

Public Noticed Stevens Point WWTF Draft Permit Fact Sheet

General Information

Permit Number	WI-0029572-10-0
Permittee Name and Address	Stevens Point City of P O Box 243 301 Bliss Ave, Stevens Point, WI 54481-0243
Permitted Facility Name and Address	Stevens Point Wastewater Treatment Facility 301 Bliss Ave., Stevens Point, WI
Permit Term	July 01, 2025 to June 30, 2030
Discharge Location	Outfall is located on the east bank of WI River 400 ft south of Bliss Ave. NW ¼ of NW ¼ of Sec. 5, T23N, R8E, Stevens Point, Portage County. Lat: 44.51110° N / Lon: 89.58681° W
Receiving Water	Wisconsin River in Little Plover/Plover Watershed of Upper WI River Central Sub-basin in Plover and Little Plover Rivers of Wisconsin River (upper) in Portage County
Stream Flow (Q _{7,10})	1110 cfs
Stream Classification	Warm water sport fish, non-public water supply
Discharge Type	Existing, Continuous
Annual Average Design Flow (MGD)	4.55 MGD
Industrial or Commercial Contributors	Yes, Donaldson's Inc, Portage County Solid Waste (leachate), KI Mobility, Marathon County Solid Waste, Weyhauser Solid Waste, Agropur, Stevens Point Brewery, McCain Foods, Monogram Foods, Foremost Farms
Plant Classification	A1 - Suspended Growth Processes; B - Solids Separation; C - Biological Solids/Sludges; P - Total Phosphorus; D - Disinfection; L - Laboratory; SS - Sanitary Sewage Collection System
Approved Pretreatment Program?	N/A

Facility Description

The City of Stevens Point owns and operates a secondary activated sludge wastewater treatment plant with an annual average design flow of 4.55 million gallons/day (MGD). The Stevens Point WWTF treats domestic, industrial and institutional wastewater, and had treated an actual annual average influent flow of 2.33 MGD in 2024. The plant has headworks consisting of screw pumps, a submersible pump, mechanical fine screens and vortex grit removal. Primary clarification follows the headworks for removal of settleable solids. The wastewater is then treated in an aerobic-anoxic-aerobic activated sludge system for the removal of biochemical oxygen demand (BOD) and phosphorus. The mixed liquor suspended solids are then settled out in the final circular clarifiers. The treated wastewater is disinfected with ultraviolet light (UV) prior to discharge to the Wisconsin River. Solids removed from the wastewater and biological solids generated from the removal of dissolved pollutants are thickened and then digested in a mesophilic anaerobic digester. Previously liquid sludge was stored prior to land application on department approved sites. This option remains viable to

provide solids handling flexibility. Currently the liquid sludge from the digester is thickened using a belt filter press. The cake sludge is staged in a sludge hopper before being fed into the Andritz Paddle Dryer undergoing Heat Drying. The dried sludge is then classified to create uniform particle range of 1 mm to 6 mm for storage into the silo prior to distribution. Sludge particles too large and dust are landfilled. Sludge particles from 6 mm to 1/2 in are recycled into the feed sludge in front of the dryer. Sludge is distributed from the silo. Sludge that does not meet the Class A/EQ criteria pre and post belt press may be land spread on Department approved sites or landfilled.

Proposed permit changes include the following: 1) effluent limit for mercury removed from permit but monitoring and reporting on mitigation efforts remain, 2) replacement of fecal coliform effluent limits with E. coli limits with a one year compliance schedule, 3) addition of weekly and monthly average ammonia nitrogen effluent limits with increased to the minimum monitoring frequency of 5/week for this size facility, 4) addition of monitoring for effluent PFOS and PFOA once every two months and an associated determination of need schedule in accordance with s. NR 106.98(2)(b), Wis. Adm. Code., 5) lower effluent phosphorus mass limit based on the Total Maximum Daily Load (TMDL) for the Wisconsin River, 6) PFAS sludge 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 to quantitate risk, and 7) sludge monitoring frequency was increased to quarterly to conform to Table A, Ch NR 204, Wis. Adm. Code.

Substantial Compliance Determination

Enforcement During Last Permit: There was no enforcement actions against the permittee during the last permit term.

After a desk top review of all discharge monitoring reports, CMARs, land app reports, compliance schedule items, and a site visit on 04/21/2025, the Stevens Point Wastewater Treatment Facility has been found to be in substantial compliance with their current permit.

Compliance determination made by Nick Lindstrom on 04/21/2025.

Sample Point Descriptions

Sample Point Designation		
Sample Point Number	Discharge Flow, Units, and Averaging Period	Sample Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)
701	2.33 MGD (2024)	Representative influent samples shall be collected after the bar screen and prior to the pista grit.
001	2.63 MGD (2024)	Representative effluent samples shall be collected prior to ultraviolet disinfection except for grab samples that shall be collected after ultraviolet disinfection and prior to discharge to the Wisconsin River.
002	0 metric tons (2024)	Anaerobically Digested Liquid Sludge (Class B) Sampled from Storage. Representative liquid sludge samples shall be collected and analyzed for List 1, 2, 3 and 4 parameters at minimum twice per year, once in the Spring during the months of March - May and once in the Fall during the months of August - October prior to removal and disposal. If additional liquid sludge is removed and or disposed of on a more frequent basis additional monitoring shall be performed prior to removal. Representative liquid sludge samples shall also be collected for PCBs once in the second year of the

Sample Point Designation		
Sample Point Number	Discharge Flow, Units, and Averaging Period	Sample Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)
		permit. Alternately, List 1 requirements and PCBs may be collected from sample point 003, 004 or 005.
003	0 metric tons (2024)	Digester Effluent from Anaerobic Digester, Liquid Sludge (Class B) sampled from feedline to belt filter press. This is a common sample point for outfalls 002 and 004. Representative sludge samples shall be collected and analyzed for List 1 twice per year in spring and fall in lieu of List 1 sampling for outfalls 002 and 004. Representative liquid sludge samples shall also be collected for PCBs once in the second year of the permit. Alternatively, List 1 requirements, and PCBs may be collected from sample point 002, 004 or 005.
004	0 metric tons (2024)	Anaerobically digested cake sludge (Class B) dewatered with using belt filter press and sampled from cake sludge hopper. Representative sludge samples shall be collected and analyzed for List 1 when landfilling from this outfall. Represented Representative sludge samples shall be collected and analyzed for Lists 1, 2, 3 & 4 twice per year in spring and fall if this outfall is used for land application. Representative cake sludge samples shall also be collected for PCBs once in the second year of the permit. Alternatively, List 1 requirements and PCBs may be collected from sample points 002, 003 or 005.
005	0 metric tons (2024)	Anaerobically digested, heat dried, cake sludge sampled immediately after paddle dryer (Class A Treatment Process) or alternatively sampled from the 1 to 6 mm sludge particle flow at the classifier. Representative sludge samples shall be collected and analyzed for fecals each quarter that sludge treatment occurs. Fecal monitoring results shall be reported as discrete results. Heating drying requires continuous monitoring of sludge particles via thermocouples and requires percent moisture monitoring verified by oven testing.
006	1090 metric tons (2024)	Anaerobically digested, heat dried, cake sludge sampled from silo storage and/or truck loadout (Class A treatment then storage). Representative sludge samples shall be collected and analyzed for Lists 1, 2, 3 (pathogen retest) & 4 quarterly. Fecal results shall be reported as discrete sample results. Representative samples shall be collected and analyzed for fecal coliforms at minimum twice per year in spring and fall. This sample point will remain inactive until the Class A Treatment Process "Paddle Dryer" is installed, brought online and verified for compliance by the Department. Representative cake sludge samples shall also be collected for PCBs once in the second year of the permit. Alternately, List 1 requirements and PCBs may be collected from sample points 002 or 003. PFAS monitoring shall be completed at this outfall annually.

Sample Point Designation		
Sample Point Number	Discharge Flow, Units, and Averaging Period	Sample Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)
106	N/A	A representative in plant sample shall be collected for a Mercury field blank using standard sample handling procedures.

Permit Requirements

1 Influent – Monitoring Requirements

1.1 Sample Point Number: 701- PRIOR TO PISTA 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	
CBOD5		mg/L	5/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total		mg/L	5/Week	24-Hr Flow Prop Comp	
Mercury, Total Recoverable		ng/L	Quarterly	24-Hr Flow Prop Comp	See Mercury section in permit.

1.1.1 Changes from Previous Permit:

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

1.1.2 Explanation of Limits and Monitoring Requirements

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.

CBOD₅ monitoring is used for the calculation of 85% removal requirement [s. NR 210.05(1)(d)3, Wis. Adm. Code].

Mercury monitoring of the influent, inplant, and effluent sample points shall be conducted at the same time.

