit Section 6.4.6 for percent removal requirement.
Suspended Solids, Total		lbs/day	3/Week	Calculated	See permit Section 3.2.3.1.
pH Field	Daily Min	6.0 su	5/Week	Grab	See permit Section 3.2.2.4.
pH Field	Daily Max	9.0 su	5/Week	Grab	See permit Section 3.2.2.4.
Dissolved Oxygen	Daily Min	4.0 mg/L	5/Week	Grab	
Chloride	Daily Max	940 mg/L	4/Month	24-Hr Flow Prop Comp	Alternative Effluent Limit. Sampling shall be done on four consecutive days one week per month. See Chloride Variance permit section and the Schedules section for applicable chloride target value.
Chloride	Weekly Avg	690 mg/L	4/Month	24-Hr Flow Prop Comp	Alternative Effluent Limit. Sampling shall be done on

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					four consecutive days one week per month. See Chloride Variance permit section and the Schedules section for applicable chloride target value.
Chloride		lbs/day	4/Month	Calculated	Sampling shall be done on four consecutive days one week per month. See Chloride Variance section below and in the Schedules section for applicable chloride target value.
Phosphorus, Total	Monthly Avg	1.0 mg/L	3/Week	24-Hr Flow Prop Comp	TBEL.
Phosphorus, Total		lbs/day	3/Week	Calculated	See permit Section 3.2.3.1.
Nitrogen, Ammonia (NH3-N) Total	Daily Max - Variable	mg/L	3/Week	24-Hr Flow Prop Comp	See permit Section 3.2.2.4.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	7.7 mg/L	3/Week	24-Hr Flow Prop Comp	Applies October- March.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	5.7 mg/L	3/Week	24-Hr Flow Prop Comp	Applies April- May.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	4.1 mg/L	3/Week	24-Hr Flow Prop Comp	Applies June- September.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	3.1 mg/L	3/Week	24-Hr Flow Prop Comp	Applies October- March.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	2.3 mg/L	3/Week	24-Hr Flow Prop Comp	Applies April- May.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	1.7 mg/L	3/Week	24-Hr Flow Prop Comp	Applies June- September.
Nitrogen, Ammonia Variable Limit		mg/L	3/Week	24-Hr Flow Prop Comp	
Nitrogen, Total Kjeldahl		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Annual in rotating quarters. See Nitrogen Series Monitoring permit section.
Nitrogen, Nitrite + Nitrate Total		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Annual in rotating quarters. See Nitrogen Series Monitoring permit section.
Nitrogen, Total		mg/L	See Listed Qtr(s)	Calculated	Annual in rotating quarters. See Nitrogen Series Monitoring permit section. Total Nitrogen shall be

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen.
PFOS		ng/L	Annual	Grab	See PFOS/PFOA Sampling and Reporting Requirements permit section.
PFOA		ng/L	Annual	Grab	See PFOS/PFOA Sampling and Reporting Requirements permit section.
Acute WET		TUa	See Listed Qtr(s)	24-Hr Flow Prop Comp	See permit Section 3.2.1.8 for WET testing requirements and schedule.
Chronic WET	Monthly Avg	1.0 TUc	Quarterly	24-Hr Flow Prop Comp	Monitoring and limit to go into effect after completion of TRE. See permit Section 3.2.1.8 for WET testing requirements and schedule 5.2.

3.2.1 Changes from Previous Permit

Chloride- Mass in lbs/day will be calculated for days concentration data is reported.

Total Nitrogen Monitoring (NO2+NO3, TKN and Total N)- Annual monitoring in rotating quarters has been added to the permit.

PFOS and PFOA- Monitoring once every two months is included in the permit in accordance with s. NR 106.98(2)(b), Wis. Adm. Code. The monitoring frequency has been reduced from 1/ 2 Months to Annual.

Chronic WET- Monitoring increased from once to quarterly. Monitoring and limit of 1.0 TUc set to go into effect after the completion of TRE per schedule 5.2.

3.2.2 Explanation of Limits and Monitoring Requirements

Refer to the WQBEL memo for the detailed calculations, prepared by the Water Quality Bureau dated March 14, 2024, used for this reissuance.

BOD_5, Total Suspended Solids (TSS), pH and Dissolved Oxygen- Categorical limits for BOD_5, TSS, pH and Dissolved Oxygen are outlined in s. NR 210.04, Wis. Adm. Code, and are carried over from the previous permit term. These limits are not subject to change at this time because the receiving water characteristics have not changed.

