Permit Modification Fact Sheet

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

General Information

Permit Number:	WI-0020575-11-1	
Permittee Name:	City of Bloomer, 2431 Chippewa Rd, Bloomer WI 54724	
Discharge Location:	Bloomer Wastewater Treatment Facility, 2431 Chippewa Rd. (Hwy Q), Bloomer, WI 54724 SW ¼ SW ¼, Section 9, T30N R09W, City of Bloomer, Chippewa County	
Receiving Water:	Duncan Creek located in the Duncan Creek Watershed of the Lower Chippewa River Basin in Chippewa County	
StreamFlow ($Q_{7,10}$):	7cfs	
Stream Classification:	Warmwater Sportfish, Non-public Water Supply	
Design Flow	Annual Average	0.611 MGD
Significant Industrial Loading?	No. Bloomer receives reclamation waste from WRR Environmental Services but it does not significantly impact treatment.	
Operator at Proper Grade?	Yes. The facility is currently listed as basic A1,B,C,P,D,L,SS. OIC William Miller (#36200), has Advanced A1,B,C,P,D,L, and OIT_SS certifications, expiring 11/1/2023. Lead Operator Justin Kettner is also working through the certification process.	
Approved Pretreatment Program?	N/A	

Facility Description

The Bloomer Wastewater Treatment Facility treats domestic waste from the City of Bloomer, septage waste from private pumpers/haulers, as well as reclamation waste from WRR Environmental Services. The annual average design flow of the facility is 0.611 million gallons per day (MGD). The actual annual average influent flow in 2021 was 0.290 MGD. Primary treatment consists of a fine screen and grit removal. Secondary treatment consists of an oxidation ditch with an extended aeration activated sludge process. Ferric chloride coagulant is added both upstream and downstream of the oxidation ditch. A major facility upgrade was completed in 2022, with the addition of tertiary filtration. Effluent is disinfected using UV light and passes over a cascade aeration unit to increase dissolved oxygen prior to discharge to Duncan Creek. After final settling the sludge is thickened using polymer addition and drum thickeners and then treated via aerobic digestion. Sludge is land applied on Department approved agricultural fields. Significant effluent monitoring and/or limit changes in this permit term are as follows: 1) addition of copper limits and a compliance schedule to meet the limits, 2) the addition of annual effluent monitoring for total nitrogen, nitrite + nitrate nitrogen and total Kjeldahl nitrogen, 3) 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, 4) 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 compliance schedule, and 5) chronic WET testing has been added. The influent sample type has been changed from “continuous” to “daily” for eDMR reporting purposes.

Substantial Compliance Determination

Enforcement During Last Permit: There have been no formal compliance enforcement actions for this facility during the current permit term. The facility has completed all previously required actions as part of the enforcement process.

Per Arthur Ryzak, 12/14/2022: After a desk top review of all discharge monitoring reports, CMARs, land application reports, sanitary sewer overflow reports, and a site visit on December 1, 2022, the City of Bloomer 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	**Influent:** 0.290 MGD (2021)	Representative raw influent samples shall be collected before screening and grit chamber.
002	**Effluent:** flow is not monitored	Representative effluent samples shall be collected after disinfection prior to discharge to Duncan Creek.
003	**Land Application**: 53 dry US tons (2021), 62 dry US tons (2022)	Representative composite sludge samples shall be collected and monitored for Lists 1 & 2 annually, the requirements of lists 3 & 4 shall be met annually and the sludge shall be monitored once in 2024 for PCBs.

