

Permit Fact Sheet for Modification

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

General Information

Permit Number:	WI-0024261-11-1
Permittee:	Village of Holmen, PO Box 158, 421 S Main St, Holmen WI 54636-0158
Discharge Location:	Holmen Wastewater Treatment Facility (WWTF), W7215 Remus Road, Holmen, WI South bank of Halfway Creek, approximately 20 feet west of CTH XX bridge Location provided by permittee: 43° 56' 10" Latitude, 90° 15' 32" Longitude
Receiving Water:	Halfway Creek in the Lower Black River Watershed of the Black River Basin located in La Crosse County
StreamFlow (Q _{7,10}):	3.2 cfs
Stream Classification:	Warm Water Sport, Fish (WWSF) community, non-public water supply
Design Flow(s)	0.863 MGD Annual Average
Significant Industrial Loading?	Yes: <ul style="list-style-type: none"> • Northern Engraving Co.(approx.. 8,000 gpd) • Pamela Tietz Innovations, Inc. (approx.. 650 gpd) • Holmen Cheese (approx.. 20,000 gpd)
Operator at Proper Grade?	The current operator holds the required operator subclass certifications. <ul style="list-style-type: none"> • Biological Treatment: Suspended Growth Processes - Advanced A1 • Solids Separation – Advanced B, Biological Solids/Sludge Handling, Processing & Reuse – Advanced C, Disinfection – Advanced D, Laboratory – Advanced L • Nutrient Removal: Total Phosphorus – Advanced P, with Sanitary Sewage Collection System-SS subclass exam to be taken within the next year.
Approved Pretreatment Program?	N/A

Facility Description

The Village of Holmen owns and operates an activated sludge wastewater treatment plant which consists of primary screening, settling, aerobic digestion and clarification. In 2020 the wastewater treatment facility site was upgraded with a new oxidation ditch wastewater treatment system and associated unit treatment process upgrades and improvements. The improvements incorporated enhanced biological phosphorus reduction capability, as well as utilizing tertiary sand filters charged with ferric chloride. The wastewater is seasonally disinfected with UV light prior to discharge into Halfway Creek. The facility accepts domestic wastewater from the Village as well as industrial wastewater from Northern Engraving Co., Pamela Tietz Innovations, Inc and Holmen Cheese. The annual average design flow of the current facility is 0.863 million gallons per day (MGD) and had an actual annual average influent flow of 0.609 MGD in 2021. The permittee has two sludge landspreading outfalls; one outfall for liquid sludge and the other for cake sludge. Sludge is aerated, thickened, then put in drying beds or stored before it is hauled. During the last permit term the permittee began

having all sludge hauled by a licensed hauler. Holmen wishes to retain the option to land apply sludge on their own approved fields, however. The SOMAT was replaced with a Huber Screw Press during the last permit term. Significant effluent monitoring and/or limit changes in the upcoming permit term are as follows: 1) the addition of annual effluent monitoring for total nitrogen, nitrite + nitrate nitrogen and total Kjeldahl nitrogen, 2) fecal coliform monitoring and limits will be replaced during the permit term with *Escherichia coli* (*E. coli*) monitoring and limits, per the associated compliance schedule, 3) Monitoring every two months for PFOS and PFOA has been added in the permit in accordance with s. NR 106.98(2)(c), Wis. Adm. Code, and an associated schedule, 4) A chronic WET limit has been added and the chronic WET testing frequency has increased, 5) acute WET testing has been added, 6) the phosphorus monitoring frequency has been increased, and 7) flow monitoring has been added. The permittee submitted a dissipative cooling (DC) request to the department. Based on the results of a previous DC study conducted by the permittee that determined that a free zone of passage exists in the receiving stream, the department has reapproved the DC request. Therefore, no effluent temperature limits are included in the permit but monitoring is required. A schedule has been added to the permit that requires the permittee submit an updated Land Application Management Plan.

Substantial Compliance Determination

Enforcement During Permit Term: The facility has been issued several Notices of Noncompliance, due to limit exceedances, and for Sanitary Sewer Overflows that occurred due to a mishap during construction and one for rain, snow melt and runoff. Due to Covid-19, construction delays developed as well as supply chain issues. Then a mistake occurred in sizing of parts which led to delays in meeting the low-level phosphorus limit. The upgrade has now been completed. The facility has completed all previously required actions as part of the enforcement process.