Chloride- See the discussion on Chloride for Sample Point 001, above, for more details about the inclusion of an interim chloride limit in this permit.

Phosphorus- Chapter NR 217 of the Wis. Adm. Code addresses point source dischargers of phosphorus to surface waters. The code limits municipal dischargers of more than 150 pounds of phosphorus per month, to a 1.0 mg/L total phosphorus effluent limit unless an alternative limit is approved. This facility exceeds the 150 pounds/month threshold and is

currently subject to the 1.0 mg/L technology based effluent limit (TBEL) for total phosphorus. That limit remains in effect in this permit.

This discharge is also subject to the Lower Fox River TMDL, approved by the Environmental Protection Agency (EPA) in May 2012. Phosphorus data collected at Sample Point 001 will be used to determine compliance with TMDL-based limits at Sample Point 005. See the discussion on TMDL Derived Limits for Sample Point 005, below, for more details about the inclusion of a TMDL-derived phosphorus WQBEL in this permit.

Ammonia- Acute and chronic ammonia toxicity criteria for the protection of aquatic life are included in Tables 2C and 4B of ch. NR 105, Wis. Adm. Code. Subchapter III of ch. NR 106 establishes the procedure for calculating WQBELs for ammonia. Effluent limits are necessary in accordance with the reasonable potential analysis, as presented in the WQBEL memo. The daily maximum limit is applied as a variable limit that is a function of effluent pH.

Total Nitrogen Monitoring (NO2+NO3, TKN and Total N)- The Department has included effluent monitoring for Total Nitrogen in the permit through the authority under §§ 283.55(1)(e), Wis. Stats., which allows the department to require the permittee to submit information necessary to identify the type and quantity of any pollutants discharged from the point source, and through s. NR 200.065(1)(h), Wis. Adm. Code, which allows for this monitoring to be collected during the permit term. More information on the justification to include total nitrogen monitoring in wastewater permits can be found in the "Guidance for Total Nitrogen Monitoring in Wastewater Permits" dated October 1, 2019. Annual tests are scheduled in the following rotating quarters: October 1- December 31, 2024; April 1-June 30, 2025; January 1-March 31, 2026; July 1- September 30, 2027; and October 1- December 31, 2028.

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 1 MGD but less than 5 MGD, at a minimum sample effluent once every two-months for PFOS and PFOA pursuant s. NR 106.98(2)(b), Wis. Adm. Code.

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

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

Pursuant to s. NR 205.066, Wis. Adm. Code, the department may specify the monitoring frequency for PFOS and PFOA on a case-by-case basis after the initial 24 months of sampling.

After a review of the data submitted with the Year 2 Report on Effluent Discharges, the department has determined that it is warranted to reduce the sampling frequency in this case. The department is requiring continued monitoring of these compounds to complete the permit term to ensure that the current effluent quality is maintained. At the next permit reissuance, the department will make another determination as to whether further reduction or removal of monitoring is warranted, based on the continued sampling results.

Whole Effluent Toxicity- Whole effluent toxicity (WET) testing requirements and limits (if applicable) are determined in accordance with ss. NR 106.08 and NR 106.09 Wis. Adm. Code, as revised August 2016. (See the current version of the Whole Effluent Toxicity Program Guidance Document and checklist and WET information, guidance and test methods at http://dnr.wi.gov/topic/wastewater/wet.html)

Acute tests are required during the following quarters: October 1- December 31, 2024; April 1-June 30, 2025; January 1-March 31, 2026; July 1- September 30, 2027; and October 1- December 31, 2028.

Chronic tests are required quarterly after the completion of Schedule 5.2.

3.3 Sample Point Number: 005- Calculated Combined Effluent

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Suspended Solids, Total	Monthly Avg	174 lbs/day	3/Week	Calculated	See permit Section 3.2.3.1.
Suspended Solids, Total	Weekly Avg	308 lbs/day	3/Week	Calculated	See permit Section 3.2.3.1.
Phosphorus, Total	Monthly Avg	3.3 lbs/day	3/Week	Calculated	See permit Section 3.2.3.1.

3.3.1 Changes from Previous Permit

No changes made from previous permit.