1 Influent - Monitoring

Sample Point Number: 702- BEFORE SCREENING & GRIT

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

The sample type for influent flow has been changed from “continuous” to “daily” for eDMR reporting purposes

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: 002- EFFLUENT AFTER DISINFECTION

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
BOD5, Total	Weekly Avg	45 mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective Nov - April
BOD5, Total	Weekly Avg	36 mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective May - Oct
BOD5, Total	Monthly Avg	30 mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective all year
BOD5, Total	Weekly Avg	180 lbs/day	3/Week	Calculated	Limit effective all year
Suspended Solids, Total	Weekly Avg	45 mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective Nov - April
Suspended Solids, Total	Weekly Avg	36 mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective May - Oct
Suspended Solids, Total	Monthly Avg	30 mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective all year
Suspended Solids, Total	Weekly Avg	180 lbs/day	3/Week	Calculated	Limit effective all year
pH Field	Daily Max	9.0 su	Daily	Grab	
pH Field	Daily Min	6.0 su	Daily	Grab	
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	28 mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective April & May
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	13 mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective April & May
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	13 mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective June - Sept
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	5.7 mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective June - Sept
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	50 mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective Oct - March
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	23 mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective Oct - March
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

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					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 below. Enter the result in the DMR on the last day of the month.
PFOS		ng/L	Annual	Grab	Monitoring only. See PFOS/PFOA section below and the PFOS/PFOA Minimization Plan Determination of Need schedule.
PFOA		ng/L	Annual	Grab	
Copper, Total Recoverable	Monthly Avg	11 ug/L	Monthly	24-Hr Flow Prop Comp	Copper monitoring required at permit effective date. Limits effective 4/1/26. See associated compliance schedule.
Copper, Total Recoverable	Weekly Avg	11 ug/L	Monthly	24-Hr Flow Prop Comp	
Copper, Total Recoverable	Weekly Avg - Variable	lbs/day	Monthly	Calculated	See the copper section below for info on alternate wet weather copper limits
Copper Variable Limit		lbs/day	Monthly	Calculated	
Phosphorus, Total	6-Month Avg	0.075 mg/L	3/Week	24-Hr Flow Prop Comp	
Phosphorus, Total	Monthly Avg	0.225 mg/L	3/Week	24-Hr Flow Prop Comp	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Phosphorus, Total	6-Month Avg	0.38 lbs/day	3/Week	Calculated	
Nitrogen, Total Kjeldahl		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Monitoring required annually in specific quarters. See Nitrogen Series Monitoring subsection below 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	
Acute WET		TUa	See Listed Qtr(s)	24-Hr Flow Prop Comp	See WET testing section below. Sample shall be collected concurrently with a monthly copper sample.
Chronic WET		TUc	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 no monitoring frequency changes are necessary.

Significant effluent monitoring and/or limit changes in the upcoming permit term are as follows: 1) addition of copper limits and a compliance schedule to meet the limits, 2) the addition of annual effluent monitoring for total nitrogen, nitrite + nitrate nitrogen and total Kjeldahl nitrogen, 3) 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, 4) ~~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 compliance schedule,~~ the monitoring frequency for PFOS and PFOA has been reduced from 1/ 2 Months to Annual and 5) chronic WET testing has been added.

Explanation of Limits and Monitoring Requirements

Limits were determined for the City of Bloomer's existing discharge to Duncan 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 September 15, 2022 memo from Benjamin Hartenbower to Holly Heldstab titled "Water Quality-Based Effluent Limitations for the Bloomer Wastewater Treatment Facility WPDES Permit No. WI-0020575".

For more information on these changes see the limits memo referenced above and additional info. provided below in the individual sections for various parameter.

Municipal Effluent Limits: In accordance with the federal regulation 40 CFR 122.45(d), and to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Codes, limits in this permit are to be expressed as weekly average and monthly average limits whenever practicable.

BOD, TSS and pH: Monitoring and limits for these pollutants correspond to the requirements of the current permit since the facility has not increased the capacity of the wastewater treatment system since the last permit issuance, nor are increases expected during the term of the proposed permit.

Ammonia: Water quality-based effluent limitations are evaluated for Ammonia Nitrogen based upon water quality criteria in ch. NR 105 (as revised March 2004), including acute toxicity criteria (ATC) and chronic toxicity criteria (CTC). Effluent limitations for ammonia are calculated using the procedures in s. NR 106.32, Wis. Adm. Code and are shown in the WQBEL dated 09/15/2022 referenced above.