2 Inplant - Monitoring and Limitations

2.1 Sample Point Number: 106- MERCURY FIELD BLANK

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Mercury, Total Recoverable		ng/L	Quarterly	Blank	

2.1.1 Changes from Previous Permit:

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

2.1.2 Explanation of Limits and Monitoring Requirements

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

3 Surface Water - Monitoring and Limitations

3.1 Sample Point Number: 001- PRIOR TO WISCONSIN RIVER

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
CBOD5	Monthly Avg	25 mg/L	5/Week	24-Hr Flow Prop Comp	
CBOD5	Weekly Avg	40 mg/L	5/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Monthly Avg	30 mg/L	5/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Weekly Avg	45 mg/L	5/Week	24-Hr Flow Prop Comp	
pH Field	Daily Max	9.0 su	Daily	Grab	
pH Field	Daily Min	6.0 su	Daily	Grab	
Phosphorus, Total	Monthly Avg	0.93 mg/L	3/Week	24-Hr Flow Prop Comp	
Phosphorus, Total		lbs/month	Monthly	Calculated	Calculate the Total Monthly Discharge of phosphorus and report on the last day of the month on

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
					the DMR. See TMDL section in permit.
Phosphorus, Total		lbs/yr	Monthly	Calculated	Calculate the 12-month rolling sum of total monthly mass of phosphorus discharged and report on the last day of the month on the DMR. See TMDL section in permit.
Phosphorus, Total	Monthly Avg	20.12 lbs/day	3/Week	Calculated	See TMDL section in permit.
Mercury, Total Recoverable		ng/L	Quarterly	Grab	See Mercury sections below and Schedules section.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	52 mg/L	5/Week	24-Hr Flow Prop Comp	
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	52 mg/L	5/Week	24-Hr Flow Prop Comp	
Nitrogen, Ammonia (NH3-N) Total	Daily Max - Variable	mg/L	5/Week	24-Hr Flow Prop Comp	Report the daily maximum Ammonia result in the Nitrogen, Ammonia (NH3-N) Total column of the eDMR. See Ammonia Limitation Section.
Nitrogen, Ammonia Variable Limit		mg/L	5/Week	See Table	Look up the variable ammonia limit from the 'Variable Ammonia Limitation' table and report the variable limit in the Ammonia Variable Limit column on the eDMR.
Nitrogen, Total Kjeldahl		mg/L	Quarterly	24-Hr Flow Prop Comp	
Nitrogen, Nitrite + Nitrate Total		mg/L	Quarterly	24-Hr Flow Prop Comp	
Nitrogen, Total		mg/L	Quarterly	Calculated	Annual in rotating quarters. See Nitrogen Series Monitoring section below. Total Nitrogen shall be calculated as the sum of reported values for Total

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
					Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen.
E. coli		#/100 ml	Weekly	Grab	Monitoring May-Sept in 2025 only. See E. coli Compliance Schedule.
E. coli	Geometric Mean - Monthly	126 #/100 ml	Weekly	Grab	Limit Effective May - September annually beginning in 2026. See E. coli Compliance Schedule.
E. coli	% Exceedance	10 Percent	Monthly	Calculated	Limit Effective May - September annually beginning in 2026. See the E. coli Percent Limit section below and E. coli Compliance Schedule. Enter the result in the DMR on the last day of the month.
PFOS		ng/L	1/ 2 Months	Grab	Monitoring only. See PFOS/PFOA Minimization Plan Determination of Need schedule.
PFOA		ng/L	1/ 2 Months	Grab	Monitoring only. See PFOS/PFOA Minimization Plan Determination of Need schedule.
Acute WET	Daily Max	1.0 TUa	See Listed Qtr(s)	24-Hr Flow Prop Comp	See WET section in permit.

3.1.1 Changes from Previous Permit

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

Flow- The sample frequency for flow has been changed from “continuous” to “daily” for eDMR reporting purposes.

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

Total Phosphorus - lower effluent phosphorus mass limit from 35 lbs/day to 20.12 lbs/day which is based on the Total Maximum Daily Load (TMDL) for the Wisconsin River

PFOS and PFOA – addition of once every two months monitoring and an associated determination of need schedule in accordance with s. NR 106.98(2)(b), Wis. Adm. Code.

Ammonia Nitrogen – monthly and weekly average limits have been added in accordance with the federal regulation 40 CFR 122.45(d) and s. NR 205.065, Wis. Adm. Code

3.1.2 Explanation of Limits and Monitoring Requirements

Detailed discussions of limits and monitoring requirements can be found in the attached water quality-based effluent limits (WQBEL) memo dated January 13, 2025 and titled “Water Quality-Based Effluent Limitations for the Stevens Point Wastewater Treatment Facility WPDES Permit No. WI-0029572.

Monitoring Frequencies- The Monitoring Frequencies for Individual Wastewater Permits guidance (April 12, 2021) recommends that standard monitoring frequencies be included in individual wastewater permits based on the size and type of the facility, in order to characterize effluent quality and variability, to detect events of noncompliance, and to ensure consistency in permits issued across the state. Guidance and requirements in administrative code were considered when determining the appropriate monitoring frequencies for pollutants that have final effluent limits in effect during this permit term. The only change is for ammonia nitrogen to be monitored from 2/week to 5/week which is the minimum frequency for this size facility (design flow greater than 2 MGD).

CBOD - Pursuant to s. NR 210.05(1)(d), Wis. Adm. Code, the permittee is approved for substitution of CBOD5 effluent limitations for BOD5 limitations. The permittee has demonstrated that the conditions in s. NR 210.07(4) Wis. Adm. Code for making this substitution have been met and the department concurs. Limitations for CBOD5 are established in s. NR 210.05(1)(d), Wis. Adm. Code.

Phosphorus - Chapter NR 217, Wis. Adm. Code, specifies WQBELs for discharges of phosphorus to surface waters of the state. 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.

Wisconsin River Total Maximum Daily Load (TMDL): The permitted facility is included within the Wisconsin River Basin Total Maximum Daily Load (TMDL), which was approved by EPA April 26, 2019. The TMDL establishes Waste Load Allocations (WLAs) for point source dischargers and determines the maximum amounts of phosphorus that can be discharged and still protect water quality. The final effluent limits and monitoring expressed in the permit were derived from Site-Specific Criteria (SSC) for Lakes Petenwell, Castle Rock, and Wisconsin originally included in Appendix K of the TMDL report and approved by the U.S. Environmental Protection Agency on July 9, 2020. The permittee’s approved SSC-based limits are consistent with the assumptions and requirements of the EPA-approved WLA in the TMDL, which is 5075 lbs/yr for the permitted facility.

The approved TMDL expresses WLAs as lbs/year and lbs/day (maximum annual load divided by 365 days). As outlined in Section 4.6 of the department’s *TMDL Development and Implementation Guidance: Integrating the WPDES and Impaired Waters Program*, mass limits must be given in the permit that are consistent with the TMDL WLA and the phosphorus impracticability agreement that was approved by USEPA in 2012 (see NPDES MOA Addendum dated July 12, 2012 at <https://apps.dnr.wi.gov/swims/Documents/DownloadDocument?id=167886175>). Continuously discharging facilities covered by the WRB TMDL are given monthly average mass limits. The TMDL based mass limits are expressed as 20.12 lbs/day monthly average.

Facilities with WRB TMDL based effluent limits for phosphorus must report the 12-month rolling sum of total monthly discharge (lbs/yr). If reported 12-month rolling sums exceed the facility’s max annual WLA, the facility’s mass limits (monthly average and six-month average) may be recalculated using more appropriate CVs or monitoring frequencies when the permit is reissued to bring discharge levels into compliance with the facility’s given WLA.

Mercury – The WQBEL for total recoverable mercury is set equal to the most stringent criterion of 1.3 ng/L, according to s. NR 106.06 (6), Wis. Adm. Code, because the background concentration in the receiving water and similar inland streams is known to exceed 1.3 ng/L.

Considering available effluent data from the current permit term (January 2022 to November 2024), the 30-day P_{99} concentration is 1.18 ng/L, the 4-day P_{99} concentration is 1.49 ng/L, and the 1-day P_{99} concentration is 2.06 ng/L, with a maximum concentration of 1.68 ng/L. These effluent concentrations are below the calculated WQBELs for Mercury, therefore no effluent limits are needed. To ensure that representative sample results are available at the next permit issuance, monthly mercury monitoring is required.

Antidegradation and Antibacksliding

Since current treatment capability and PMP/SRM measures are expected to remain in place, the removal of the daily maximum mercury limit will not increase the concentration, level, or loading of mercury to the Wisconsin River. Therefore, antidegradation would not be applicable. To be consistent with antibacksliding requirements, the current limit was removed in accordance with s. NR 207.12(4)(b), Wis. Adm. Code.

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.

Daily maximum ammonia limits that vary with effluent pH apply year-round. See table below for more information. Samples for ammonia shall be collected at the same time as the pH samples.

Daily Maximum Ammonia Nitrogen Limits – WWSF

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
$6.0 \leq \text{pH} \leq 6.1$	108	$7.0 < \text{pH} \leq 7.1$	66	$8.0 < \text{pH} \leq 8.1$	14
$6.1 < \text{pH} \leq 6.2$	106	$7.1 < \text{pH} \leq 7.2$	59	$8.1 < \text{pH} \leq 8.2$	11
$6.2 < \text{pH} \leq 6.3$	104	$7.2 < \text{pH} \leq 7.3$	52	$8.2 < \text{pH} \leq 8.3$	9.4
$6.3 < \text{pH} \leq 6.4$	101	$7.3 < \text{pH} \leq 7.4$	46	$8.3 < \text{pH} \leq 8.4$	7.8
$6.4 < \text{pH} \leq 6.5$	98	$7.4 < \text{pH} \leq 7.5$	40	$8.4 < \text{pH} \leq 8.5$	6.4
$6.5 < \text{pH} \leq 6.6$	94	$7.5 < \text{pH} \leq 7.6$	34	$8.5 < \text{pH} \leq 8.6$	5.3
$6.6 < \text{pH} \leq 6.7$	89	$7.6 < \text{pH} \leq 7.7$	29	$8.6 < \text{pH} \leq 8.7$	4.4
$6.7 < \text{pH} \leq 6.8$	84	$7.7 < \text{pH} \leq 7.8$	24	$8.7 < \text{pH} \leq 8.8$	3.7
$6.8 < \text{pH} \leq 6.9$	78	$7.8 < \text{pH} \leq 7.9$	20	$8.8 < \text{pH} \leq 8.9$	3.1
$6.9 < \text{pH} \leq 7.0$	72	$7.9 < \text{pH} \leq 8.0$	17	$8.9 < \text{pH} \leq 9.0$	2.6

Total Nitrogen Monitoring (NO₂+NO₃, TKN and Total N)- The Department has included effluent monitoring for Total Nitrogen through the authority under s. 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 monitoring in rotating quarters are required.

Disinfection/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. Monitoring and limits for E. Coli are required seasonally May-September throughout the permit term.

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.

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>-

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	Anaerobic Digestion	Volatile Solids Reduction	Land Application	0 metric tons (2024)
003	B	Liquid	Anaerobic Digestion	Volatile Solids Reduction	Land Application	0 metric tons (2024)
004	B	Cake	Anaerobic Digestion	Volatile Solids Reduction	Land Application	0 metric tons (2024)
005	A	Cake	Heat Drying	Drying with Primary Solids	Land Application	0 metric tons (2024)
006	A	Cake	Heat Drying	Drying with Primary Solids	Land Application	1090 metric tons (2024)
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, one was performed last permit term. The next scan will be required next permit term.						