Per Julia Stephenson, Compliance Engineer on 05/19/2022: After a desk top review of discharge monitoring reports, CMARs, land application reports, compliance schedule items and a site visit on 12/21/2021, this facility has been found to be in substantial compliance with their current permit.

Sample Point Designation		
Sample Point Number	Discharge Flow, Units, and Averaging Period	Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)
702	Annual Average Flow = 0.609 MGD (2021) Peak Weekly = 0.987 MGD	Representative influent samples shall be taken after the fine screen and prior to the magnetic flow meter transducer.
002	Holmen generated a total of 265.8 dry tons in 2021. At Outfall 002 they generated 27.8 dry tons and at Outfall 003 they generated 238 dry tons. Holmen did not land apply on their own fields 2019-2021. During 2018 they land applied a total of 71.6 dry tons on their own fields.	Representative liquid sludge grab samples shall be monitored for Lists 1 & 2 and meet the requirements of Lists 3 & 4 annually, and the permittee shall monitor the sludge for PCBs once in 2024. Sludge is limited to liquid sludge from the holding tank.
003		Representative cake sludge grab samples shall be monitored for Lists 1 & 2 annually and meet the requirements of Lists 3 & 4 annually. Sludge is limited to cake sludge.
004	Flow has not historically been monitored at this outfall. Flow monitoring added this permit term.	Representative effluent samples shall be collected after the Bluepro Sand Filter System prior to discharge to Halfway Creek. BOD5 samples will need to seeded when disinfection is taking place.

1 Influent - Monitoring

Sample Point Number: 702- INFLUENT at FINE SCREEN

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

Changes from Previous Permit:

No changes

Explanation of Limits and Monitoring Requirements

Monitoring of influent flow, BOD5 and total suspended solids is required by s. NR 210.04(2), Wis. Adm. Code, to assess wastewater strengths and volumes and to demonstrate the percent removal requirements in s. NR 210.05, Wis. Adm. Code, and in the Standard Requirements section of the permit.

2 Surface Water - Monitoring and Limitations

Sample Point Number: 004- EFFLUENT to HALFWAY CREEK

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
BOD5, Total	Monthly Avg	30 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies Nov - April
BOD5, Total	Weekly Avg	35 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies Nov - April
BOD5, Total	Monthly Avg	29 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies May - Oct
BOD5, Total	Weekly Avg	29 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies May - Oct
Suspended Solids, Total	Monthly Avg	30 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies Nov - April

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Suspended Solids, Total	Weekly Avg	35 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies Nov - April
Suspended Solids, Total	Monthly Avg	29 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies May - Oct
Suspended Solids, Total	Weekly Avg	29 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies May - Oct
Phosphorus, Total	6-Month Avg	0.075 mg/L	5/Week	24-Hr Flow Prop Comp	
Phosphorus, Total	Monthly Avg	0.225 mg/L	5/Week	24-Hr Flow Prop Comp	
Phosphorus, Total	6-Month Avg	0.52 lbs/day	5/Week	Calculated	
Nitrogen, Ammonia (NH3-N) Total	Daily Max	See Below	3/Week	24-Hr Flow Prop Comp	See section below for specifics on the seasonal ammonia limits.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	See Below	3/Week	24-Hr Flow Prop Comp	
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	See Below	3/Week	24-Hr Flow Prop Comp	
Fecal Coliform	Geometric Mean - Monthly	400 #/100 ml	Weekly	Grab	Interim limit effective May through September annually until the final E. coli limit goes into effect per the Effluent Limitations for E. coli Schedule.
E. coli		#/100 ml	Weekly	Grab	Monitoring only May through September annually until the final limit goes into effect per the Effluent Limitations for E. coli Schedule.
E. coli	Geometric Mean - Monthly	126 #/100 ml	Weekly	Grab	Limit Effective May through September annually per the Effluent Limitations for E. coli Schedule.
E. coli	% Exceedance	10 Percent	Monthly	Calculated	Limit Effective May through September annually per the Effluent Limitations for E. coli Schedule. See the E. coli Percent Limit section in