3.3.2 Explanation of Limits and Monitoring Requirements

Sample Point 005 is included in the permit for reporting the combined mass discharge of Total Suspended Solids (TSS) and Total Phosphorus (TP) from the Lagoons (Sample Point 001) and the Mechanical Plant (Sample Point 003), to determine compliance with the TMDL-derived limits for TSS and TP.

TMDL (Total Maximum Daily Load) Derived Limits for Total Phosphorus and Total Suspended Solids- Chapter NR 217 was revised on December 1, 2010, with the addition of Subchapter III, which includes WQBELs for phosphorus, based upon criteria contained in Chapter NR 102. Details may be found at: http://dnr.wi.gov/topic/surfacewater/phosphorus.html .

The Lower Fox River TMDL was developed to determine the maximum amounts of phosphorus and sediment that can be discharged to protect and improve water quality. The Lower Fox River TMDL was approved by the Environmental Protection Agency (EPA) in May 2012. The entire report can be found at: http://dnr.wi.gov/topic/TMDLs/documents/lowerfox/LowerFoxRiverTMDLReport2012.pdf .

The final effluent limits, expressed as mass limits, were derived from, and comply with, the applicable water quality criterion and are consistent with the assumptions and requirements of the EPA-approved Waste Load Allocation (WLA) for the Lower Fox Basin. The permit includes limitations and requirements necessary to implement the recommendations of the TMDL.

Limits for the permit were determined based upon the revised rules and the provisions of the TMDL, in accordance with Department guidance, "TMDL Development and Implementation Guidance: Integrating the WPDES and Impaired Waters Programs, Edition No. 3," which can be found at: http://dnr.wi.gov/topic/tmdls/ptsourcetmdl.html . See the May 31 2014 planning limits letter and March 22, 2017 WQBEL memo for additional information on the derivation of the TMDL-based WQBELs.

For the reasons explained in the April 30, 2012 paper entitled 'Justification for Use of Monthly, Growing Season and Annual Average Periods for Expression of WPDES Permit Limits for Phosphorus Discharges in Wisconsin', WDNR has determined that it is impracticable to express the phosphorus WQBELs for the permittee as daily maximum or weekly average values. The final TMDL mass limits for phosphorus is expressed as a monthly average; the TMDL-based WQBEL is 3.3 lbs/day as a monthly average, based on s. NR 217.14(2).

There is no applicable impracticability determination for Total Suspended Solids (TSS) limitations. Therefore, the TSS TMDL-based WQBELs are set equal to 308 lbs/day, expressed as a weekly average limit, and 174 lbs/day, expressed as a monthly average limit. There are no changes to the categorical (concentration) limits for TSS.

At the annual average design flow rate (0.39 MGD), the phosphorus TMDL-based WQBEL of 3.3 lbs/day is equivalent to a concentration of 1.01 mg/L, and the TSS TMDL-based WQBELs of 308 lbs/day as a weekly average and 174 lbs/day as a monthly average are equivalent to concentrations of 94 mg/L and 53 mg/L, respectively.

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	Liquid	Fecal Coliform Reduction	Injection	Land application Haul to another facility	No discharge planned during permit term.
004	B	Cake	Fecal Coliform Reduction	Incorporation	Land application	75 tons/yr
006	B	Liquid	Fecal Coliform Reduction	Injection	Land application Haul to another facility	75 tons/yr
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? **Yes**, the municipal water system includes a treatment process for radium reduction. Sludge monitoring for Radium-226 is required. If yes, special monitoring and recycling conditions will be included in the permit to track any potential problems in landapplying sludge from this facility						
Is a priority pollutant scan required? **No**, design flow is < 5 MGD. 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- Industrial Liquid Sludge

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

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Arsenic Dry Wt	High Quality	41 mg/kg	Annual	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Annual	Composite	
Cadmium Dry Wt	Ceiling	85 mg/kg	Annual	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Annual	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Annual	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Annual	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	Annual	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Annual	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Annual	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Annual	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Annual	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Annual	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Annual	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Annual	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Annual	Composite	
Nitrogen, Total Kjeldahl		Percent	Annual	Composite	
Nitrogen, Ammonium (NH_4-N) Total		Percent	Annual	Composite	
Phosphorus, Total		Percent	Annual	Composite	
Phosphorus, Water Extractable		% of Tot P	Annual	Composite	
Potassium, Total Recoverable		Percent	Annual	Composite	
Radium 226 Dry Wt		pCi/g	Annual	Composite	
Chloride		Percent	Annual	Grab	

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

4.1.1 Changes from Previous Permit:

Aerobic digestion was separated for municipal and industrial treatment trains in 2022. Sample Point 002 now monitors liquid sludge from the industrial treatment train. Sample Point 006 has been added to monitor liquid sludge from the municipal treatment train. Standard monitoring requirements for municipal liquid sludge has been added to Sample Point 002. Due to high chloride loads in source influent for the industrial treatment train, chloride monitoring is also required at Sample Point 002.