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)
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- CLASS B DIGESTED LIQUID SLUDGE

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Solids, Total		Percent	Quarterly	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	Quarterly	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	Quarterly	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Quarterly	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Quarterly	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	Quarterly	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Quarterly	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Quarterly	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Quarterly	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Quarterly	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Quarterly	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Quarterly	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Quarterly	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Quarterly	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Quarterly	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Quarterly	Composite	
Cadmium Dry Wt	Ceiling	85 mg/kg	Quarterly	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Quarterly	Composite	
Nitrogen, Ammonium (NH ₄ -N) Total		Percent	Quarterly	Composite	
Nitrogen, Total Kjeldahl		Percent	Quarterly	Composite	
Phosphorus, Total		Percent	Quarterly	Composite	

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Phosphorus, Water Extractable		% of Tot P	Quarterly	Composite	
Potassium, Total Recoverable		Percent	Quarterly	Composite	
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	

4.1.1 Changes from Previous Permit:

Sludge limitations and monitoring requirements were evaluated for this permit term and sample frequencies were increased to quarterly.

4.1.2 Explanation of Limits and Monitoring Requirements

Requirements for disposal, including land application of municipal sludge, are determined in accordance with ch. NR 204, Wis. Adm. Code. Ceiling and high-quality limits for metals in sludge are specified in s. NR 204.07(5). 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). Radium requirements are addressed in s. NR 204.07(3)(n).

Sludge sample frequencies were changed to quarterly as specified in s. NR 204 Table A.

4.2 Sample Point Number: 003- CLASS B DIGESTER EFFLUENT

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Solids, Total		Percent	Quarterly	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	Quarterly	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	Quarterly	Composite	
Cadmium Dry Wt	Ceiling	85 mg/kg	Quarterly	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Quarterly	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Quarterly	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Quarterly	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	Quarterly	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Quarterly	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Quarterly	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Quarterly	Composite	

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Molybdenum Dry Wt	Ceiling	75 mg/kg	Quarterly	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Quarterly	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Quarterly	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Quarterly	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Quarterly	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Quarterly	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Quarterly	Composite	
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	

4.2.1 Changes from Previous Permit:

Sludge limitations and monitoring requirements were evaluated for this permit term and sample frequencies were increased to quarterly.

4.2.2 Explanation of Limits and Monitoring Requirements

Requirements for disposal, including land application of municipal sludge, are determined in accordance with ch. NR 204, Wis. Adm. Code. Ceiling and high-quality limits for metals in sludge are specified in s. NR 204.07(5). 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). Radium requirements are addressed in s. NR 204.07(3)(n).

Sludge sample frequencies were changed to quarterly as specified in s. NR 204 Table A.

4.3 Sample Point Number: 004- CLASS B DIGESTED CAKE SLUDGE

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

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

4.3.1 Changes from Previous Permit:

Sludge limitations and monitoring requirements were evaluated for this permit term and sample frequencies were increased to quarterly.

4.3.2 Explanation of Limits and Monitoring Requirements

Requirements for disposal, including land application of municipal sludge, are determined in accordance with ch. NR 204, Wis. Adm. Code. Ceiling and high-quality limits for metals in sludge are specified in s. NR 204.07(5). 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). Radium requirements are addressed in s. NR 204.07(3)(n).

Sludge sample frequencies were changed to quarterly as specified in s. NR 204 Table A.

4.4 Sample Point Number: 005- CLASS A HEAT DRIED CAKE SLUDGE

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Solids, Total	Daily Max	90 Percent	Daily	Composite	
Temperature	Daily Max	80 deg C	Daily	Continuous	
Fecal Coliform	Daily Max	1,000 MPN/g TS	Quarterly	Composite	

4.4.1 Changes from Previous Permit:

Sludge limitations and monitoring requirements were evaluated for this permit term and the majority of monitoring from sample point 005 were moved to sample point 006, and sample frequencies were changed from semiannual to quarterly per NR 204 Table A. New limits were added to conform to Class A sludge requirements.

4.4.2 Explanation of Limits and Monitoring Requirements

Requirements for disposal, including land application of municipal sludge, are determined in accordance with ch. NR 204, Wis. Adm. Code. Ceiling and high-quality limits for metals in sludge are specified in s. NR 204.07(5). 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). Radium requirements are addressed in s. NR 204.07(3)(n).

New limits were added to conform to Class A sludge requirements.

Sludge sample frequencies were changed to quarterly as specified in s. NR 204 Table A.

4.5 Sample Point Number: 006- CLASS A CAKE FROM STORAGE

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Fecal Coliform	Daily Max	90 Percent	Quarterly	Composite	
Solids, Total	Daily Max	1,000 MPN/g TS	Quarterly	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	Quarterly	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	Quarterly	Composite	
Cadmium Dry Wt	Ceiling	85 mg/kg	Quarterly	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Quarterly	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Quarterly	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Quarterly	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	Quarterly	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Quarterly	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Quarterly	Composite	

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Mercury Dry Wt	High Quality	17 mg/kg	Quarterly	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Quarterly	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Quarterly	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Quarterly	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Quarterly	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Quarterly	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Quarterly	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Quarterly	Composite	
Nitrogen, Total Kjeldahl		Percent	Quarterly	Composite	
Nitrogen, Ammonium (NH ₄ -N) Total		Percent	Quarterly	Composite	
Phosphorus, Total		Percent	Quarterly	Composite	
Phosphorus, Water Extractable		% of Tot P	Quarterly	Composite	
Potassium, Total Recoverable		Percent	Quarterly	Composite	
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	
PFOA + PFOS		ug/kg	Annual	Calculated	
PFAS Dry Wt			Annual	Grab	Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS Permit Sections for more information.

4.5.1 Changes from Previous Permit:

Sludge limitations and monitoring requirements were evaluated for this permit term and the majority of monitoring from sample point 005 were moved to sample point 006, and sample frequencies were changed from semiannual to quarterly per NR 204 Table A. New limits were added to conform to Class A sludge requirements.

4.5.2 Explanation of Limits and Monitoring Requirements

Requirements for disposal, including land application of municipal sludge, are determined in accordance with ch. NR 204, Wis. Adm. Code. Ceiling and high-quality limits for metals in sludge are specified in s. NR 204.07(5). 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). Radium requirements are addressed in s. NR 204.07(3)(n).

New limits were added to conform to Class A sludge requirements.

Sludge sample frequencies were changed to quarterly as specified in s. NR 204 Table A.

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. In the interim, the department has developed the “Interim Strategy for Land Application of Biosolids and Industrial Sludges Containing PFAS.”

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

5 Schedules

5.1 Mercury Pollutant Minimization Summary

Required Action	Due Date
Final Mercury Report: Submit a report summarizing the mercury pollutant minimization measures implemented during the current permit term and the success in maintaining effluent quality at or below the current concentrations. The report shall include an analysis of trends in quarterly and annual average mercury concentrations and total mass discharge of mercury based on mercury sampling and flow data covering the current permit term. The report shall also include an analysis of how influent and effluent mercury varies with time and with significant loadings of mercury such as loads from industries or collection system maintenance.	09/30/2029

Explanation of Schedule

A report on mercury is required to ensure mercury minimization efforts continue and demonstrate progress.

5.2 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 additional PFOS and PFOA data that may be collected including any influent, intake, in-plant, collection system sampling, and blank sample results.	06/30/2026
Report on Effluent Discharge and Evaluation of Need: Submit a final report on effluent PFOS and PFOA concentrations and include an analysis of trends in monthly and annual average PFOS and PFOA concentrations of data collected over the last 24 months. The report shall also provide a comparison on the likelihood of the facility needing to develop a PFOS/PFOA minimization plan.	06/30/2027

This report shall include all additional PFOS and PFOA data that may be collected including any influent, intake, in-plant, collection system sampling, and blank sample results. The permittee shall also submit a request to the department to evaluate the need for a PFOS/PFOA minimization plan. If the Department determines a PFOS/PFOA minimization plan is needed based on a reasonable potential evaluation, the permittee will be required to develop a minimization plan for Department approval no later than 90 days after written notification was sent from the Department. The Department will modify or revoke and reissue the permit to include PFOS/PFOA minimization plan reporting requirements along with a schedule of compliance to meet WQBELs. Effluent monitoring of PFOS and PFOA shall continue as specified in the permit until the modified permit is issued. If, however, the Department determines there is no reasonable potential for the facility to discharge PFOS or PFOA above the narrative standard in s. NR 102.04(8)(d), Wis. Adm. Code, no further action is required and effluent monitoring of PFOS and PFOA shall continue as specified in the permit.	
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Explanation of Schedule

As stated above, ch. NR 106 Subchapter VIII – Permit Requirements for PFOS and PFOA Dischargers became effective on August 1, 2022. Section 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.

5.3 Effluent Limitations for E. coli

Required Action	Due Date
Report on Effluent Discharges: The permittee shall submit a report detailing optimization efforts for meeting E. coli effluent limitations.	10/31/2025
Achieve Compliance: The permittee shall achieve compliance with final E. coli limitations.	05/01/2026

Explanation of Schedule

A report on E. coli is required after one year of disinfection to assess optimization efforts prior to limits becoming effective.

5.4 Land Application Management Plan

A management plan is required for the land application system.