***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 industrial discharger 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.

Copper: Effluent data from the 2017 and 2022 permit applications indicate the need for copper limits because the 4-day P_{99} concentration of 13 µg/L exceeded the calculated weekly average limit of 11 µg/L. Copper has a mass limit based on weather conditions. The applicable non-wet weather mass limit is 0.056 pounds/day. The applicable wet weather mass limit is 0.153 pounds/day. Monitoring is required at permit effective date; limits become effective 04/01/2026. See the 9/15/2022 limits memo referenced above and the associated compliance schedule for more information.

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.

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 WQBEL for the permittee as a maximum daily, weekly or monthly values. The final effluent limit for phosphorus is expressed as a six-month average. It is also expressed as a monthly average equal to three times the derived WQBEL. This final effluent limit was derived from and complies with the applicable water quality criterion.

See the 9/15/2022 WQBEL memo referenced above for more details on the phosphorus limits and calculations for Bloomer.

Total Nitrogen Monitoring (NO2+NO3, TKN and Total N): The Department has included annual 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:

- 2nd quarter (April-June) 2023
- 3rd quarter (July-Sept) 2024
- 4th quarter (Oct-Dec) 2025
- 2nd quarter (April-June) 2026
- 2nd quarter (April – June) 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). WET tests are required during the following quarters:

Acute tests are required during the following quarters:

- 3rd Quarter (July – Sept) 2024
- 2nd Quarter (April – June) 2027

Chronic tests are required during the following quarters:

- 3rd quarter (July – Sept) 2024
- 1st quarter (Jan-March) 2026
- 2nd quarter (April-June) 2027

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. Based on the available effluent data, no effluent limits or monitoring are required.

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. Effluent concentration of chloride samples submitted with the permit application indicates that no effluent limits for chloride are required.

Mercury: The permit application did not require monitoring for mercury because the Bloomer 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 to 2021 was 3.15 mg/kg. Therefore, no mercury monitoring is required at Outfall 002.

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)**
003	B	Liquid	Fecal Coliform	SOUR Test	Land Application	53 dry US tons (2021) 62 dry US tons (2022)
Does sludge management demonstrate compliance? Yes						
Is additional sludge storage required? No, 365 days of storage is provided						
Is Radium-226 present in the water supply at a level greater than 2 pCi/liter? No						
Is a priority pollutant scan required? No						

Sample Point Number: 003- 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	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Mercury Dry Wt	High Quality	17 mg/kg	Annual	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Annual	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Annual	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Annual	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Annual	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Annual	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Annual	Composite	
Nitrogen, Total Kjeldahl		Percent	Annual	Composite	
Nitrogen, Ammonium (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	
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	Once in 2024
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	Once in 2024

Changes from Previous Permit:

None

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).

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.	05/01/2023
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 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. 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. 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'). **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. 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.	11/30/2023
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.	04/30/2024
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.	03/31/2025
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.	09/30/2025
Construction Upgrade Progress Report: The permittee shall submit a progress report on construction upgrades.	09/30/2026

Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades.	03/31/2027
Achieve Compliance: The permittee shall achieve compliance with final E. coli limitations.	04/30/2027