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

4.1.2 Explanation of Limits and Monitoring Requirements

Requirements for land application of industrial sludge are determined in accordance with ch. NR 214 Wis. Adm. Code.

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

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

4.2 Sample Point Number: 004- Cake Sludge

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Solids, Total		Percent	Annual	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	Annual	Composite	
Cadmium Dry Wt	Ceiling	85 mg/kg	Annual	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Annual	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Annual	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Annual	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	Annual	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Annual	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Annual	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Annual	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Annual	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Annual	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Annual	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Annual	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Annual	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Annual	Composite	
Nitrogen, Total Kjeldahl		Percent	Annual	Composite	
Nitrogen, Ammonium (NH4-N) Total		Percent	Annual	Composite	
Phosphorus, Total		Percent	Annual	Composite	
Phosphorus, Water Extractable		% of Tot P	Annual	Composite	
Potassium, Total Recoverable		Percent	Annual	Composite	
Radium 226 Dry Wt		pCi/g	Annual	Composite	
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	Once in 2025. See Sludge Analysis for PCBs section in permit.

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	Once in 2025. See Sludge Analysis for PCBs Section in permit.
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.

4.2.1 Changes from Previous Permit:

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

4.2.2 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). Requirements for pathogens are specified in s. NR 204.07(6) and in s. NR 204.07 (7) for vector attraction requirements. Limitations for PCBs are addressed in s. NR 204.07(3)(k).

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

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

4.3 Sample Point Number: 006- Municipal 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	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Cadmium Dry Wt	High Quality	39 mg/kg	Annual	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Annual	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Annual	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	Annual	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Annual	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Annual	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Annual	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Annual	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Annual	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Annual	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Annual	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Annual	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Annual	Composite	
Nitrogen, Total Kjeldahl		Percent	Annual	Composite	
Nitrogen, Ammonium (NH_4-N) Total		Percent	Annual	Composite	
Phosphorus, Total		Percent	Annual	Composite	
Phosphorus, Water Extractable		% of Tot P	Annual	Composite	
Potassium, Total Recoverable		Percent	Annual	Composite	
Radium 226 Dry Wt		pCi/g	Annual	Composite	
PFOA + PFOS		µg/kg	Annual	Calculated	Report the sum of PFOA and PFOS. See PFAS Permit Sections for more information.
PFAS Dry Wt			Annual	Grab	Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS Permit Sections for more information.

4.3.1 Changes from Previous Permit:

Aerobic digestion was separated for municipal and industrial treatment trains in 2022. Sample Point 002 now monitors industrial liquid sludge. Sample Point 006 has been added to monitor municipal liquid sludge.

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

4.3.2 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). Requirements for pathogens are specified in s. NR 204.07(6) and in s. NR 204.07 (7) for vector attraction requirements. Limitations for PCBs are addressed in s. NR 204.07(3)(k).

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

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

5 Schedules

5.1 Chloride Source Reduction Measures (Target Value)

As a condition of the variance to the water quality based effluent limitation(s) for chloride granted in accordance with s. NR 106.83(2), Wis. Adm. Code, the permittee shall perform the following actions.

Required Action	Due Date
Annual Chloride Progress Report: Submit an annual chloride progress report related to the source reduction activities for the previous year. The annual chloride progress report shall: Indicate which chloride source reduction measures or activities in the Source Reduction Plan have been implemented and state which, if any, source reduction measures from the Source Reduction Plan were not pursued and why. Include an assessment of whether each implemented source reduction measure appears to be effective or ineffective at reducing pollutant discharge concentrations and identify actions planned for the upcoming year; Include an analysis of trends in weekly, monthly and annual average chloride concentrations and total mass discharge of chloride based on chloride sampling and flow data; and Include an analysis of how effluent chloride varies with time and with significant loadings of chloride. Note that the interim limitation listed in the Surface Water section of this permit remains enforceable until new enforceable limits are established in the next permit issuance. The first annual chloride progress report is to be submitted by the Date Due.	01/31/2025
Annual Chloride Progress Report #2: Submit the chloride progress report, related to the source reduction activities for the previous year, as defined above.	01/31/2026
Annual Chloride Progress Report #3: Submit the chloride progress report, related to the source reduction activities for the previous year, as defined above.	01/31/2027