Required Action	Due Date
Land Application Management Plan Submittal: Submit a sludge management plan (SMP) to optimize the sludge management performance and demonstrate compliance with Ch. NR 204, Wis. Adm. Code, by the Due Date. This management plan shall include sufficient detail of the sludge management program for the facility. The plan shall include separate sections for each type of sewage sludge included in this permit. The SMP shall provide standardized information for communication to operators and the department including but not limited to the following: 1) Specify information on the sludge treatment processes for each sampling point and outfall; 2) Show and describe sample point and outfall monitoring locations on a schematic and provide photos of the specific sampling points; 3) Show, describe and tabulate the monitoring requirements at each sampling point and outfall locations; 4) Show, describe and explain sampling protocols for each location listing parameters to be monitored including: a) Pollutants, b) Nutrients c) Pathogen treatment process requirements including treatment temperature, moisture content (total solids) and pathogen densities (fecal concentrations) d) Vector Reduction appropriate for the pathogen treatment process such as but not limited to temperatures, volatile solids reduction, moisture content, etc. as required by the WPDES permit and Ch. NR 204, Wis. Adm. Code; 5) Monitoring frequencies at each sample point and outfall; 6) Analytical methods with appropriate hold times and chain-of-custody procedures; 7) Documentation relating to temperature monitoring data recording, retrieval and printing out the data when requested; 8) Storage, verification monitoring, loading, transportation and discharge details associated with all outfalls; 9) Collection, storage, disposal information for sludge detailing pickups including loading and similar details; 10) Collection, storage and disposal processes of sludge when the sludge does not meet minimum requires to meet Class A and EQ requirements. [Note: EQ and Class A are similar. Facility should explain the difference and how they will handle the material if the material meets Class A but fails to meet EQ.] 11) Identify land application sites; 12) Describe site limitations; 13) Address vegetative cover management and removal including loading to crop needs, crop harvesting;	12/31/2025

14) Specific the availability of storage for sludge; 15) Describe the type of transportation and spreading vehicles; 16) Track site loadings to facility's land application sites; 17) Address contingency plans for adverse weather and odor/nuisance abatement; 18) Address construction contingencies when treatment equipment is out of service; and 19) Include any other pertinent information. Once approved, all sludge management 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. Note: The SMP is a living document and should be designed and constructed to allow for future updates. Consider providing an overview to explain the facilities solids flow processes, then using sections and appendices to provide more details. The use of appendices to explain start up, operation and shutdown of the sludge treatment units is encouraged to show that all sludge particles meet Class A requirements.	
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Explanation of Schedule

Land Application Management Plan (municipal)- An up-to-date Land Application Management Plan is required that documents how the permittee will manage the land application of biosolids consistent with ch. NR 204, Wis. Adm. Code.

Other Comments

TBD

Attachments

Water Quality Based Effluent Limits dated January 13, 2025 and titled "Water Quality-Based Effluent Limitations for the Stevens Point Wastewater Treatment Facility WPDES Permit No. WI-0029572

Public Notice- Stevens Point Journal, PO Box 7, Stevens Point, WI 54481

Justification Of Any Waivers From Permit Application Requirements

No waivers requested or granted as part of this permit reissuance

Prepared By: Angela Parkhurst

Wastewater Specialist

Date: May 20, 2025

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: January 13, 2025

TO: Angela Parkhurst– WCR/Eau Claire

FROM: Benjamin Hartenbower – WCR/Eau Claire

SUBJECT: Water Quality-Based Effluent Limitations for the Stevens Point Wastewater Treatment Facility
WPDES Permit No. WI-0029572

This is in response to your request for an evaluation of the need for water quality-based effluent limitations (WQBELs) using chapters NR 102, 104, 105, 106, 207, 210, 212, and 217 of the Wisconsin Administrative Code (where applicable), for the discharge from the Stevens Point Wastewater Treatment Facility in Portage County. This municipal wastewater treatment facility (WWTF) discharges to the Wisconsin River, located in the Plover and Little Plover Rivers Watershed in the Central Wisconsin River Basin. This discharge is included in the Wisconsin River TMDL as approved by EPA on April 26, 2019 with site-specific criteria approved by EPA on July 9, 2020. The evaluation of the permit recommendations is discussed in more detail in the attached report.

Based on our review, the following recommendations are made on a chemical-specific basis at Outfall 001:

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Footnotes
Flow Rate					1,2
CBOD ₅			40 mg/L	25 mg/L	1
TSS			45 mg/L	30 mg/L	1
pH	9.0 s.u.	6.0 s.u.			1
Ammonia Nitrogen	Variable		52 mg/L	52 mg/L	3,4
<i>E. Coli</i>				126 #/100 mL geometric mean	5
Mercury					2
PFOS and PFOA					6
Phosphorus TMDL Limit				0.93 mg/L 20.12 lbs/day	7
TKN, Nitrate+Nitrite, and Total Nitrogen					8
Acute WET	1.0 TUa				9

Footnotes:

1. No changes from the current permit.
2. Monitoring only.

3. The variable daily maximum ammonia nitrogen limit table corresponding to effluent pH values. These limits apply year-round.

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
$6.0 \leq \text{pH} \leq 6.1$	108	$7.0 < \text{pH} \leq 7.1$	66	$8.0 < \text{pH} \leq 8.1$	14
$6.1 < \text{pH} \leq 6.2$	106	$7.1 < \text{pH} \leq 7.2$	59	$8.1 < \text{pH} \leq 8.2$	11
$6.2 < \text{pH} \leq 6.3$	104	$7.2 < \text{pH} \leq 7.3$	52	$8.2 < \text{pH} \leq 8.3$	9.4
$6.3 < \text{pH} \leq 6.4$	101	$7.3 < \text{pH} \leq 7.4$	46	$8.3 < \text{pH} \leq 8.4$	7.8
$6.4 < \text{pH} \leq 6.5$	98	$7.4 < \text{pH} \leq 7.5$	40	$8.4 < \text{pH} \leq 8.5$	6.4
$6.5 < \text{pH} \leq 6.6$	94	$7.5 < \text{pH} \leq 7.6$	34	$8.5 < \text{pH} \leq 8.6$	5.3
$6.6 < \text{pH} \leq 6.7$	89	$7.6 < \text{pH} \leq 7.7$	29	$8.6 < \text{pH} \leq 8.7$	4.4
$6.7 < \text{pH} \leq 6.8$	84	$7.7 < \text{pH} \leq 7.8$	24	$8.7 < \text{pH} \leq 8.8$	3.7
$6.8 < \text{pH} \leq 6.9$	78	$7.8 < \text{pH} \leq 7.9$	20	$8.8 < \text{pH} \leq 8.9$	3.1
$6.9 < \text{pH} \leq 7.0$	72	$7.9 < \text{pH} \leq 8.0$	17	$8.9 < \text{pH} \leq 9.0$	2.6

- Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Codes, are included in bold.
- Bacteria limits apply during the disinfection season of May - September. Additional limit: No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 count/100 mL.
- Monitoring once every two months is required in accordance with s. NR 106.98(2), Wis. Adm. Code.
- This is a technology based effluent limit (TBEL) for phosphorus required in accordance with s. NR 217.04, Wis. Adm. Code. The phosphorus mass limit is based on the Total Maximum Daily Load (TMDL) for the Wisconsin River Basin to address phosphorus water quality impairments within the TMDL area. The TMDL was approved by EPA on April 26, 2019 with site-specific criteria approved by EPA on July 9, 2020.
- As recommended in the Department's October 1, 2019 Guidance for Total Nitrogen Monitoring in Wastewater Permits, quarterly total nitrogen monitoring is recommended for all major municipal permittees. Total Nitrogen is the sum of nitrate (NO_3), nitrite (NO_2), and total kjeldahl nitrogen (TKN) (all expressed as N).
- Annual acute WET tests are recommended in the reissued permit. Sampling WET concurrently with any chemical-specific toxic substances is recommended. Tests should be done in rotating quarters, to collect seasonal information about this discharge and should continue after the permit expiration date (until the permit is reissued).

Please consult the attached report for details regarding the above recommendations. If there are any questions or comments, please contact Benjamin Hartenbower at (715) 225-4705 or Benjamin.Hartenbower@wisconsin.gov or Diane Figiel at Diane.Figiel@wisconsin.gov.

Attachments (2) – Narrative & Map

PREPARED BY:


 Benjamin Hartenbower, PE,
 Water Resources Engineer

Date: 01/13/2025

E-cc:

Nick Lindstrom, Wastewater Engineer – WCR/Eau Claire
Geisa Thielen, Regional Wastewater Supervisor – WCR/Eau Claire
Diane Figiel, Water Resources Engineer – WY/3
Scott Provost, Water Quality Biologist – WCR/Wisconsin Rapids
Nate Willis, Wastewater Engineer – WY/3

**Water Quality-Based Effluent Limitations for
the Stevens Point Wastewater Treatment Facility
WPDES Permit No. WI-0029572**

Prepared by: Benjamin P. Hartenbower

PART 1 – BACKGROUND INFORMATION

Facility Description:

The city of Stevens Point operates and maintains a conventional activated sludge treatment facility that utilizes mesophilic anaerobic digestion for biosolids stabilization. The facility consists of mechanical fine screens, vortex grit removal, primary clarification, aeration basins, secondary clarifiers, UV disinfection, mesophilic anaerobic digesters, belt filter press, and biosolids dryer. Outfall 001 is located on the east bank of the Wisconsin River, 1000ft downstream from the railroad bridge.

Attachment #2 is a map of the area showing the approximate location of Outfall 001.

Existing Permit Limitations

The current permit, which expired on December 31, 2023, includes the following effluent limitations and monitoring requirements.

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Flow Rate						1,2
CBOD ₅			40 mg/L	25 mg/L		1
TSS			45 mg/L	30 mg/L		1
pH	9.0 s.u.	6.0 s.u.				1
Ammonia Nitrogen	Variable		52 mg/L	52 mg/L		3,4
Fecal Coliform May - September			656 #/100 mL geometric mean	400 #/100 mL geometric mean		4
Mercury	4.5 ng/L					5
Phosphorus Interim				0.93 mg/L, 35 lbs/day		6
Final WQBEL				0.300 mg/L	0.100 mg/L	
Acute WET	1.0 TUa					7

Footnotes:

1. These limitations are not being evaluated as part of this review. Because the water quality criteria (WQC), reference effluent flow rates, and receiving water characteristics have not changed, limitations for these water quality characteristics do not need to be re-evaluated at this time.
2. Monitoring only.

Attachment #1

3. The variable daily maximum ammonia nitrogen limit table corresponding to effluent pH values. These limits apply year-round.