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
					permit. Enter the result in the DMR on the last day of the month.
PFOS		ng/L	Annual	Grab	Monitoring only. See PFOS/PFOA Minimization Plan Determination of Need schedule & PFOS/PFOA section in permit.
PFOA		ng/L	Annual	Grab	Monitoring only. See PFOS/PFOA Minimization Plan Determination of Need schedule & PFOS/PFOA section in permit.
Temperature Maximum		deg F	Weekly	Grab	Temp. monitoring required in 2026. See Temp. section in permit.
Nitrogen, Total Kjeldahl		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Monitoring required in specific quarters. See Nitrogen Series Monitoring section below & in permit for more info.
Nitrogen, Nitrite + Nitrate Total		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	
Nitrogen, Total		mg/L	See Listed Qtr(s)	Calculated	
Chronic WET	Monthly Avg	1.6 TUc	See Listed Qtr(s)	24-Hr Flow Prop Comp	See WET Testing section below & in permit.
Acute WET		TUa	See Listed Qtr(s)	24-Hr Flow Prop Comp	

Changes from Previous Permit

The effluent monitoring frequency for all parameters were considered. Monitoring frequencies are based on the size and type of the facility and are established to best characterize effluent quality and variability, to detect events of noncompliance, and to ensure fairness and consistency in permits issued across the state. Requirements in administrative code (NR 108, 205, 210 and 214 Wis. Adm. Code) and Section 283.55, Wis. Stats. were considered, where applicable, when determining the appropriate monitoring frequencies for pollutants that have final effluent limits in effect during this permit term. For more information see the March 22, 2021 version of the Bureau of Water Quality Program Guidance Document “Monitoring Frequencies for Individual Wastewater Permits”. The department has determined at this time that the only necessary change in monitoring frequency is the increase in phosphorus frequency from 3/week to 5/week.

Other significant effluent monitoring and/or limit changes in the upcoming permit term are as follows: 1) the addition of annual effluent monitoring for total nitrogen, nitrite + nitrate nitrogen and total Kjeldahl nitrogen, 2) fecal coliform monitoring and limits will be replaced during the permit term with *Escherichia coli* (*E. coli*) monitoring and limits, per the associated compliance schedule, 3) ~~Monitoring every two months for PFOS and PFOA has been added in the permit in~~

accordance with s. NR 106.98(2)(e), Wis. Adm. Code, and an associated schedule, PFOS and PFOA – The monitoring frequency for PFOS and PFOA has been reduced from 1/ 2 months to Annual, 4) A chronic WET limit has been added and the chronic WET testing frequency has increased, 5) acute WET testing has been added, and 6) flow monitoring/reporting has been added.

Explanation of Limits and Monitoring Requirements

Limits were determined for the Village of Holmen’s existing discharge to Halfway Creek using chs. NR 102, 104, 105, 106, 207, 210, 212 and 217 of the Wisconsin Administrative Code (where applicable). For more information see the August 29, 2022 memo from Benjamin Hartenbower to Holly Heldstab titled “Water Quality-Based Effluent Limitations for the Holmen Wastewater Treatment Facility WPDES Permit No. WI-0024261”.

MUNICIPAL EFFLUENT LIMITS – In accordance with the federal regulation 40 CFR 122.45(d), limits in this permit are to be expressed as weekly average and monthly average limits whenever practicable. Minor changes have been made to fecal coliform, chlorine and ammonia limits.

BOD5, Total Suspended Solids (TSS) and pH: No changes have been made to the categorical permit limitations for BOD5, TSS, or pH. Because the reference effluent flow rates and receiving water characteristics have not changed, limitations do not need to be re-evaluated at this time.

Phosphorus: Phosphorus requirements are based on the Phosphorus Rules that became effective 12/1/2010 as detailed in NR 102 Water Quality Standards and NR 217 Effluent Standards and Limitations for Phosphorus. Chapter NR 217 of the Wis. Adm. Code addresses point source dischargers of phosphorus to surface waters. The code categorically limits industrial dischargers of more than 60 pounds of phosphorus per month and municipal dischargers of more than 150 pounds of phosphorus per month to 1.0 mg/L unless an alternative limit is approved. NR 217 also specifies WQBELs (water quality based effluent limits) for discharges of phosphorus to surface waters of the state from publicly and privately owned wastewater facilities, noncontact cooling water discharges which contain phosphorus, concentrated animal feeding operations that discharge through alternative treatment facilities and a facility/site that is regulated under NR 216 where the standards in NR151 and 216 are not sufficient to meet phosphorus criteria. WQBELs for phosphorus are needed whenever the discharge contains phosphorus at concentrations or loadings that will cause or contribute to an exceedance of the water quality standards.