Annual Chloride Progress Report #4: Submit the chloride progress report, related to the source reduction activities for the previous year, as defined above.	01/31/2028
Annual Chloride Progress Report #5: Submit the chloride progress report, related to the source reduction activities for the previous year, as defined above.	01/31/2029
Final Chloride Report: Submit the final chloride report documenting the success in meeting the chloride target value of 620 mg/L, as well as the anticipated future reduction in chloride sources and chloride effluent concentrations. The report shall: Summarize chloride source reduction measures that have been implemented during the current permit term and state which, if any, source reduction measures from the Source Reduction Plan were not pursued and why; Include an assessment of which source reduction measures appear to have been effective or ineffective. Evaluate any needed changes to the pollutant reduction strategy accordingly; Include an analysis of trends in weekly, monthly and annual average chloride concentrations and total mass discharge of chloride based on chloride sampling and flow data during the current permit term; and Include an analysis of how influent and effluent chloride varies with time and with significant loadings of chloride as identified in the source reduction plan. If the permittee intends to reapply for a chloride variance, for the reissued permit, proposed target limits and a detailed source reduction measures plan, outlining the source reduction activities proposed for the upcoming permit term, shall also be included per ss. NR 106.90 (5) and NR 106.83 (4), Wis. Adm. Code. An updated source reduction measures plan shall: Include an explanation of why or how each source reduction measure will result in reduced discharge of the target pollutant; and Evaluate any available information on pollutant sources, timing, and concentration to update the mass balance assumptions and expected sources of the pollutant, and Identify any information needs that would help to better determine pollutant sources and make plans to collect that information. Note that the target value is the benchmark for evaluating the effectiveness of the chloride source reduction measures but is not an enforceable limitation under the terms of this permit.	04/01/2029
Annual Chloride Reports After Permit Expiration: In the event that this permit is not reissued by the date the permit expires the permittee shall continue to submit annual chloride reports for the previous year following the due date of Annual Chloride Progress Reports listed above. Annual Chloride Progress Reports shall include the information as defined above.	January 31, each year

5.1.1 Explanation of Schedules

This schedule is a condition of receiving a variance from the chronic water quality-based chloride limits of 760 mg/L expressed as a daily maximum and 400 mg/L expressed as a weekly average. Since a schedule is being granted, an interim weekly average limit of 690 mg/L is required. The schedule requires that annual reports shall indicate which source reduction measures the permittee has implemented during each calendar year, and an analysis of chloride concentration and mass discharge data based on chloride sampling and flow data. The annual reports shall document progress made towards meeting the chloride target value of 620 mg/L by the end of the permit term.

5.2 Whole Effluent Toxicity Limit

This compliance schedule requires the permittee to achieve compliance by the specified date.

Required Action	Due Date
Source Identification: Make a reasonable attempt to identify the source(s) of chronic toxicity, including the completion of monthly screening of the effluent for chronic toxicity and performing toxicity identification evaluation (TIE) steps when samples are toxic. Complete a review of all chemical additives including those added at the WWTP and used in the production facilities of all industrial contributors. This review shall include compiling a list of all chemicals used, their SDS, and aquatic toxicity data for each product as described in s. NR 105.05(4)(a), Wis. Adm. Code. Information from this review shall be compared to toxicity test and TIE results to determine their potential for causing effluent toxicity. The permittee shall submit a report to the Department presenting the results of all toxicity screening, TIE results, chemical review, and any other relevant information by the due date.	06/30/2025
Submit TRE Plan: Submit a TRE Plan describing actions to be taken to reduce or eliminate the toxicity identified in step one and the dates by which those actions will be implemented. Chloride concentrations shall be measured in all toxicities samples collected during the TRE.	06/30/2025
Complete Actions: Complete all actions identified in the TRE plan and achieve compliance with the chronic WET limitation.	03/31/2026

5.2.1 Explanation of Schedules

There have been eight Whole Effluent Toxicity (WET) test failures at the facility since 2019. To bring the facility back into compliance, a Chronic WET Limit Compliance Schedule is being included to identify and remove the source of toxicity. Sampling conducted at the facility in 2024 resulted in inconclusive results. This schedule has been modified to give the facility additional time to analyze influent sources coming into the plant prior to any possible consumption or dilution.