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
$\text{pH} \leq 7.2$	>59	$8.1 < \text{pH} \leq 8.2$	11
$7.2 < \text{pH} \leq 7.3$	52	$8.2 < \text{pH} \leq 8.3$	9.4
$7.3 < \text{pH} \leq 7.4$	46	$8.3 < \text{pH} \leq 8.4$	7.8
$7.4 < \text{pH} \leq 7.5$	40	$8.4 < \text{pH} \leq 8.5$	6.4
$7.5 < \text{pH} \leq 7.6$	34	$8.5 < \text{pH} \leq 8.6$	5.3
$7.6 < \text{pH} \leq 7.7$	29	$8.6 < \text{pH} \leq 8.7$	4.4
$7.7 < \text{pH} \leq 7.8$	24	$8.7 < \text{pH} \leq 8.8$	3.7
$7.8 < \text{pH} \leq 7.9$	20	$8.8 < \text{pH} \leq 8.9$	3.1
$7.9 < \text{pH} \leq 8.0$	17	$8.9 < \text{pH} \leq 9.0$	2.6
$8.0 < \text{pH} \leq 8.1$	14		

4. Additional limits to comply with the expression of limits requirements are included in bold.
 5. Mercury variance limit.
 6. A compliance schedule is in the current permit to meet the final WQBEL by December 31, 2025.
 7. Acute WET testing required: Jan - March 2019, Apr - June 2020, July - Sept 2021, Oct - Dec 2022, and Jan - March 2023.

Receiving Water Information

- Name: Wisconsin River
- Waterbody Identification Code (WBIC): 1179900
- Classification used in accordance with chs. NR 102 and 104, Wis. Adm. Code: Warm Water Sport Fish (WWSF) community, non-public water supply.
- Low flows used in accordance with chs. NR 106 and 217, Wis. Adm. Code: USGS for Station 05400320 in the Wisconsin River at Stevens Point.
 - $7\text{-}Q_{10} = 1110$ cfs (cubic feet per second)
 - $7\text{-}Q_2 = 1740$ cfs
 - $90\text{-}Q_{10} = 1479$ cfs (estimated as 85% of $7\text{-}Q_2$)
 - Harmonic Mean Flow = 4550 cfs
- Hardness = 46 mg/L as CaCO_3 . This value represents the geometric mean of 169 samples collected in the receiving water from 01/24/1995 to 01/25/2001.
- % of low flow used to calculate limits in accordance with s. NR 106.06(4)(c)5., Wis. Adm. Code: 25%
- Source of background concentration data: Chloride and metals data are from the Wisconsin River. The numerical values are shown in the tables below. If no data is available, the background concentration is assumed to be negligible and a value of zero is used in the computations. Background data for calculating effluent limitations for ammonia nitrogen are described later.
- Multiple dischargers: There are several other dischargers to the Wisconsin River however they are not in the immediate vicinity and the mixing zones do not overlap. Therefore, the other dischargers do not impact this evaluation.
- Impaired water status: This discharge is located within the WI River TMDL for phosphorus

Effluent Information:

- Design Flow Rates(s):
Annual Average = 4.55 MGD (Million Gallons per Day)
For reference, the actual average flow from January 2022 to October 2024 was 2.5 MGD.
- Hardness = 183 mg/L as CaCO₃. This value represents the geometric mean of 4 effluent samples collected from 09/19/2022 to 05/08/2023.
- Acute dilution factor used in accordance with s. NR 106.06 (3) (c), Wis. Adm. Code: Not applicable – this facility does not have an approved Zone of Initial Dilution (ZID).
- Water Source: Domestic wastewater with water supply from wells and nondomestic contributions from ten industrial sources.
- Additives: Ferric Chloride
- Total Phosphorus Wasteload Allocation: 5075 lbs/year = 13.895 lbs/day
- Effluent characterization: This facility is categorized as a major municipal, so the permit application required effluent sample analyses for all the “priority pollutants” except for the Dioxins and Furans as specified in s. NR 200.065, Table 1, Wis. Adm. Code. The permit-required monitoring for Ammonia Nitrogen, Mercury, and Phosphorus from January 2022 to October 2024 is used in this evaluation.

Chemical Specific Effluent Data at Outfall 001

Sample Date	Mercury ng/L	Sample Date	Chloride mg/L	Sample Date	Copper µg/L
03/17/2022	1.45	09/19/2022	203	09/15/2022	9.3
06/07/2022	0.761	12/08/2022	320	09/19/2022	10
09/21/2022	0.828	01/30/2023	200	11/29/2022	14
12/06/2022	1.02	05/08/2023	182	12/04/2022	17
02/21/2023	1.47			12/08/2022	10
05/30/2023	0.639			01/23/2023	8.5
08/16/2023	1.02			01/27/2023	10
12/12/2023	0.814			01/30/2023	12
03/05/2024	0.926			05/01/2023	14
06/04/2024	1.68			05/05/2023	16
09/30/2024	0.645			05/08/2023	15
11/12/2024	1.08				
1-day P ₉₉	2.06	mean	226	1-day P ₉₉	20.85
4-day P ₉₉	1.49			4-day P ₉₉	16.20
30-day P ₉₉	1.18				

Attachment #1

Effluent data for substances for which a single sample was analyzed is shown in the tables in Part 2 below, in the column titled “MEAN EFFL. CONC.”.

The following table presents the average concentrations and loadings at Outfall 001 from January 2022 to October 2024 for all parameters with limits in the current permit to meet the requirements of s. NR 201.03(6):

Parameter Averages with Limits		
	Average Measurement	Average Mass Discharged
CBOD ₅	4.4 mg/L*	
TSS	4.5 mg/L*	
pH	6.90 s.u.	
Ammonia Nitrogen	27.90 mg/L	
Fecal Coliform	104#/100 mL	
Mercury	1.03 ng/L	
Phosphorus	0.30 mg/L*	6.81 lbs/day

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

PART 2 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR TOXIC SUBSTANCES – EXCEPT AMMONIA NITROGEN

Permit limits for toxic substances are required whenever any of the following occur:

1. The maximum effluent concentration exceeds the calculated limit (s. NR 106.05(3), Wis. Adm. Code)
2. If 11 or more detected results are available in the effluent, the upper 99th percentile (or P₉₉) value exceeds the comparable calculated limit (s. NR 106.05(4), Wis. Adm. Code)
3. If fewer than 11 detected results are available, the mean effluent concentration exceeds 1/5 of the calculated limit (s. NR 106.05(6), Wis. Adm. Code)

Acute Limits based on 1-Q₁₀

Daily maximum effluent limitations for toxic substances are based on the acute toxicity criteria (ATC), listed in ch. NR 105, Wis. Adm. Code. Previously daily maximum limits for toxic substances were calculated as two times the ATC. However, changes to ch. NR 106, Wis. Code, (September 1, 2016) require the Department to calculate acute limitations using the same mass balance equation as used for other limits along with the 1-Q₁₀ receiving water low flow to determine if more restrictive effluent limitations are needed to protect the receiving stream from discharges which may cause or contribute to an exceedance of the acute water quality standards. The mass balance equation is provided below.

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

Where:

WQC = Acute toxicity criterion or secondary acute value according to ch. NR 105, Wis. Adm. Code.

Q_s = average minimum 1-day flow which occurs once in 10 years (1-day Q₁₀)
if the 1-day Q₁₀ flow data is not available = 80% of the average minimum 7-day flow which occurs once in 10 years (7-day Q₁₀).

Q_e = Effluent flow (in units of volume per unit time) as specified in s. NR 106.06(4)(d), Wis. Adm. Code.

f = Fraction of the effluent flow that is withdrawn from the receiving water, and

C_s = Background concentration of the substance (in units of mass per unit volume) as specified in s. NR 106.06(4)(e), Wis. Adm. Code.

If the receiving water is effluent dominated under low stream flow conditions, the 1-Q₁₀ method of limit calculation produces the most stringent daily maximum limitations and should be used while making reasonable potential determinations. This is not the case for the Stevens Point Wastewater Treatment Facility and the limits are set based on two times the acute toxicity criteria.

The following tables list the calculated WQBELs for this discharge along with the results of effluent sampling for all the detected substances. All concentrations are expressed in terms of micrograms per Liter (µg/L), except for hardness and chloride (mg/L) and mercury (ng/L).

Daily Maximum Limits based on Acute Toxicity Criteria (ATC)

RECEIVING WATER FLOW = 888 cfs, (1-Q₁₀ (estimated as 80% of 7-Q₁₀)), as specified in s. NR 106.06(3)(bm), Wis. Adm. Code.

SUBSTANCE	REF. HARD. mg/L	ATC	MEAN BACK- GRD.	MAX. EFFL. LIMIT**	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	1-day P ₉₉	1-day MAX. CONC.
Arsenic		340	0.802	680	136	<14		
Cadmium	183	20.58	0.026	41.16	8.23	<0.3		
Chromium (+3)	183	2954	0.450	5909	1182	3.0		
Chromium (+6)		16.0		32.0	6.4	<1.3		
Copper	183	27.41	1.050	54.81			20.8	17.0
Lead	183	191.46	0.586	382.92	76.58	<3.5		
Mercury		830	1.70	1660			2.06	1.68
Nickel	183	781.4	1.191	1562.7	312.5	4.9		
Zinc	183	203.95	2.233	407.90	81.58	11		
Chloride		757	12.6	1514	303	226		320

* * The 2 × ATC method of limit calculation yields a more restrictive limit than consideration of ambient concentrations and 1-Q₁₀ flow rates per the changes to s. NR 106.07(3), Wis. Adm. Code, effective 09/01/2016.

Weekly Average Limits based on Chronic Toxicity Criteria (CTC)RECEIVING WATER FLOW = 278 cfs ($\frac{1}{4}$ of the 7-Q₁₀), as specified in s. NR 106.06(4)(c), Wis. Adm. Code.