See the August 29, 2022 WQBEL memo referenced above for more details on the phosphorus limits and calculations for Holmen.

Ammonia: Current acute and chronic ammonia toxicity criteria for the protection of aquatic life are included in Tables 2C and 4B of ch. NR 105, Wis. Adm. Code. Subchapter IV of ch. NR 106 establishes the procedure for calculating water quality based effluent limitations (WQBELs) for ammonia. There has been a change in expression of limits per the 2016 revisions to NR 205.065. In accordance with the federal regulation 40 CFR 122.45(d), limits in this permit are to be expressed as weekly average and monthly average limits whenever practicable. Whenever a daily maximum limitation is determined necessary to protect water quality, a weekly and monthly average limitation shall also be included in the permit and set equal to the daily maximum limit unless a more restrictive limit is determined necessary to protect water quality.

Below is a summary of limits for Nitrogen, Ammonia (NH3-N) that vary seasonally.

Applicable Months	Daily Maximum mg/L	Weekly Average mg/L	Monthly Average mg/L
January – April	24	10	4.9
May – September		7.9	4.4
October		17	8.0
November - December	24	17	8.0

Disinfection

Fecal Coliform: Disinfection is required if fill and draw operation and holding time of lagoon is not sufficient. Historically the permittee has had the ability to disinfect via chlorination/dechlorination if the operation of the facility/lagoon on a fill and draw basis wasn't sufficient to meet the seasonal fecal coliform limits. The facility has not used the chlorination for many permit terms, if ever. It is expected that the use of the chlorination equipment will be necessary to meet the future *E. coli* limits. The department is requiring an accelerated disinfection compliance schedule to ensure fecal coliform/*E. coli* limits are met in order to meet the disinfection requirements of Wis. Adm. Code NR 210.06.

E. coli: Revisions to bacteria surface water quality criteria to protect recreational uses and accompanying *E. coli* WPDES permit implementation procedures became effective May 1, 2020. The new rule requires that WPDES permits for facilities with required disinfection include monitoring for *E. coli* while facilities are disinfecting during the recreation period, and establish effluent limitations for *E. coli* established in s. NR 210.06 (2), Wis. Adm. Code. The administrative code rule changes included the following actions: revised the bacteria water quality criteria from fecal coliform to *E. coli* to protect recreation in ch. NR 102, Wis. Adm. Code.; removed fecal coliform criteria for certain individual waters from ch. NR 104, Wis. Adm. Code.; revised permit requirements for publicly and privately owned sewage treatment works in ch. NR 210, Wis. Adm. Code.; and, updated approved analytical methods for bacteria in ch. NR 219, Wis. Adm. Code.

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 municipal dischargers with an average flow rate less than 1 MGD, to be evaluated on a case-by-case basis to determine if monitoring is required pursuant to s. NR 106.98(2)(c), Wis. Adm. Code. The department evaluated the need for PFOS and PFOA monitoring taking into consideration the presence of potential PFOS or PFOA industrial wastes, remediation sites and other potential sources of PFOS or PFOA. Based on information available at the time the proposed permit was drafted, it was identified that the POTW has an indirect discharger(s) that may be a potential source of PFOS/PFOA. Therefore, monitoring once every two months is included. 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.

Thermal: Requirements for Temperature are included in NR 102 Subchapter II Water Quality Standards for Temperature and NR 106 Subchapter V Effluent Limitations for Temperature. Thermal discharges must meet the Public Health criterion of 120 degrees F and the Fish & Aquatic Life criteria which are established to protect aquatic communities from lethal and sub-lethal thermal effects.

Effluent temperature monitoring data collected in 2019 at Holmen indicates a reasonable potential for exceedance of the calculated weekly average temperature limits during the months of October, November and December. However, municipal facilities can take advantage of dissipative cooling. Dissipative cooling, by definition in s. NR 106.59, Wis. Adm. Code, is the cooling effect associated with heat loss to the ambient water, the atmosphere and the surrounding environment. The primary objective of establishing temperature limitations is to ensure there is no point in the receiving water where elevated effluent temperature will result in lethality or otherwise significantly impair the existence of a balanced fish and aquatic life community. Dissipative cooling can be used to drop weekly average temperature limits from the WPDES permit, pursuant to ss. NR 106.59 (4) and (6), Wis. Adm. Code.