5.3 PFOS/PFOA Minimization Plan Determination of Need

Required Action	Due Date
Report on Effluent Discharge: Submit a report on effluent PFOS and PFOA concentrations and include an analysis of trends in monthly and annual average PFOS and PFOA concentrations. This analysis should also include a comparison to the applicable narrative standard in s. NR 102.04(8)(d), Wis. Adm. Code. 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.	09/30/2025
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.	09/30/2026

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.	

5.3.1 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.

6 Attachments:

PFOS and PFOA Water Quality-Based Effluent Limitations for the Holland Sanitary District #1 Wastewater Treatment Facility -WPDES Permit No. (WI-0028207) in Brown County, by Amy Garbe, PE, Wastewater Engineer, dated October 27, 2026

7 Expiration Date:

September 30, 2029

8 Justification Of Any Waivers From Permit Application Requirements

No waiver from permit application requirements granted.

Prepared By: Amanda Perdzock, Wastewater Specialist **Date:** July 16, 2024

Modification Prepared By: Amanda Perdzock, Wastewater Specialist **Date:** November 22, 2024

Revised By: Sarah Donoughe, Wastewater Specialist-Adv **Date:** November 3, 2026

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: October 27, 2026

TO: Sarah Donoughe – NER

FROM: Kari Fleming – WY/3

SUBJECT: PFOS and PFOA Water Quality-Based Effluent Limitations for the Holland Sanitary District #1 Wastewater Treatment Facility -WPDES Permit No. (WI-0028207) in Brown County

This is in response to your request for an evaluation of the need for PFOS and PFOA limitations for the Holland SD1 Wastewater Treatment Facility. This municipal wastewater treatment facility (WWTF) discharges to an unnamed tributary to Plum Creek, located in the Plum and Kankapot Creeks Watershed in the Lower Fox River Basin.

The current permit, effective since October 2024, has monitoring only for PFOS and PFOA. The following review is based on new regulations which are now in effect throughout the state of Wisconsin and recommendations are made in accordance with chapters NR 102, 104, 105, 106, 207, and 217 of the Wisconsin Administrative Code, where applicable.

Receiving Water Information

- Name: Unnamed tributary to Plum Creek
- Classification: The immediate receiving water is classified as a limited aquatic life (LAL) community as listed in Table 5 in s. NR NR 104.07(2), Wis. Adm. Code. Plum Creek is a Warm Water Sport Fish (WWSF) community and a non-public water supply. Note: Cold Water and Public Water Supply criteria are used for bioaccumulating compounds of concern, because the discharge is within the Great Lakes basin.
- Flow: The following 7-Q_{10} and 7-Q_2 values are from USGS where Outfall 003 is located:
  7-Q_{10} = 0 cfs (cubic feet per second)
  7-Q_2 = 0 cfs
  Harmonic Mean Flow = 0 cfs

The Harmonic Mean has been estimated based on average flow and the 7-Q_{10} using an equation from U.S. EPA's *Technical Support Document for Water Quality-Based Toxics Control* (March 1991, EPA/505/2-90-001, pgs. 88-89).

- % of Flow used to calculate limits: 25%

Effluent Information

- Flow: Average Design Flow = 0.39 MGD (million gallons per day)
  For reference, the actual average flow from January 2024 to August 2026 was 0.244 MGD.
- Effluent characterization: This facility is categorized as a minor municipality.

The following table lists the statistics for effluent PFOS and PFOA levels from November 2024 through September 2026.

	PFOS ng/L	PFOA ng/L
1-day P_{99}	N/A	5.90

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4-day P_{99}	N/A	3.56
30-day P_{99}	N/A	2.38
Mean*	0.50	1.84
Std	0.42	1.14
Sample Size	12	12
Range	<0.462-1.66	0.481-4.4

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

Water Quality Based Limit – PFOS and PFOA

Administrative rules for PFOS and PFOA took effect on August 1, 2022. These rule revisions include additions to ch. NR 102 (s. NR 102.05), Wis. Adm. Code, which establish PFOS and PFOA standards for surface waters. Revisions to ch. NR 106 (s. NR 106, Subchapter VIII), Wis. Adm. Code, establish procedures for determining water quality based effluent limits for PFOS and PFOA, based on the applicable standards in ch. NR 102, Wis. Adm. Code.