SUBSTANCE	REF. HARD.* mg/L	CTC	MEAN BACK- GRD.	MAX. EFFL. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	4-day P ₉₉
Arsenic		152	0.802	6120	1224	<14	
Cadmium	46	1.33	0.026	52.75	10.55	<0.3	
Chromium (+3)	46	69	0.450	2791	558	3.0	
Chromium (+6)		11.0		443.8	88.8	<1.3	
Copper	46	5.29	1.050	172.42			16.2
Lead	46	13.13	0.586	507.39	101.48	<3.5	
Mercury		440	1.70	17717			1.49
Nickel	46	26.9	1.191	1039.5	207.9	4.9	
Zinc	46	60.62	2.233	2362.29	472.46	11	
Chloride		395	12.6	15469	3094	226	

Monthly Average Limits based on Wildlife Criteria (WC)RECEIVING WATER FLOW = 370 cfs ($\frac{1}{4}$ of the 90-Q₁₀), as specified in s. NR 106.06(4), Wis. Adm. Code.

SUBSTANCE	WC	MEAN BACK- GRD.	MAX. EFFL. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	30-day P ₉₉
Mercury	1.30	1.70	1.30			1.18

Monthly Average Limits based on Human Threshold Criteria (HTC)RECEIVING WATER FLOW = 1138 cfs ($\frac{1}{4}$ of the Harmonic Mean), as specified in s. NR 106.06(4), Wis. Adm. Code.

SUBSTANCE	HTC	MEAN BACK- GRD.	MAX. EFFL. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	30-day P ₉₉
Cadmium	370.0	0.026	60150.1	12030.0	<0.3	
Chromium (+3)	3818000	0.450	620726855	124145371	3.0	
Chromium (+6)	7636.0		1241453.9	248290.8	<1.3	
Lead	140	0.586	22666	4533	<3.5	
Mercury	1.50	1.70	1.50			1.18
Nickel	43000	1.191	6990708	1398142	4.9	
Endosulfan	181		29427	5885	0.03	

Monthly Average Limits based on Human Cancer Criteria (HCC)

RECEIVING WATER FLOW = 1138 cfs ($\frac{1}{4}$ of the Harmonic Mean), as specified in s. NR 106.06(4), Wis. Adm. Code.

SUBSTANCE	HCC	MEAN BACK- GRD.	MAX. EFFL. LIMIT**	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	30-day P ₉₉
Arsenic	13.3	0.802	2032.7	406.5	<14	
Chloroform	1960		318655	63731	1.60	

In addition to evaluating the need for limits for each individual substance for which HCC exist, s. NR 106.06(8), Wis. Adm. Code, requires the evaluation of the cumulative cancer risk. Because no effluent limits are needed based on HCC, determination of the cumulative cancer risk is not needed per s. NR 106.06(8), Wis. Adm. Code.

Conclusions and Recommendations: Based on a comparison of the effluent data and calculated effluent limitations, limits are not required for toxic substances.

Mercury – The WQBEL for total recoverable mercury is set equal to the most stringent criterion of 1.3 ng/L, according to s. NR 106.06 (6), Wis. Adm. Code, because the background concentration in the receiving water and similar inland streams is known to exceed 1.3 ng/L.

Considering available effluent data from the current permit term (January 2022 to November 2024), the 30-day P₉₉ concentration is 1.18 ng/L, the 4-day P₉₉ concentration is 1.49 ng/L, and the 1-day P₉₉ concentration is 2.06 ng/L, with a maximum concentration of 1.68 ng/L. These effluent concentrations are below the calculated WQBELs for Mercury, therefore no effluent limits are needed. To ensure that representative sample results are available at the next permit issuance, **monthly mercury monitoring is recommended.**

Antidegradation and Antibacksliding

Since current treatment capability and PMP/SRM measures are expected to remain in place, the removal of the daily maximum mercury limit will not increase the concentration, level, or loading of mercury to the Wisconsin River. Therefore, antidegradation would not be applicable. To be consistent with antibacksliding requirements, the current limit may be removed in accordance with s. NR 207.12(4)(b), Wis. Adm. Code.

PFOS and PFOA

The need for PFOS and PFOA monitoring is evaluated in accordance with s. NR 106.98, Wis. Adm. Code. Monitoring of the water supply produced a PFOS result of 2.40 ng/L and a PFOA result of 2.00 ng/L. The PFOS result is greater than one fifth of the criterion for the substance. Based on the annual design flow, nondomestic contributions and known levels of PFOS/PFOA in the source water, **PFOS and PFOA monitoring is recommended once every two months.**

PART 3 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR AMMONIA NITROGEN

The State of Wisconsin promulgated revised water quality standards for ammonia nitrogen in ch. NR 105, Wis. Adm. Code, effective March 1, 2004 which includes criteria based on both acute and chronic toxicity to aquatic life. The current permit has daily maximum, weekly average, and monthly average limits. These limits are re-evaluated at this time due to the following changes:

- Subchapter IV of ch. NR 106, Wis. Adm. Code allows limits based on available dilution instead of limits set to twice the acute criteria.
- Section NR 106.07(3), Wis. Adm. Code requires weekly and monthly average limits for municipal treatment plants.
- The maximum expected effluent pH has changed

Daily Maximum Limits based on Acute Toxicity Criteria (ATC):

Daily maximum limitations are based on acute toxicity criteria in ch. NR 105, Wis. Adm. Code, which are a function of the effluent pH and the receiving water classification. The acute toxicity criterion (ATC) for ammonia is calculated using the following equation.

$$\text{ATC in mg/L} = [A \div (1 + 10^{(7.204 - \text{pH})})] + [B \div (1 + 10^{(\text{pH} - 7.204)})]$$

Where:

A = 0.411 and B = 58.4 for a Warm Water Sport fishery, and
pH (s.u.) = that characteristic of the effluent.

The effluent pH data was examined as part of this evaluation. A total of 1035 sample results were reported from January 2022 to October 2024. The maximum reported value was 7.22 s.u. (Standard pH Units). The effluent pH was 7.16 s.u. or less 99% of the time. The 1-day P₉₉, calculated in accordance with s. NR 106.05(5), Wis. Adm. Code, is 7.26 s.u. The mean plus the standard deviation multiplied by a factor of 2.33, an estimate of the upper ninety ninth percentile for a normally distributed dataset, is 7.25 s.u. Therefore, a value of 7.26 s.u. is believed to represent the maximum reasonably expected pH, and therefore most appropriate for determining daily maximum limitations for ammonia nitrogen. Substituting a value of 7.26 s.u. into the equation above yields an ATC = 27.54 mg/L.

Daily Maximum Ammonia Nitrogen Effluent Limitations Calculation Method

In accordance with s. NR 106.32(2), Wis. Adm. Code daily maximum ammonia limitations are calculated using the 1-Q₁₀ receiving water low flow if it is determined that the previous method of acute ammonia limit calculation (2×ATC) is not sufficiently protective of the fish and aquatic life. The more restrictive calculated limits shall apply.

The calculated daily maximum ammonia nitrogen effluent limits using the mass balance approach with the 1-Q₁₀ (estimated as 80 % of 7-Q₁₀) and the 2×ATC approach are shown below.

Daily Maximum Ammonia Nitrogen Determination

Attachment #1

	Ammonia Nitrogen Limit mg/L
2×ATC	55.08
1-Q ₁₀	3492.31

The 2×ATC method yields the most stringent limits for the Stevens Point Wastewater Treatment Facility.

The current permit has variable daily maximum effluent limits based on effluent pH. Presented below is a table of daily maximum limitations corresponding to various effluent pH values. The table has been expanded from the table in the current permit to include ammonia nitrogen limits throughout the pH range.

Daily Maximum Ammonia Nitrogen Limits – WWSF

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
6.0 ≤ pH ≤ 6.1	108	7.0 < pH ≤ 7.1	66	8.0 < pH ≤ 8.1	14
6.1 < pH ≤ 6.2	106	7.1 < pH ≤ 7.2	59	8.1 < pH ≤ 8.2	11
6.2 < pH ≤ 6.3	104	7.2 < pH ≤ 7.3	52	8.2 < pH ≤ 8.3	9.4
6.3 < pH ≤ 6.4	101	7.3 < pH ≤ 7.4	46	8.3 < pH ≤ 8.4	7.8
6.4 < pH ≤ 6.5	98	7.4 < pH ≤ 7.5	40	8.4 < pH ≤ 8.5	6.4
6.5 < pH ≤ 6.6	94	7.5 < pH ≤ 7.6	34	8.5 < pH ≤ 8.6	5.3
6.6 < pH ≤ 6.7	89	7.6 < pH ≤ 7.7	29	8.6 < pH ≤ 8.7	4.4
6.7 < pH ≤ 6.8	84	7.7 < pH ≤ 7.8	24	8.7 < pH ≤ 8.8	3.7
6.8 < pH ≤ 6.9	78	7.8 < pH ≤ 7.9	20	8.8 < pH ≤ 8.9	3.1
6.9 < pH ≤ 7.0	72	7.9 < pH ≤ 8.0	17	8.9 < pH ≤ 9.0	2.6

Weekly and Monthly Average Limits based on Chronic Toxicity Criteria (CTC)

The ammonia limit calculation also warrants evaluation of weekly and monthly average limits based on chronic toxicity criteria for ammonia, since those limits relate to the assimilative capacity of the receiving water.

Weekly average and monthly average limits for ammonia nitrogen are based on chronic toxicity criteria in ch. NR 105, Wis. Adm. Code.

The 30-day chronic toxicity criterion (CTC) for ammonia in waters classified as Warm Water Sport Fish Community is calculated by the following equation, according to subchapter IV of NR 106, Wis. Adm. Code.

$$CTC = E \times \{ [0.0676 \div (1 + 10^{(7.688 - pH)})] + [2.912 \div (1 + 10^{(pH - 7.688)})] \} \times C$$

Where:

pH = the pH (s.u.) of the receiving water,

E = 0.854,

C = the minimum of 2.85 or $1.45 \times 10^{(0.028 \times (25 - T))}$ – (Early Life Stages Present), or

C = $1.45 \times 10^{(0.028 \times (25 - T))}$ – (Early Life Stages Absent), and

T = the temperature (°C) of the receiving water – (Early Life Stages Present), or

T = the maximum of the actual temperature (°C) and 7 – (Early Life Stages Absent)

The 4-day criterion is equal to the 30-day criterion multiplied by 2.5. The 4-day criteria are used in a mass-balance equation with the 7-Q₁₀ (4-Q₃, if available) to derive weekly average limitations. And the 30-day criteria are used with the 30-Q₅ (estimated as 85% of the 7-Q₂ if the 30-Q₅ is not available) to derive monthly average limitations. The stream flow value is further adjusted to temperature; 100% of the flow is used if the Temperature ≥ 16 °C, 25% of the flow is used if the Temperature < 11 °C, and 50% of the flow is used if the Temperature ≥ 11 °C but < 16 °C.

