Permit Fact Sheet

General Information

Permit Number	WI-0029670-11-0
Permittee Name and Address	TOWN OF PORT WING PO Box 28 83190 Grand Ave, Port Wing, WI 54865
Permitted Facility Name and Address	Town Of Port Wing Wheeler Drive, Port Wing, WI. T50N-R8W, Section 29, SWQ; Bayfield County
Permit Term	January 01, 2027 to December 31, 2031
Discharge Location	Wetland discharge directly west of the plant off Okerstrom Road, Port Wing, WI T50N-R8W, Section 29, SWQ; Bayfield County
Receiving Water	A wetland within the Bayfield Peninsula Northwest watershed (LS06) in the Lake Superior drainage basin in Bayfield County
Stream Flow ($Q_{7,10}$)	Tributary = 0.0 cfs
Stream Classification	The wetland is classified as limited aquatic life (LAL), non-public water supply, recreational use and within the ceded territory.
Wild Rice Impacts *(no specific wild rice standards exist at this time)*	No impacts identified. No wild rice inventoried on this surface water. (Evaluation completed March 2017)
Discharge Type	Existing noncontinuous
Annual Average Design Flow (MGD)	0.05 MGD
Industrial or Commercial Contributors	N/A
Plant Classification	A3 - Recirculating Media Filters; SS - Sanitary Sewage Collection System
Approved Pretreatment Program?	N/A

Facility Description

The Town of Port Wing owns and operates a domestic wastewater treatment system. The plant is designed to treat 50,000 gallons per day and currently treats an average of 36,000 gallons per day (January 2021- August 2026 data). The treatment system consists of two, 2-cell septic pretreatment tanks where solids are settled out. The wastewater then flows to a recirculation tank where it is mixed with return wastewater from a recirculating sand filter. The mixed wastewater is pumped to the recirculating sand filter where it is evenly distributed over 2 cells of a 4-cell filter bed (30,000 sq. ft) constructed of layers of fine and coarse sand. Distribution to the filter bed cells is seasonally rotated to 2 cells, while the other 2 cells are "wetted" as part of the routine maintenance cycle. Naturally occurring microorganisms living on the sand particles clean the wastewater. Effluent returning from the recirculating sand filter flows to a splitter box where a portion of the treated effluent is discharged to an unnamed wetland to the west of the facility in Bayfield County; the remainder flows back to the recirculation tank. The solids from the septic tanks are pumped regularly to prevent the discharge of accumulated solids to the sand filters. These solids are considered septage and are regulated under Chapter NR 113, Wisconsin Administrative Code, for septage disposal.

Substantial Compliance Determination

After a desktop review of all discharge monitoring reports, CMARs, and compliance schedule items, and a site visit on 8/21/2025, by Eric de Venecia, WDNR, the Town of Port Wing (TPW) has been found to be in substantial compliance with their current permit. A desktop review and updated substantial compliance determination were performed 10/13/2026, including review of DMRs, CMAR, and follow-up to 2025 inspection comments. Outstanding items from the original compliance inspection have been or are being resolved. Therefore, the TPW has been found to be in substantial compliance with their current permit.

Sample Point Descriptions

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)**
702	INFLUENT An average of 0.036 MGD. (January 2021- August 2026 data)	24-hour flow-proportional composite samples shall be collected at the head of the plant influent flume. Flow monitoring is taken from the head of the plant.
004	EFFLUENT An average of 0.031 MGD. (January 2021- August 2026 data)	24-hour flow-proportional composite samples shall be collected from the effluent pumping chamber. Flow monitoring is measured in the recirculation chamber.
990	SEPTAGE Flow is a required parameter	All septic tank solids shall be managed in compliance with Chapter NR 113, Wisconsin Administrative Code for servicing septic or holding tanks.

Permit Requirements

1 Influent – Monitoring Requirements

1.1 Sample Point Number: 702- NEW INFLUENT FLUME

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
BOD5, Total		mg/L	2/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total		mg/L	2/Week	24-Hr Flow Prop Comp	

Changes from Previous Permit:

Influent 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.

- The monitoring frequency for BOD and Total Suspended Solids was changed from weekly to twice a week to remain consistent with effluent monitoring and the minimum standard monitoring frequencies recommended in the Monitoring Frequencies for Individual Wastewater Permits guidance (April 12, 2021) for recirculating sand filter systems.