Holmen submitted a request for consideration of dissipative cooling with their permit reissuance application and referenced a previous DC study they conducted in 2016. Based on the results of that application, and the DC study the permittee conducted in 2016, the department (Ben Hartenbower) has reapproved their request and therefore found it is not necessary to include weekly average temperature limits in the reissued permit. Temperature monitoring is included during 2026 per the requirements of s. NR 106.59(7).

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. Monitoring for total nitrogen, nitrite + nitrate nitrogen and TKN is required in the following quarters:

- 1st quarter (Jan-March) 2023
- 2nd quarter (April-June) 2024
- 4th quarter (Oct-Dec) 2025
- 3rd quarter (July-Sept) 2026
- 1st quarter (Jan-March) 2027

Whole Effluent Toxicity (WET)

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>). A chronic WET limit is required. See the WQBEL memo referenced above for more information. WET tests are required during the following quarters:

Acute tests are required during the following quarters:

- 1st Quarter (Jan – March) 2023
- 3rd Quarter (July – Sept) 2024
- 2nd Quarter (April – June) 2026

Chronic tests are required during the following quarters:

- 1st Quarter (Jan – March) 2023
- 3rd Quarter (July – Sept) 2024
- 4th Quarter (Oct – Dec) 2025
- 2nd Quarter (April – June) 2026
- 1st Quarter (Jan – March) 2027

Chloride

Chloride – Acute and chronic chloride toxicity criteria for the protection of aquatic life are included in Tables 1 and 5 of ch. NR 105, Wis. Adm. Code. Subchapter VII of ch. NR 106 establishes the procedure for calculating water quality based effluent limitations (WQBELs) for chloride. The mean effluent concentration of chloride samples submitted with the permit application was 221 mg/L, which is below the acute and chronic WQBELs for chloride, therefore, no effluent limits or monitoring is required.

Mercury

The permit application did not require monitoring for mercury because the Holmen Wastewater Treatment Facility is categorized as a minor facility as defined in s. NR 200.02(8), Wis. Adm. Code. In accordance with s. NR 106.145(3)(a)3, Wis. Adm. Code, a minor municipal discharger shall monitor, and report results of influent and effluent mercury monitoring once every three months if, “there are two or more exceedances in the last five years of the high-quality sludge mercury concentration of 17 mg/kg specified in s. NR 204.07(5), Wis. Adm. Code.” A review of the past five years of sludge characteristics data reveals that all the sample results are within expected analytical ranges and well below the 17 mg/kg level. The concentration in the sludge from 2018 – 2021 was 5.8 mg/kg. Therefore, no mercury monitoring is required at Outfall 004.

3 Land Application - Monitoring and Limitations

Municipal Sludge Description						
Sample Point	Sludge Class (A or B)	Sludge Type (Liquid or Cake)	Pathogen Reduction Method	Vector Attraction Method	Reuse Option	Amount Reused/Disposed (Dry Tons/Year)
002	B	Liquid	Aerobic Digestion & Fecal Coliform	Sour Test	Land Apply	Holmen generated a total of 265.8 dry tons in 2021. At Outfall 002 they generated 27.8 dry tons and at Outfall 003 they generated 238 dry tons. Holmen did not land apply on their own fields 2019-2021. During 2018 they land applied a total of 71.6 dry tons on their own fields.
003	B	Cake	Aerobic Digestion & Fecal Coliform	Sour/% VSR Test	Land Apply	
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						
Discussion: Prior to land application of sludge on their own approved fields (and not the approved fields of the contract hauler’s) the permittee shall 1) notify the department 7 days in advance, and 2) conduct soil testing on their own approved sites to ensure proper loading when land application activities commence.						

Sample Point Number: 002- LIQUID SLUDGE FROM HOLDING TANK

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	

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	
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 (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	
PCB Total Dry Wt		mg/kg	Annual	Composite	Only in 2024

Changes from Previous Permit:

No monitoring or limitation changes, however the permittee is required to submit an updated Land Application Management Plan per the associated schedule.

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).