Section NR 106.32 (3), Wis. Adm. Code, provides a mechanism for less stringent weekly average and monthly average effluent limitations when early life stages (ELS) of critical organisms are absent from the receiving water. This applies only when the water temperature is less than 14.5 °C, during the winter and spring months. Based on a review of the DNR Fisheries database, burbot, an early spawning species, are believed to be present in the Wisconsin River. So “ELS Absent” criteria apply from October through December, and “ELS Present” criteria will apply from January through September for a WWSF classification.

The “default” basin assumed values are used for temperature and background ammonia concentrations, because minimum ambient data is available. The values for pH are based on data collected from the Wisconsin River. These values are shown in the table below, with the resulting criteria and effluent limitations.

Weekly and Monthly Ammonia Nitrogen Limits – WWSF

		April & May	June- September	October- March
Effluent Flow	Qe (MGD)	4.550	4.550	4.550
Background Information	4-Q ₃ (cfs)	870	870	870
	30-Q ₅ (cfs)	1510	1510	1510
	Ammonia (mg/L)	0.07	0.07	0.14
	Temperature (°C)	15.6	23.9	10.6
	pH (s.u.)	7.66	7.74	7.51
	% of Flow used	50	100	25
	Reference Weekly Flow (cfs)	435	870	218
	Reference Monthly Flow (cfs)	755	1510	378
Criteria mg/L	4-day Chronic			
	Early Life Stages Present	8.75	4.68	10.84
	Early Life Stages Absent	8.75	4.68	14.00
	30-day Chronic			
	Early Life Stages Present	3.50	1.87	4.34
	Early Life Stages Absent	3.50	1.87	5.60
	Weekly Average			

Attachment #1

		April & May	June-September	October-March
Effluent Limitations mg/L	Early Life Stages Present	545	575	342
	Early Life Stages Absent			
	Monthly Average			
	Early Life Stages Present	372	389	230
	Early Life Stages Absent			

Effluent Data

The following table evaluates the statistics based upon ammonia data reported from January 2022 to December 2023, with those results being compared to the calculated limits to determine the need to include ammonia limits in the Stevens Point Wastewater Treatment Facility permit for the respective month ranges.

Ammonia Nitrogen Effluent Data

Ammonia Nitrogen mg/L	April & May	June-September	October-March
1-day P ₉₉	55.0	57.8	63.0
4-day P ₉₉	41.2	39.7	44.0
30-day P ₉₉	33.7	30.4	34.0
Mean	29.9	25.8	29.0
Std	8.5	10.1	11.0
Sample size	48	96	144
Range	17 - 50	3.48 - 48.2	8 - 66

Based on this comparison, daily limits are required June through March.

The permit currently has year-round daily maximum, weekly average, and monthly average limits. Where there are existing ammonia nitrogen limits in the permit, the limits must be retained regardless of reasonable potential, consistent with s. NR 106.33(1)(b), Wis. Adm. Code:

- (b) If a permittee is subject to an ammonia limitation in an existing permit, the limitation shall be included in any reissued permit. Ammonia limitations shall be included in the permit if the permitted facility will be providing treatment for ammonia discharges.

Conclusions and Recommendations

In summary, the current limits and monitoring for ammonia nitrogen are recommended to continue with an updated variable daily maximum table, expanded throughout the pH range .

Final Ammonia Nitrogen Limits

	Daily Maximum mg/L	Weekly Average mg/L	Monthly Average mg/L
April & May	Variable	52	52
June-September	Variable	52	52
October-March	Variable	52	52

PART 4 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR BACTERIA

Section NR 102.04(5), Wis. Adm. Code, states that all surface waters shall be suitable for supporting recreational use and shall meet *E. coli* criteria during the recreation season. Section NR 102.04(5)(b), Wis. Adm. Code, allows the Department to make exceptions when it determines, in accordance with s. NR 210.06(3), Wis. Adm. Code, that wastewater disinfection is not required to meet *E. coli* limits and protect the recreational use. Section NR 210.06(3), Wis. Adm. Code, tasks the Department with determining the need for disinfection using a site-specific analysis based on potential risk to human or animal health. It sets out the factors that must be considered in determining the necessity to disinfect municipal wastewater or to change the length of the disinfection season.

1. The geometric mean of *E. coli* bacteria in effluent samples collected in any calendar month may not exceed 126 counts/100 mL.
2. No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 counts/100 mL.

E. coli monitoring is recommended at the same frequency that fecal coliform monitoring is required in the current permit. The Stevens Point Wastewater Treatment Facility permit requires weekly monitoring. Any additional monitoring beyond what is required by the permit must also be reported on the DMR as required in the standard requirements section of the permit.

These limits are required during May through September. No changes are recommended to the required disinfection season.

Effluent Data

The Stevens Point Wastewater Treatment Facility has monitored effluent *E. coli* from August 2022 to July 2023 and a total of 22 results are available. A geometric mean of 126 counts/100 mL was exceeded in 1 out of 5 months, with a maximum monthly geometric mean of 184 counts/100 mL. Effluent data exceeded 410 counts/100 mL 4 times (which is 18% of the total sample results). The maximum reported value was 1046 counts/100 mL. Based on this effluent data it appears that the facility can meet new *E. coli* limits and a compliance schedule is not needed in the reissued permit.

PART 5 – PHOSPHORUS

Technology-Based Effluent Limit

Subchapter II of Chapter NR 217, Wis. Adm. Code, requires municipal wastewater treatment facilities that discharge greater than 150 pounds of Total Phosphorus per month to comply with a monthly average limit of 1.0 mg/L, or an approved alternative concentration limit.

Because the Stevens Point Wastewater Treatment Facility currently has a limit that is more restrictive than 1.0 mg/L, this limit should be included in the reissued permit. This limit remains applicable unless a more stringent WQBEL is given.

TMDL Limits – Phosphorus

Total phosphorus (TP) effluent limits in lbs/day are calculated as recommended in the *TMDL Development and Implementation Guidance: Integrating the WPDES and Impaired Waters Programs* (May 2020). The wasteload allocations (WLA) that implement site-specific criteria for Lakes Petenwell, Castle Rock, and Wisconsin are found in Appendix K of the *Total Maximum Daily Loads for Total Phosphorus in the Wisconsin River Basin (WRB TMDL)* report dated April 26, 2019 and are expressed as maximum annual loads (lbs/year) and maximum daily loads (lbs/day). The WLA that implement statewide criteria found in Appendix J of the TMDL report are no longer applicable following approval of these site-specific criteria. The daily WLAs in the WRB TMDL equals the annual WLA divided by the number of days in the year. Therefore, the daily WLA is an annual average. Since the derivation of daily WLAs from annual WLAs does not take effluent variability or monitoring frequency into consideration, maximum daily WLAs from the WRB TMDL should not be used directly as permit effluent limits.

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 the phosphorus WQBELs set equal to WLAs would not be consistent with the assumptions and requirements of the TMDL.

Therefore, limits given to continuously discharging facilities covered by the WRB TMDL are given monthly average mass limits. If the equivalent effluent concentration is less than or equal to 0.3 mg/L, six-month average mass limits are also included. The following equation shows the calculation of equivalent effluent concentration:

$$\begin{aligned}\text{TP Equivalent Effluent Concentration} &= \text{Daily WLA} \div (\text{Flow Rate} * \text{Conversion Factor}) \\ &= 13.895 \text{ lbs/day} \div (4.550 \text{ MGD} * 8.34) \\ &= 0.37 \text{ mg/L}\end{aligned}$$

Since this value is greater than 0.3 mg/L, the WLA should be expressed as a monthly average mass limit for total phosphorus and no six-month average limit is required.

$$\begin{aligned}\text{TP Monthly Average Permit Limit} &= \text{Daily WLA} * \text{Monthly average multiplier} \\ &= 13.895 \text{ lbs/day} * 1.45 \\ &= 20.12 \text{ lbs/day}\end{aligned}$$

The multiplier used in the monthly average calculation was determined according to TMDL implementation guidance. A standard coefficient of variation (CV) of 0.6, along with monitoring frequency, is used to select the multiplier. The current permit specifies phosphorus monitoring as thrice weekly; if a different monitoring frequency is used, the stated limits should be reevaluated.

The WRB TMDL establishes TP wasteload allocations to reduce the loading in the entire watershed including WLAs to meet water quality standards for tributaries to the Wisconsin River. Therefore, WLA-based WQBELs are protective of immediate receiving waters and TP WQBELs derived according to s. NR 217.13, Wis. Adm. Code are not required.

Attachment #1

Since wasteload allocations are expressed as annual loads (lbs/yr), permits with TMDL-derived monthly average permit limits should require the permittee to calculate and report rolling 12-month sums of total monthly loads for TP. Rolling 12-month sums can be compared directly to the annual wasteload allocation. Six-month average limits apply in the periods May – October and November – April.

Effluent Data

The following table lists the statistics for effluent phosphorus levels from January 2022 to October 2024 for informational purposes. In the cases where reporting the mass discharge is not required in the current permit, the mass is calculated using the reported phosphorus concentration and the effluent flow rate for that day.