Explanation of Limits and Monitoring Requirements

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

2 Surface Water - Monitoring and Limitations

2.1 Sample Point Number: 004- EFFLUENT TO WETLAND

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
BOD5, Total	Monthly Avg	20 mg/L	Weekly	24-Hr Flow Prop Comp	
BOD5, Total	Weekly Avg	30 mg/L	Weekly	24-Hr Flow Prop Comp	
Suspended Solids, Total	Monthly Avg	20 mg/L	Weekly	24-Hr Flow Prop Comp	
Suspended Solids, Total	Weekly Avg	30 mg/L	Weekly	24-Hr Flow Prop Comp	
pH Field	Daily Max	9.0 su	Weekly	Grab	
pH Field	Daily Min	6.0 su	Weekly	Grab	
Dissolved Oxygen	Daily Min	4.0 mg/L	Weekly	Grab	
E. coli	Geometric Mean - Monthly	126 #/100 ml	Weekly	Grab	Monitoring and limit effective May through September annually per the Effluent Limitations for E. coli Schedule.
E. coli	% Exceedance	10 Percent	Monthly	Calculated	Monitoring and limit effective May through September annually per the Effluent Limitations for E.

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					coli Schedule. See the E. coli Percent Limit section below. Enter the result in the DMR on the last day of the month.
Chlorine, Total Residual	Daily Max	19 ug/L	5/Week	Grab	Monitoring and limit effective only when chlorine is used.
Chlorine, Total Residual	Monthly Avg	7.3 ug/L	5/Week	Grab	Monitoring and limit effective only when chlorine is used.
Chlorine, Total Residual	Weekly Avg	7.3 ug/L	5/Week	Grab	Monitoring and limit effective only when chlorine is used.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	28 mg/L	Weekly	24-Hr Flow Prop Comp	Limit is effective April through May.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	20 mg/L	Weekly	24-Hr Flow Prop Comp	Limit effective June through September.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	32 mg/L	Weekly	24-Hr Flow Prop Comp	Limit effective October through December.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	47 mg/L	Weekly	24-Hr Flow Prop Comp	Limit effective January through March.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	70 mg/L	Weekly	24-Hr Flow Prop Comp	Limit is effective April through May.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	49 mg/L	Weekly	24-Hr Flow Prop Comp	Limit effective June through September.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	81 mg/L	Weekly	24-Hr Flow Prop Comp	Limit effective October through December.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	83 mg/L	Weekly	24-Hr Flow Prop Comp	Limit effective January through March.
Nitrogen, Ammonia (NH3-N) Total	Daily Max - Variable	mg/L	Weekly	24-Hr Flow Prop Comp	Enter the daily ammonia result on the eDMR and compare it to the Nitrogen, Ammonia Variable Limit column to determine compliance.
Nitrogen, Ammonia Variable Limit		mg/L	Weekly	See Table	Using the daily pH result look up the applicable ammonia limit using the table in the Ammonia

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					Limitation permit section and report the variable limit on the eDMR.
Phosphorus, Total		mg/L	Monthly	24-Hr Flow Prop Comp	Monitoring is required during 2029.
Nitrogen, Total Kjeldahl		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	See the permit Total Nitrogen Testing subsection for testing schedule.
Nitrogen, Nitrite + Nitrate Total		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	See the permit Total Nitrogen Testing subsection for testing schedule.
Nitrogen, Total		mg/L	See Listed Qtr(s)	Calculated	Total Nitrogen = Total Nitrogen Kjeldahl (mg/L) + Nitrate+ Nitrogen (mg/L). See the permit Total Nitrogen Testing subsection for testing schedule.

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.

- Monitoring frequency for **BOD, Total Suspended Solids** and **Ammonia** have changed from weekly to twice a week and **pH** and **Dissolved Oxygen** have changed from weekly to five times a week. The frequency change was implemented to meet standard minimum monitoring frequencies post upgrade which is based on the size and type of the facility.
- **E. coli –** Seasonable monitoring and limits for Escherichia coli (E. coli) will begin at the end of the "Disinfection and Effluent Limitations for E. coli" schedule.
- **Chlorine** - There is a "Disinfection and Effluent Limitations for E. coli" schedule in the permit to meet E. coli limits. One disinfection option is the use of a chlorine contact system. If the chlorine disinfection option is used, the limits for chlorine have been included in the permit. Monitoring is required only if chlorine is used.

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 September 3, 2026.

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.