Beginning 2018, the permittee started having their sludge hauled by A-1 Advanced Disposal (WPDES permit #WI-0058891). The sludge is landspread on the A1 Advanced Disposal's approved sites. However, Holmen wishes to retain the option to landspread their sludge on their own approved sites, therefore monitoring requirements remain the same. If the permittee decides to land apply sludge on their own approved fields, prior to commencing land application, they shall notify the department 7 days in advance, as well as conduct soil testing on their own approved sites to ensure proper loading before land application.

Sample Point Number: 003- 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	

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

Changes from Previous Permit:

No monitoring or limitation changes, however the permittee is required to submit an updated Land Application Management Plan per the associated schedule.

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).

Beginning 2018, the permittee started having their sludge hauled by A-1 Advanced Disposal (WPDES permit #WI-0058891). The sludge is landspread on the A1 Advanced Disposal's approved sites. However, Holmen wishes to retain the option to landspread their sludge on their own approved sites, therefore monitoring requirements remain the same. If the permittee decides to land apply sludge on their own approved fields, prior to commencing land application, they shall notify the department 7 days in advance, as well as conduct soil testing on their own approved sites to ensure proper loading before land application.

4 Schedules

4.1 Effluent Limitations for E. coli

The permittee shall comply with surface water limitations for E. coli as specified. No later than 14 days following each compliance date, the permittee shall notify the Department in writing of its compliance or noncompliance. If a submittal is required, a timely submittal fulfills the notification

Required Action	Due Date
Status Update: The permittee shall submit information within the discharge monitoring report (DMR) comment section documenting the steps taken in preparation for properly monitoring and testing for E. coli including, but not limited to, selected test method and location of sampling.	12/21/2022
Operational Evaluation Report: The permittee shall prepare and submit an Operational Evaluation Report to the Department for review and approval. The report shall include an evaluation of collected effluent data and proposed operational improvements that will optimize efficacy of disinfection at the treatment plant during the period prior to complying with final E. coli limitations and, to the extent possible, enable compliance with the final E. coli limitations. The report shall include a plan and	10/31/2023

<p>schedule for implementation of the operational improvements. These improvements shall occur as soon as possible, but not later than 04/30/2024. The report shall state whether the operational improvements are expected to result in compliance with the final E. coli limitations.</p> <p>The permittee shall implement the operational improvements in accordance with the approved plan and schedule specified in the Operational Evaluation Report and in no case later than 04/30/2024.</p> <p>If the Operational Evaluation Report concludes that the operational improvements are expected to result in compliance with the final E. coli limitations, the permittee shall comply with the final E. coli limitations by 04/30/2024 and the permittee is not required to comply with subsequent milestones identified below in this compliance schedule ('Submit Facility Plan', 'Final Plans and Specifications', 'Treatment Plant Upgrade to Meet Limitations', 'Construction Upgrade Progress Report', 'Complete Construction', 'Achieve Compliance').</p> <p>FACILITY PLAN - If the Operational Evaluation Report concludes that operational improvements alone are not expected to result in compliance with the final E. coli limitations, the permittee shall initiate development of a facility plan for meeting final E. coli limitations and comply with the remaining required actions in this schedule of compliance.</p> <p>If the Department disagrees with the conclusion of the report, and determines that the permittee can achieve final E. coli limitations using the existing treatment system with only operational improvements, the Department may reopen and modify the permit to include an implementation schedule for achieving the final E. coli limitations sooner than 04/30/2027.</p>	
<p>Submit Facility Plan: If the Operational Evaluation Report concluded that the permittee cannot achieve final E. coli limitations with operational improvements alone, the permittee shall submit a Facility Plan per s. NR 110.09, Wis. Adm. Code. The permittee may submit an abbreviated facility plan if the Department determines that the modifications are minor.</p>	04/30/2024
<p>Final Plans and Specifications: The permittee shall submit final construction plans to the Department for approval pursuant to ch. NR 108, Wis. Adm. Code, specifying treatment plant upgrades that must be constructed to achieve compliance with final E. coli limitations and a schedule for completing construction of the upgrades by the complete construction date specified below.</p>	03/31/2025
<p>Treatment Plant Upgrade to Meet Limitations: The permittee shall initiate bidding, procurement, and/or construction of the project. The permittee shall obtain approval of the final construction plans and schedule from the Department pursuant to s. 281.41, Stats., prior to initiating activities defined as construction under ch. NR 108, Wis. Adm. Code. Upon approval of the final construction plans and schedule by the Department pursuant to s. 281.41, Stats., the permittee shall construct the treatment plant upgrades in accordance with the approved plans and specifications.</p>	09/30/2025
<p>Construction Upgrade Progress Report: The permittee shall submit a progress report on construction upgrades.</p>	09/30/2026
<p>Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades.</p>	03/31/2027
<p>Achieve Compliance: The permittee shall achieve compliance with final E. coli limitations.</p>	04/30/2027