PFOS

Due to PFOS being a bioaccumulating compound of concern (BCC), no mixing zone is allowed pursuant to s. NR 106.98(4), Wis. Adm. Code. Therefore, the effluent limit for PFOS is set equal to criterion (8 ng/L).

PFOA

The conservation of mass equation is described in s. NR 106.06(4)(b)1., Wis. Adm. Code, and includes variables of water quality criterion (WQC), receiving water flow rate (Qs), effluent flow rate (Qe), and upstream PFOA concentrations (Cs) provided below.

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

Where:

WQC = 95 ng/L for Unnamed tributary to Plum Creek
Qs = 25% of the harmonic mean pursuant s. NR 106.06(4)(c)10., Wis. Adm. Code = 0 cfs
Cs = background concentration of PFOA in the receiving water pursuant to s. NR 106.06(4)(e), Wis. Adm. Code
Qe = effluent flow rate = 0.39 MGD = 0.60 cfs
f = the fraction of effluent withdrawn from the receiving water = 0

After substituting the appropriate variables, the calculated PFOA limit is 95 ng/L.

Reasonable Potential Determination

In accordance with s. NR 106.98(4)(b), Wis. Adm. Code, **the discharge does not have reasonable potential to cause or contribute to an exceedance of the water quality criterion for PFOS** because the arithmetic average of reported effluent PFOS data is less than $1/5^{th}$ the calculated WQBEL (8 ng/L). Therefore, **a WQBEL is not required.**

In accordance with s. NR 106.98(4)(a), Wis. Adm. Code, **the discharge does not have reasonable potential to cause or contribute to an exceedance of the water quality criterion for PFOA** because the 30-day P_{99} of reported effluent PFOA data is less than the calculated WQBEL (95 ng/L). Therefore, **a WQBEL is not required.**

Conclusions
The discharge has no reasonable potential to cause or contribute to an exceedance of the water quality criterion for PFOS nor PFOA. Therefore, no WQBELs are required.

Pursuant to s. NR 205.066, Wis. Adm. Code, the department may specify the monitoring frequency for PFOS and PFOA on a case-by-case basis after the initial 24 months of sampling. **After a review of the available data, the department has determined that it is warranted to reduce the sampling frequency in this case to annually.**

If there are any questions or comments on these recommendations, please contact Amy Garbe by telephone at (608) 716-9968 or by email at Amy.Garbe@wisconsin.gov.

Attachments (2) – PFOS Data and PFOA P99 Calculation

PREPARED BY: _____ date: 10/27/24
Amy Garbe, P.E., Wastewater Engineer

cc: Laura Gerold, P.E., Basin Engineer – NER/Green Bay
Nate Willis, P.E., PFAS Implementation Coordinator – CO

Attachment 1 – PFOS Data

Sample Date	PFOS Effluent Result [ng/L]
Nov-24	0.62
Jan-25	0.39
Mar-25	0.643
May-25	0.782
Jul-25	1.66
Sep-25	0.774
Nov-25	<0.462
Jan-26	<0.471
Mar-26	1.18
Jul-26	<1.04
Aug-26	<0.968
Sep-26	<1.06

Attachment 2 – PFOA P99 Calculation

EFFLUENT VARIABILITY ANALYSIS -

SUBSTANCE:			
NUMBER OF VALUES:	------		
TOTAL	12		
DETECTED	12		
NON-DETECTED	0		
d	0		
m	1.842167		
mean of all data	1.842167		
s	1.141032		
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n	1	4	30
d^n	0	0	0
p	0.99	0.99	0.99
Z_p	2.326785	2.326785	2.326785
1+(s/m)^2	1.383653	1.383653	1.383653
(sigma_d)^2	0.324727	0.324727	0.324727
mu_d	0.448579	0.448579	0.448579
(sigma_dn)^2	0.324727	0.091588	0.012707
mu_dn	0.448579	0.565148	0.604589
P_99 exponent	1.774493	1.269315	0.86688
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P_99	5.90	3.56	2.38
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Data Summary

Nov-24	4.4
Jan-25	1.58
Mar-25	1.77
May-25	3.09
Jul-25	2.94
Sep-25	2.26
Nov-25	0.96
Jan-26	0.954
Mar-26	1.56
Jul-26	0.931
Aug-26	1.18
Sep-26	0.481
Nov-24	4.4