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

3 Septage Management - Monitoring and Limitations

Septage management is required in accordance ch. NR 113, Wisconsin Administrative Code. Records must be kept and made available to the Department on request. Required record keeping includes volumes of septage pumped, dates when the septage was removed, land application site DNR number and method used to satisfy pathogen and vector control, and/or the treatment plant where septage is disposed. Annual reporting is required when the permittee land applies the septage. Annual reporting is also required when the permittee disposes of septage at a designated treatment facility.

3.1 Sample Point Number: 990- SEPTIC TANK SOLIDS

Changes from Previous Permit:

Septage requirements were evaluated for this permit term, and no changes were made from the previous permit.

Explanation of Limits and Monitoring Requirements

Requirements for septage management are determined in accordance with ch. NR 113, Wis. Adm. Code.

4 Schedules

4.1 Disinfection and Effluent Limitations for E. coli

Required Action	Due Date
Progress Report: The permittee shall submit a progress report on development and submittal of a facility plan for upgrades to meet disinfection requirements and E. coli limits.	09/30/2027
Submit Facility Plan: The permittee shall submit a Facility Plan per s. NR 110.09, Wis. Adm. Code for meeting disinfection requirements and complying with E. coli surface water limitations. The permittee may submit an abbreviated facility plan if the Department determines that the modifications are minor.	04/30/2028
Final Plans and Specifications: The permittee shall submit final construction plans to the Department for approval pursuant to ch. NR 108, Wis. Adm. Code, specifying treatment plant upgrades that must be constructed to meet disinfection requirements per s. NR 210.06(1), Wis. Adm Code, achieve compliance with final E. coli limitations, and a schedule for completing construction of the upgrades by the complete construction date specified below.	03/31/2029
Treatment Plant Upgrade to Meet Limitations: The permittee shall initiate bidding, procurement, and/or construction of the project. The permittee shall obtain approval of the final construction plans and schedule from the Department pursuant to s. 281.41. Stats., prior to initiating activities defined as construction under ch. NR 108, Wis. Adm. Code. Upon approval of the final construction plans and schedule by the Department pursuant to s. 281.41, Stats., the permittee shall construct the treatment plant upgrades in accordance with the approved plans and specifications.	09/30/2029
Construction Upgrade Progress Report: The permittee shall submit a progress report on construction upgrades.	09/30/2030

Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades.	03/31/2031
Achieve Compliance: The permittee shall achieve compliance with final E. coli limitations.	04/30/2031

Explanation of Schedule

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

4.2 Septic Tanks

Required Action	Due Date
Monitoring: Report on the levels of septic tank solids. Submit results to your area DNR wastewater compliance staff.	12/31/2028
Monitoring: Report on the levels of septic tank solids. Submit results to your area DNR wastewater compliance staff.	12/31/2030

Explanation of Schedule

Septic Tanks – A report of the depth of solids in the septic tank is required twice during the permit term. This information is important to determine the effectiveness of the septic tanks and when septage removal is needed.

Attachments

Water Flow Schematic created in 2020

Water Quality Based Effluent Limitations for the Town of Port Wing WPDES Permit No. WI-0029670-11-0 memo dated September 3, 2026

Justification Of Any Waivers From Permit Application Requirements

A decision has been made not to require effluent monitoring for metals in the application because:

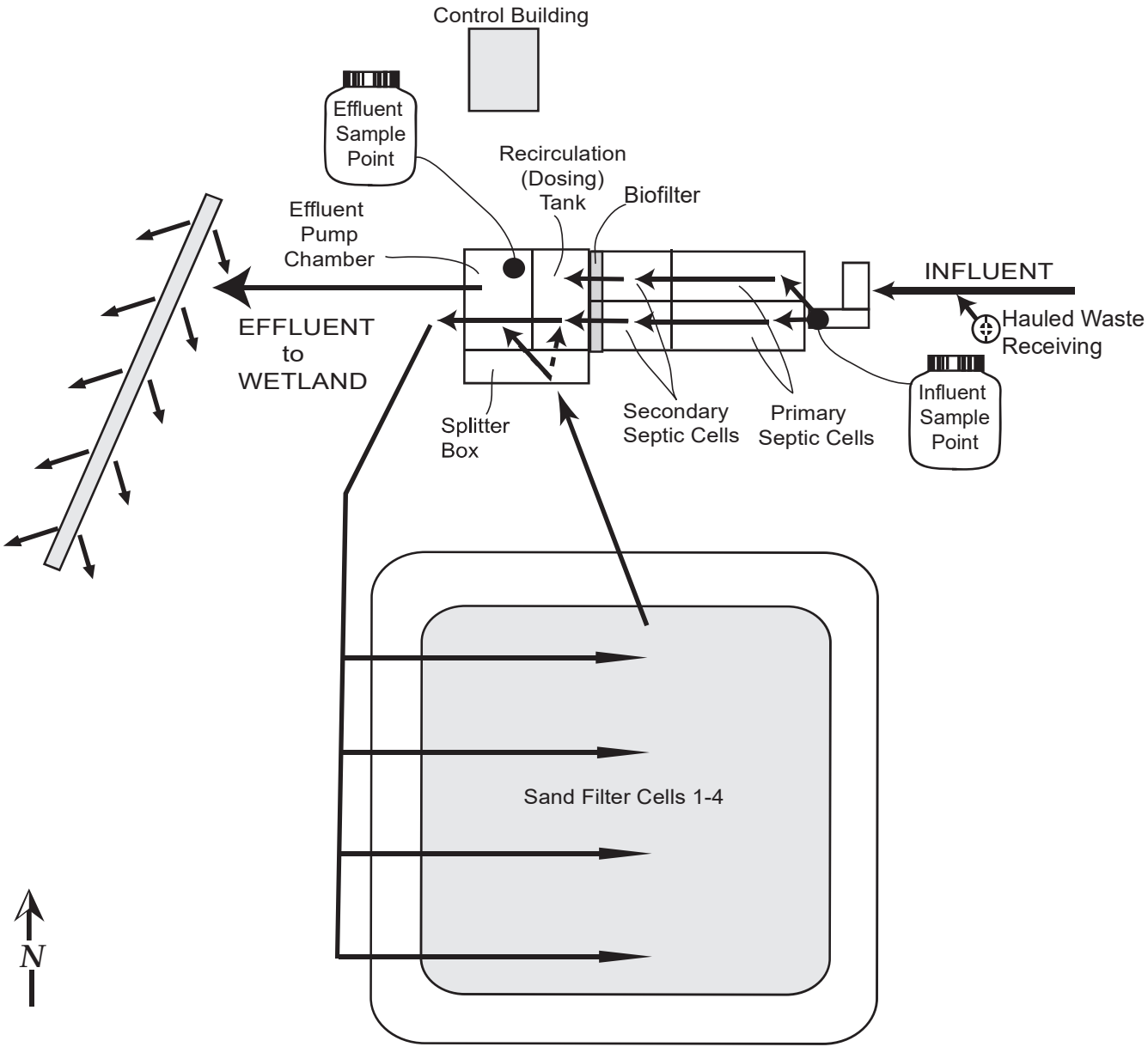
1. The low design flow (0.05 MGD) and low actual flows (an average of 0.036 MGD) from this facility.
2. The wastewater is all domestic with no industrial contributors to the collection system.
3. The metals in the sludge are well below high quality sludge limits which correlates to low metal concentrations in the effluent.
4. Based on the total points accumulated on the WET checklist and Chapter 1.3 of the WET Guidance Document there is little likelihood the effluent is toxic.

Prepared By: Sheri A. Snowbank Wastewater Specialist **Date:** October 6, 2026

WPDES Permit No. WI-0029670

Town of Port Wing
Wastewater Treatment Plant

The Port Wing wastewater treatment facility has 2-cell septic pretreatment followed by a 4-cell recirculation sand filter with 30,000 square feet of surface area. The facility discharges to a wetland directly west of the facility.



● Represents sample locations
← Wastewater Flow
◄- Recircluated Flow
NOT TO SCALE

Flow: 0.05 MGD
Design BOD: 91 lbs/day
Construction year: 2010

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: September 3, 2026

TO: Sheri Snowbank – NOR/Spooner Service Center

FROM: Michael Polkinghorn – NOR/Rhinelander Service Center Michael Polkinghorn

SUBJECT: Water Quality-Based Effluent Limitations for the Town of Port Wing
WPDES Permit No. WI-0029670-11-0

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 Town of Port Wing in Bayfield County. This municipal wastewater treatment facility (WWTF) discharges to a wetland tributary to a wetland, located in the Sand River – Frontal Lake Superior Watershed in the Lake Superior Basin. 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 004:

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Footnotes
Flow Rate					1
BOD_5			30 mg/L	20 mg/L	1, 2
TSS			30 mg/L	20 mg/L	1, 2
pH	9.0 s.u.	6.0 s.u.			1, 2
Dissolved Oxygen		4.0 mg/L			1, 2
E. coli May – September				126 #/100 mL geometric mean	3
Ammonia Nitrogen April – May June – September October – December January – March	 Variable Variable Variable Variable		 **70 mg/L** **49 mg/L** **81 mg/L** **83 mg/L**	 **28 mg/L** **20 mg/L** **32 mg/L** **47 mg/L**	1, 4, 5
Phosphorus					1
TKN, Nitrate+Nitrite, and Total Nitrogen					1, 6

Footnotes:

1. No changes from the current permit.
2. These limits are based on the Limited Aquatic Life (LAL) community of the immediate receiving water as described in s. NR 104.02(3)(b), Wis. Adm. Code.
3. Additional final limit: No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 count/100 mL. A compliance schedule will be included in the reissued permit to mee the final limits. The facility can conduct effluent *E. coli* monitoring which shows that the discharge can meet bacteria limits during the recreation season without disinfection during the compliance schedule. *E. coli* effluent monitoring should be included in the permit in order to ensure that the recreational use is being protected (criteria are being met) without disinfection. Monitoring should be conducted at a minimum of 1x/wk for one disinfection season during the permit term and the need for disinfection revisited at permit reissuance or permit modification or if factors such as dilution or detention times change.

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4. 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.
5. The variable daily maximum ammonia nitrogen limit table corresponding to various effluent pH values may be included in the permit in place of the single limit.

Daily Maximum Ammonia Nitrogen Limits

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
$6.0 \leq pH \leq 6.1$	83	$7.0 < pH \leq 7.1$	51	$8.0 < pH \leq 8.1$	11
$6.1 < pH \leq 6.2$	82	$7.1 < pH \leq 7.2$	46	$8.1 < pH \leq 8.2$	8.8
$6.2 < pH \leq 6.3$	80	$7.2 < pH \leq 7.3$	40	$8.2 < pH \leq 8.3$	7.3
$6.3 < pH \leq 6.4$	78	$7.3 < pH \leq 7.4$	35	$8.3 < pH \leq 8.4$	6.0
$6.4 < pH \leq 6.5$	75	$7.4 < pH \leq 7.5$	31	$8.4 < pH \leq 8.5$	5.0
$6.5 < pH \leq 6.6$	72	$7.5 < pH \leq 7.6$	26	$8.5 < pH \leq 8.6$	4.1
$6.6 < pH \leq 6.7$	69	$7.6 < pH \leq 7.7$	22	$8.6 < pH \leq 8.7$	3.4
$6.7 < pH \leq 6.8$	65	$7.7 < pH \leq 7.8$	19	$8.7 < pH \leq 8.8$	2.8
$6.8 < pH \leq 6.9$	60	$7.8 < pH \leq 7.9$	16	$8.8 < pH \leq 8.9$	2.4
$6.9 < pH \leq 7.0$	56	$7.9 < pH \leq 8.0$	13	$8.9 < pH \leq 9.0$	2.0

6. As recommended in the Department's October 1, 2019 Guidance for Total Nitrogen Monitoring in Wastewater Permits, annual total nitrogen monitoring is recommended for all minor municipal permittees. Sections 283.37(5) and 283.55(1)(e), Wis. Stats, and ss. NR 200.065(1)(g) and NR 200.065(1)(h), Wis. Adm. Codes, provide the authority to request this monitoring during the permit term. Total Nitrogen is the sum of nitrate (NO_3), nitrite (NO_2), and total Kjeldahl nitrogen (TKN) (all expressed as N).

No WET testing is required because information related to the discharge indicates low to no risk for toxicity.

Please consult the attached report for details regarding the above recommendations. If there are any questions or comments, please contact Michael Polkinghorn at (715) 360-3379 or Michael.Polkinghorn@wisconsin.gov and Diane Figiel at Diane.Figiel@wisconsin.gov.