4.2 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 PFOS and PFOA data collected including any voluntary influent, intake, in-plant, collection system sampling, and blank sample results.	03/31/2024
Report on Effluent Discharge and Evaluation of Need: Submit a final report on effluent PFOS and PFOA concentrations and include an analysis of trends in monthly and annual average PFOS and PFOA concentrations of data collected over the last 24 months. The report shall also provide a comparison on the likelihood of the facility needing to develop a PFOS/PFOA minimization plan. This report shall include all PFOS and PFOA data collected including any voluntary influent, intake, in-plant, collection system sampling, and blank sample results. The permittee shall also submit a request to the department to evaluate the need for a PFOS/PFOA minimization plan. If the Department determines a PFOS/PFOA minimization plan is needed based on a reasonable potential evaluation, the permittee will be required to develop a minimization plan for Department approval no later than 90 days after written notification was sent from the Department. The Department will modify or revoke and reissue the permit to include PFOS/PFOA minimization plan reporting requirements along with a schedule of compliance to meet WQBELs. Effluent monitoring of PFOS and PFOA shall continue as specified in the permit until the modified permit is issued. If, however, the Department determines there is no reasonable potential for the facility to discharge PFOS or PFOA above the narrative standard in s. NR 102.04(8)(d), Wis. Adm. Code, no further action is required and effluent monitoring of PFOS and PFOA shall continue as specified in the permit.	03/31/2025

4.3 Copper Schedule

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

Required Action	Due Date
Report on Effluent Discharges: Submit a report on effluent discharges of copper with conclusions regarding compliance.	03/31/2024
Action Plan: Submit an action plan for complying with the copper effluent limitations. If construction is required, include plans and specifications with the submittal.	09/30/2024
Initiate Actions: Initiate actions identified in the plan.	06/30/2025
Complete Actions: Complete actions necessary to achieve compliance with the effluent limitations.	03/31/2026

Explanation of Schedules

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.

Copper: The compliance schedule for copper provides a schedule for conducting the actions necessary to comply with the new limits. The compliance schedule lays out a timeline for the permittee to investigate and implement a plan to comply with the limits by the end of the schedule.

Special Reporting Requirements

None

Other Comments:

Previous publishing newspaper: Bloomer Advance, PO Box 25, Bloomer, WI 54724-0025

Attachments:

~~**Water Quality Based Effluent Limits:** September 15, 2022 memo from Benjamin Hartenbower to Holly Heldstab titled "Water Quality-Based Effluent Limitations for the Bloomer Wastewater Treatment Facility WPDES Permit No. WI-0020575".~~

PFOS and PFOA Water Quality-Based Effluent Limitations for the Bloomer Wastewater Treatment Facility -WPDES Permit No. (WI-0020575) in Chippewa County, by Amy Garbe, PE, Wastewater Engineer, dated July 28, 2025

Proposed Expiration Date:

March 31, 2028

Justification Of Any Waivers From Permit Application Requirements

N/A

Prepared By: Holly Heldstab Wastewater Specialist

Date: March 6, 2023

Revised By: Sarah Donoughe, Wastewater Specialist-Adv

Date: July 28, 2025

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: July 28, 2025

TO: Sarah Donoughe – NER

FROM: Kari Fleming – WY/3

SUBJECT: PFOS and PFOA Water Quality-Based Effluent Limitations for the Bloomer Wastewater Treatment Facility -WPDES Permit No. (WI-0020575) in Chippewa County

This is in response to your request for an evaluation of the need for PFOS and PFOA limitations for the Bloomer Wastewater Treatment Facility. This municipal wastewater treatment facility (WWTF) discharges to Duncan Creek, located in the Duncan Creek Watershed in the Lower Chippewa River Basin.

The current permit, effective since April 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: Duncan Creek
- Classification: Warm Water Sport Fish (WWSF) community, non-public water supply.
- Flow: The following 7-Q10 and 7-Q2 values are from Duncan Creek, NE 1/4, NE 1/4, SEC. 8, T30N-R9W, Chippewa County, 0.3 miles below dam in Bloomer, where Outfall 002 is located.
  7-Q10 = 7 cfs (cubic feet per second)
  7-Q2 = 10 cfs
  Harmonic Mean Flow = 19.4 cfs using a drainage area of 53.6 mi^2

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 = 0.611 MGD (million gallons per day)
  For reference, the actual average flow from January 2023 to June 2025 was 0.33 MGD.
- Effluent characterization: This facility is categorized as a minor municipality.

The following table lists the statistics for effluent PFOS and PFOA levels from May 2023 through July 2025.