4.2 PFOS/PFOA Minimization Plan Determination of Need

Required Action	Due Date
<p>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.</p> <p>This report shall include all PFOS and PFOA data collected including any voluntary influent, intake, in-plant, collection system sampling, and blank sample results.</p>	11/01/2023
<p>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.</p> <p>This report shall include all PFOS and PFOA data collected including any voluntary influent, intake, in-plant, collection system sampling, and blank sample results.</p> <p>The permittee shall also submit a request to the department to evaluate the need for a PFOS/PFOA minimization plan.</p> <p>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.</p> <p>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.</p>	11/01/2024

4.3 Land Application Management Plan

A management plan is required for the land application system.

Required Action	Due Date
<p>Land Application Management Plan Submittal: Submit an update to management plan to optimize the land application system performance and demonstrate compliance with ch. NR 204, Wis. Adm. Code, by the Due Date. This management plan shall 1) specify information on pretreatment processes (if any); 2) identify land application sites; 3) describe site limitations; 4) address vegetative cover management and removal; 5) specify availability of storage; 6) describe the type of transporting and spreading vehicle(s); 7) specify monitoring procedures; 8) track site loading; 9) address contingency plans for adverse weather and odor/nuisance abatement; and 10) include any other pertinent information. Once approved, all landspreading activities shall be conducted in accordance with the plan. Any changes to the plan must be approved by the Department prior to implementing the changes.</p>	03/31/2023

Explanation of Schedules

Effluent Limitations for *E. coli*: A compliance schedule is included in the permit to provide time for the permittee to investigate options for meeting new effluent *E. coli* water quality-based effluent limits while coming into compliance with the limits as soon as reasonably possible.

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

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

Land Application Management Plan: During the last permit term the permittee began having their sludge hauled and land applied on the hauler’s approved fields. The permittee wants to retain their ability to land apply on their own approved fields on a contingency basis. Because of these changes, an updated land management plan is required that details the changes and also what steps the permittee would take if they need to return to land applying on their own fields.

Special Reporting Requirements

None

Other Comments

Publishing Newspaper: La Crosse Tribune, 401 N. Third St., La Crosse, WI 54601-3281

Attachments:

- ~~Water Quality Based Effluent Limits: August 29, 2022 memo from Benjamin Hartenbower to Holly Heldstab titled “Water Quality Based Effluent Limitations for the Holmen Wastewater Treatment Facility WPDES Permit No. WI-0024261”.~~

PFOS and PFOA Water Quality-Based Effluent Limitations for the Holmen Wastewater Treatment Facility -WPDES Permit No. (WI-0024261) in La Crosse County, by Amy Garbe, PE, Wastewater Engineer, dated 11/14/24

Proposed Expiration Date:

December 31, 2027

Justification Of Any Waivers From Permit Application Requirements

N/A

Prepared By: Holly Heldstab Wastewater Specialist

Date: December 12, 2022

Revised By: Sarah Donoughe, Wastewater Specialist-Adv

Date: November 21, 2024

DATE: November 14, 2024

TO: Sarah Donoughe – NER

FROM: Kari Fleming – WY/3

SUBJECT: PFOS and PFOA Water Quality-Based Effluent Limitations for the Holmen Wastewater Treatment Facility -WPDES Permit No. (WI-0024261) in La Crosse County

This is in response to your request for an evaluation of the need for PFOS and PFOA limitations for the Holmen Wastewater Treatment Facility. The wastewater treatment plant discharges to Halfway Creek in the Lower Black River Watershed in the Black River Basin.