Total Phosphorus Statistics

	Concentration (mg/L)	Mass Discharge (lbs/day)
1-day P ₉₉	0.70	14.70
4-day P ₉₉	0.55	11.35
30-day P ₉₉	0.38	7.76
Mean	0.30	6.10
Std	0.12	2.51
Sample Size	408	408
Range	<0.06 - 0.8	1.32 - 17.63

Antidegradation & Antibacksliding

Because the mass-based effluent limitation for phosphorus is consistent with the wasteload allocation and assumptions of a US EPA approved TMDL that is designed to achieve water quality standards in ch. NR 102, Wis. Adm. Code, this TMDL based limitation may be included in a permit in lieu of the current phosphorus limit. To be consistent with TBEL requirements, a concentration limit of 1.0 mg/L would still be needed in accordance with s. NR 217.04, Wis. Adm. Code. If the Stevens Point Wastewater Treatment Facility would like to request an increase to the existing phosphorus limit, an assessment of their effluent data consistent with the requirements of ss. NR 207.04(1)(a) and (c), Wis. Adm. Code, must be provided. This evaluation is on a parameter by parameter basis and includes consideration of operations, maintenance and temporary upsets. Without a demonstration of need for a higher limit in accordance with s. NR 207.04, Wis. Adm. Code, the current limit of 0.93 mg/L must be continued in the reissued permit.

Conclusions:

In summary, the following limits are recommended by this evaluation:

- Monthly average Total Phosphorus mass limit of 0.93 mg/L
- Monthly average Total Phosphorus mass limit of 20.12 lbs/day

PART 6 – WATER QUALITY-BASED EFFLUENT LIMITATIONS

Attachment #1
FOR THERMAL

Surface water quality standards for temperature took effect on October 1, 2010. These regulations are detailed in chs. NR 102 (Subchapter II – Water Quality Standards for Temperature) and NR 106 (Subchapter V – Effluent Limitations for Temperature) of the Wisconsin Administrative Code. Daily maximum and weekly average temperature criteria are available for the 12 different months of the year depending on the receiving water classification.

Due to the amount of upstream flow available for dilution in the limit calculation ($Q_s:Q_e > 20:1$), the lowest calculated limitation is 120° F (s. NR 106.55(6)(a), Wis. Adm. Code). For activated sludge treatment systems of domestic waste, there is no reasonable potential for the discharge to exceed this limit. **Therefore, no temperature limits or monitoring are recommended.**

PART 7 – WHOLE EFFLUENT TOXICITY (WET)

WET testing is used to measure, predict, and control the discharge of toxic materials that may be harmful to aquatic life. In WET tests, organisms are exposed to a series of effluent concentrations for a given time and effects are recorded. Decisions below related to the selection of representative data and the need for WET limits were made according to ss. NR 106.08 and 106.09, Wis. Adm. Code. WET monitoring frequency and toxicity reduction evaluation (TRE) recommendations were made using the best professional judgment of staff familiar with the discharge after consideration of the guidance in the *Whole Effluent Toxicity (WET) Program Guidance Document (2022)*.

- Acute tests predict the concentration that causes lethality of aquatic organisms during a 48 to 96-hour exposure. To assure that a discharge is not acutely toxic to organisms in the receiving water, WET tests must produce a statistically valid LC50 (Lethal Concentration to 50% of the test organisms) greater than 100% effluent, according to s. NR 106.09(2)(b), Wis. Adm Code.
- Chronic testing is usually not recommended where the ratio of the 7-Q₁₀ to the effluent flow exceeds 100:1. For Stevens Point, that ratio is approximately 158:1. With this amount of dilution, there is believed to be little potential for chronic toxicity effects in the Wisconsin River associated with the discharge from the Stevens Point WWTF, so the need for chronic WET testing will not be considered further.
- According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual*, a synthetic (standard) laboratory water may be used as the dilution water and primary control in acute WET tests, unless the use of different dilution water is approved by the Department prior to use. The primary control water must be specified in the WPDES permit.
- Shown below is a tabulation of all available WET data for Outfall 001. Efforts are made to ensure that decisions about WET monitoring and limits are made based on representative data, as specified in s. NR 106.08(3), Wis. Adm Code. Data which is not believed to be representative of the discharge was not included in reasonable potential calculations. The table below differentiates between tests used and not used when making WET determinations.

WET Data History

Attachment #1

Date Test Initiated	Acute Results				Chronic Results					Footnotes or Comments
	LC ₅₀ %				IC ₂₅ %					
	<i>C. dubia</i>	Fathead minnow	Pass or Fail?	Used in RP?	<i>C. dubia</i>	Fathead Minnow	Algae (IC ₅₀)	Pass or Fail?	Use in RP?	
08/25/1992						>30				1
08/23/1994	>100	>100	Pass	No	>80	>80		Pass	No	1
08/29/1995	>100	>100	Pass	No						1
11/07/1995	>100	>100	Pass	No						1
02/13/1996	>100	>100	Pass	No						1
04/30/1996	>100	>100	Pass	No						1
02/16/1999	>100	>100	Pass	No						1
08/13/2003	>100	>100	Pass	No						1
10/13/2004	>100	>100	Pass	No						1
03/30/2006	73.49	89.09	Fail	Yes						
06/07/2006	>100	>100	Pass	Yes						
06/21/2006	>100	>100	Pass	Yes						
06/13/2007	>100	>100	Pass	Yes						
08/13/2008	>100	>100	Pass	Yes						
10/07/2009	>100	>100	Pass	Yes						
06/16/2010	>100	>100	Pass	Yes						
07/22/2015	>100	>100	Pass	Yes						
05/20/2020	>100	89.2	Fail	Yes						
06/03/2020	>100	>100	Pass	Yes						
07/15/2020	>100	>100	Pass	Yes						
08/02/2021	>100	>100	Pass	Yes						
01/02/2023	>100	>100	Pass	Yes						
03/07/2023	>100	>100	Pass	Yes						
01/30/2024	>100	>100	Pass	Yes						

Footnotes:

1. *Data Not Representative.* Significant changes were made to WET test methods in 2004 and these changes were assumed to be fully implemented by certified labs by no later than June 2005.
- According to s. NR 106.08, Wis. Adm. Code, WET reasonable potential is determined by multiplying the highest toxicity value that has been measured in the effluent by a safety factor, to predict the likelihood (95% probability) of toxicity occurring in the effluent above the applicable WET limit. The safety factor used in the equation changes based on the number of toxicity detects in the dataset. The fewer detects present, the higher the safety factor, because there is more uncertainty surrounding the predicted value. WET limits must be given, according to s. NR 106.08(6), Wis. Adm. Code, whenever the applicable Reasonable Potential equation results in a value greater than 1.0.

$$\text{Acute Reasonable Potential} = [(TU_a \text{ effluent})(B)]$$

Acute WET Limit Parameters

TU_a (maximum) 100/LC50	B (multiplication factor from s. NR 106.08(5)(c), Wis. Adm. Code, Table 4)
100/73.5 = 1.4 TU _a	3.8 Based on 2 detects

$$[(TU_a \text{ effluent})(B)] = 5.2 > 1.0$$

Therefore, reasonable potential is shown for an acute WET limit using the procedures in s. NR 106.08(6) and representative data from 2006 to 2024.

Expression of WET limits

Acute WET limit = 1.0 TU_a (daily maximum)

The WET checklist was developed to help DNR staff make recommendations regarding WET limits, monitoring, and other related permit conditions. The checklist indicates whether acute and chronic WET limits are needed, based on requirements specified in s. NR 106.08, Wis. Adm. Code. The checklist steps the user through a series of questions, assesses points based on the potential for effluent toxicity, and suggests monitoring frequencies based on points accumulated during the checklist analysis. As toxicity potential increases, more points accumulate, and more monitoring is recommended to ensure that toxicity is not occurring. A summary of the WET checklist analysis completed for this permittee is shown in the table below. Staff recommendations based on best professional judgment are provided below the summary table. For guidance related to reasonable potential and the WET checklist, see Chapter 1.3 of the WET Guidance Document: <https://dnr.wisconsin.gov/topic/Wastewater/WET.html>.

WET Checklist Summary

	Acute	Chronic
AMZ/IWC	Not Applicable. 0 Points	Chronic WET not evaluated.
Historical Data	15 tests used to calculate RP. 2/15 tests failed. 0 Points	
Effluent Variability	Fecal Coliform exceedances. 5 Points	
Receiving Water Classification	Warm Water Sport Fish (WWSF) (5 pts) 5 Points	
Chemical-Specific Data	Reasonable potential for Ammonia limits based on ATC; (5 pts) Chromium, Copper, Mercury, Nickel, Zinc, and Chloride detected. (3 pts) Additional Compounds of Concern: Chloroform and Endosulfan (2 pts) 10 Points	

Attachment #1

	Acute	Chronic
Additives	No biocides and one water quality conditioner (1 pt) added. Permittee has proper P chemical SOPs in place. 1 Point	
Discharge Category	Ten Industrial Contributors (14 pts) 14 Points	
Wastewater Treatment	Secondary or Better 0 Points	
Downstream Impacts	No impacts known. 0 Points	
Total Checklist Points:	35 Points	
Recommended Monitoring Frequency (from Checklist):	1x yearly	
Limit Required?	Yes Limit = 1.0 TU _a	
TRE Recommended? (from Checklist)	No	

- After consideration of the guidance provided in the Department's WET Program Guidance Document (2022) and other information described above, annual acute WET tests are recommended in the reissued permit. Sampling WET concurrently with any chemical-specific toxic substances is recommended. Tests should be done in rotating quarters, to collect seasonal information about this discharge and should continue after the permit expiration date (until the permit is reissued).
- According to the requirements specified in s. NR 106.08, Wis. Adm. Code, an acute WET limit is required. The acute WET limit shall be expressed as 1.0 TU_a as a daily maximum in the effluent limits table of the permit.
- A minimum of annual acute monitoring is required because an acute WET limit is required. Federal regulations in 40 CFR Part 122.44(i) require that monitoring occur at least once per year when a limit is present.
- A minimum of annual acute monitoring is recommended because the Stevens Point Wastewater Treatment Facility is a major municipal discharger with a design flow greater than 1.0 MGD. Federal regulations at 40 CFR Part 122.21(j) require at least 4 acute and chronic WET tests with each permit application on samples collected since the previous reissuance. Therefore, annual monitoring is recommended in the permit term, so that data will be available for the next permit application.