	PFOS ng/L	PFOA ng/L
1-day P_{99}	6.47	17.93
4-day P_{99}	4.36	10.22
30-day P_{99}	2.71	6.28
Mean*	1.98	4.56
Std	1.26	3.57

Sample Size	14	14
Range	<0.32-4.5	1.9-16

*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 Duncan Creek
Qs = 25% of the harmonic mean pursuant s. NR 106.06(4)(c)10., Wis. Adm. Code = 4.86 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 = 0.611 MGD = 0.95 cfs
f = the fraction of effluent withdrawn from the receiving water = 0

After substituting the appropriate variables, the calculated PFOA limit is 583 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 P_{99} 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 P_{99} of reported effluent PFOA data is less than the calculated WQBEL (583 ng/L). Therefore, **a WQBEL is not required**

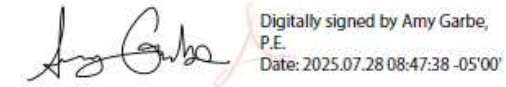
Conclusions
The discharge has no reasonable potential to cause or contribute to an exceedance of the water quality criterion for PFOS nor PFOA. Therefore, no WQBELs are required.

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: __07/28/2025_____

cc: Logan Rubeck, Basin Engineer – WCR/Eau Claire
Nate Willis, P.E., PFAS Implementation Coordinator – CO

Attachment 1 – PFOS P99 Calculation

EFFLUENT VARIABILITY ANALYSIS -						
=	=	=	=	=		
SUBSTANCE:						
NUMBER OF VALUES:	------				Data Summary	
TOTAL	14				May-23	4.5
DETECTED	11				Jul-23	2.2
NON-DETECTED	3				Sep-23	1.38
					Nov-23	1.12
d	0.214286				Jan-24	<0.32
					Mar-24	<0.33
m	2.518182				May-24	2.2
					Jul-24	3.7
mean of all data	1.978571				Sep-24	2.6
					Nov-24	1.8
s	1.258776				Feb-25	1.7
					Apr-25	1.7
	------	------	------		Jun-25	<1.4
n	1	4	30		Jul-25	4.8
d^n	0.214286	0.002108	8.51E-21			
p	0.987273	0.989979	0.99			
Z_p	2.234876	2.325993	2.326785			
1+(s/m)^2	1.249875	1.249875	1.249875			
(sigma_d)^2	0.223043	0.223043	0.223043			
mu_d	0.812015	0.812015	0.812015			
(sigma_dn)^2	0.223043	0.135638	0.0195			
mu_dn	0.812015	0.616667	0.672625			
P_99 exponent	1.867491	1.473309	0.997545			
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P_99	6.47	4.36	2.71			
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EFFLUENT VARIABILITY ANALYSIS -					
=	=	=	=	=	
SUBSTANCE:					
NUMBER OF VALUES:	------				Data Summary
TOTAL	14			May-23	5.7
DETECTED	14			Jul-23	4.7
NON-DETECTED	0			Sep-23	3.53
				Nov-23	2.22
d	0			Jan-24	2.9
				Mar-24	2.4
m	4.560714			May-24	2.7
				Jul-24	16
mean of all data	4.560714			Sep-24	6.3
				Nov-24	5.1
s	3.566917			Feb-25	2.5
				Apr-25	3.5
	------	------	------	Jun-25	1.9
n	1	4	30	Jul-25	4.4
d^n	0	0	0		
p	0.99	0.99	0.99		
Z_p	2.326785	2.326785	2.326785		
1+(s/m)^2	1.611674	1.611674	1.611674		
(sigma_d)^2	0.477274	0.477274	0.477274		
mu_d	1.278842	1.278842	1.278842		
(sigma_dn)^2	0.477274	0.142297	0.020184		
mu_dn	1.278842	1.446331	1.507387		
P_99 exponent	2.886302	2.324046	1.837955		
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P_99	17.93	10.22	6.28		
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