The current permit, effective since January 2023, 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: Halfway Creek
- Classification: Warm Water Sport Fish (WWSF) community, non-public water supply
- Flow: The following 7-Q10 and 7-Q2 values are from USGS for Station 05382237, where Outfall 004 is located.
 - 7-Q10 = 3.2 cfs (cubic feet per second)
 - 7-Q2 = 5.9 cfs
 - Harmonic Mean Flow = 9.9 cfs using a drainage area of 30.4 mi²
 The Harmonic Mean has been estimated based on average flow and the 7-Q10 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 = 0.863 MGD, for reference, the actual average flow from January 2023 to September 2024 was 0.655 MGD.
- Effluent characterization: This facility is categorized as a minor municipality

The following table lists the statistics for effluent PFOS and PFOA levels from January 2023 through September 2024.

	PFOS ng/L	PFOA ng/L
1-day P ₉₉	4.01	11.63
4-day P ₉₉	2.54	7.56
30-day P ₉₉	1.79	5.49
Mean	1.44	4.50
Std	0.75	2.14
Sample Size	11	11
Range	0.82-3.51	2.4-10.3

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 s. NR 106.98(4), Wis. Adm. Code. Therefore, the effluent limit for PFOS is set equal to criteria (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.

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

Where:

WQC = 95 ng/L for Halfway Creek

Qs = 25% of the harmonic mean pursuant s. NR 106.06(4)(c)10., Wis. Adm. Code = 2.475 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 = 0.863 MGD = 1.33 cfs

f = the fraction of effluent withdrawn from the receiving water = 0

After substituting the appropriate variables, the calculated PFOA limit is 271 ng/L.

Reasonable Potential Determination

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 PFOS** because the 30-day P₉₉ of reported effluent PFOS data is less than the calculated WQBEL (8 ng/L). Therefore, a WQBEL is not required.

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 P₉₉ of reported effluent PFOA data is less than the calculated WQBEL (271 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) – P99 Calculations

PREPARED BY:



Amy Garbe, P.E., Wastewater Engineer

date: 11/14/24

cc: Katie Jo Jerzak, P.E., Basin Engineer – WCR/Eau Claire
Nate Willis, P.E., PFAS Implementation Coordinator – CO

Attachment 1 – PFOS P99 Calculation

EFFLUENT VARIABILITY ANALYSIS -					
=	=	=	=	=	
SUBSTANCE:				Data Summary	
NUMBER OF VALUES: -----					
TOTAL	11				Jan-23 0.82
DETECTED	11				Mar-23 0.931
NON-DETECTED	0				Sep-24 0.938
d	0				Mar-24 1.06
m	1.439				May-23 1.08
mean of all data	1.439				May-24 1.32
s	0.754034				Jan-24 1.36
					Nov-23 1.4
n	1	4	30	Jul-24 1.52	
d^n	0	0	0	Jul-23 1.89	
p	0.99	0.99	0.99	Sep-23 3.51	
Z_p	3.034854	3.034854	3.034854		
	2.326785	2.326785	2.326785		
1+(s/m)^2	1.274575	1.274575	1.274575		
(sigma_d)^2	0.242612	0.242612	0.242612		
mu_d	0.242642	0.242642	0.242642		
(sigma_dn)^2	0.242612	0.06639	0.009111		
mu_dn	0.242642	0.330753	0.359393		
P_99 exponent	1.388717	0.93028	0.581487		
P_99	4.01	2.54	1.79		

Attachment 2 – PFOA P99 Calculation

EFFLUENT VARIABILITY ANALYSIS -				
= = = =				
SUBSTANCE:				
NUMBER OF VALUES:	-----			
TOTAL	11			
DETECTED	11			
NON-DETECTED	0			
d	0			
m	4.503636			
mean of all data	4.503636			
s	2.141842			
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n	1	4	30	
d^n	0	0	0	
p	0.99	0.99	0.99	
Z_p	3.034854	3.034854	3.034854	
	2.326785	2.326785	2.326785	
1+(s/m)^2	1.226177	1.226177	1.226177	
(sigma_d)^2	0.203901	0.203901	0.203901	
mu_d	1.402935	1.402935	1.402935	
(sigma_dn)^2	0.203901	0.055003	0.007511	
mu_dn	1.402935	1.477383	1.50113	
P_99 exponent	2.453604	2.02308	1.702782	
	-----	-----	-----	
P_99	11.63	7.56	5.49	
	-----	-----	-----	

Data Summary	
Jan-23	3.3
Mar-23	3.46
May-23	3.74
Jul-23	10.3
Sep-23	6.08
Nov-23	3.5
Jan-24	4.06
Mar-24	2.4
May-24	3.93
Jul-24	4.97
Sep-24	3.8