Attachments (2) – Narrative & discharge area map

PREPARED BY: Michael A. Polkinghorn – Water Resources Engineer

E-cc: Eric de Venecia, Regional Wastewater Engineer – NOR Superior Service Center
Michelle BalkLudwig, Regional Wastewater Supervisor – NOR/Spooner Service Center
Diane Figiel, Water Resources Engineer – WY/3
Nate Willis, Wastewater Engineer – WY/3
Anya Jeninga-Nehls, Wastewater Specialist – WY/3

Attachment #1

Water Quality-Based Effluent Limitations for
Town of Port Wing

WPDES Permit No. WI-0029670-11-0

Prepared by: Michael A. Polkinghorn

PART 1 – BACKGROUND INFORMATION

Facility Description

The Town of Port Wing owns and operates a WWTF constructed in 2010. Influent wastewater flows into a 2-cell primary septic tank followed by a 2-cell secondary septic tank where solids are settled out. Influent then proceeds to a dosing chamber where it is mixed with effluent from the recirculating sand filter system (RSF). Dedicated dosing pumps apply the mixed wastewater to the 30,000 ft^2, 4-cell RSF system (2 cells at a time) which are constructed of fine to coarse sand layers. Organic matter in the wastewater is consumed by the naturally occurring microorganisms on the sand particles. Effluent finally proceeds to the recirculating chamber to either be discharged or mixed with influent in the dosing chamber to flow into the RSF system again. Discharge occurs on a noncontinuous basis via a 100 ft perforated pipe (Outfall 004) to a wetland tributary north of the WWTP and east of Larson Creek near Okerstrom Road. Although the discharge occurs year-round, discharge only occurs for 1 – 2 hrs/day.

Attachment #2 is discharge area map of Outfall 004.

Existing Permit Limitations

The current permit, expiring on 12/31/2026, includes the following effluent limitations and monitoring requirements.

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Footnotes
Flow Rate					1
BOD_5			30 mg/L	20 mg/L	1, 2
TSS			30 mg/L	20 mg/L	1, 2
pH	9.0 s.u.	6.0 s.u.			1, 2
Dissolved Oxygen		4.0 mg/L			1, 2
Ammonia Nitrogen April – May June – September October – December January – March	 Variable Variable Variable Variable		 **70 mg/L** **49 mg/L** **81 mg/L** **83 mg/L**	 **28 mg/L** **20 mg/L** **32 mg/L** **47 mg/L**	1, 3, 4
Phosphorus					5
TKN, Nitrate+Nitrite, and Total Nitrogen					1, 6

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. These limits are based on the Limited Aquatic Life (LAL) community of the immediate receiving water as described in s. NR 104.02(3)(b), Wis. Adm. Code.
3. 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.
4. The variable daily maximum ammonia nitrogen limit table corresponding to various effluent pH values may be included in the permit in place of the single limit.

Daily Maximum Ammonia Nitrogen Limits

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
$6.0 \leq pH \leq 6.1$	83	$7.0 < pH \leq 7.1$	51	$8.0 < pH \leq 8.1$	11
$6.1 < pH \leq 6.2$	82	$7.1 < pH \leq 7.2$	46	$8.1 < pH \leq 8.2$	8.8
$6.2 < pH \leq 6.3$	80	$7.2 < pH \leq 7.3$	40	$8.2 < pH \leq 8.3$	7.3
$6.3 < pH \leq 6.4$	78	$7.3 < pH \leq 7.4$	35	$8.3 < pH \leq 8.4$	6.0
$6.4 < pH \leq 6.5$	75	$7.4 < pH \leq 7.5$	31	$8.4 < pH \leq 8.5$	5.0
$6.5 < pH \leq 6.6$	72	$7.5 < pH \leq 7.6$	26	$8.5 < pH \leq 8.6$	4.1
$6.6 < pH \leq 6.7$	69	$7.6 < pH \leq 7.7$	22	$8.6 < pH \leq 8.7$	3.4
$6.7 < pH \leq 6.8$	65	$7.7 < pH \leq 7.8$	19	$8.7 < pH \leq 8.8$	2.8
$6.8 < pH \leq 6.9$	60	$7.8 < pH \leq 7.9$	16	$8.8 < pH \leq 8.9$	2.4
$6.9 < pH \leq 7.0$	56	$7.9 < pH \leq 8.0$	13	$8.9 < pH \leq 9.0$	2.0

5. Monitoring only.
6. As recommended in the Department's October 1, 2019 Guidance for Total Nitrogen Monitoring in Wastewater Permits, annual total nitrogen monitoring is recommended for all minor municipal permittees. Sections 283.37(5) and 283.55(1)(e), Wis. Stats, and ss. NR 200.065(1)(g) and NR 200.065(1)(h), Wis. Adm. Codes, provide the authority to request this monitoring during the permit term. Total Nitrogen is the sum of nitrate (NO_3), nitrite (NO_2), and total Kjeldahl nitrogen (TKN) (all expressed as N).

Receiving Water Information

- Name: Wetland tributary
- Waterbody Identification Code (WBIC): NA
- Classification used in accordance with chs. NR 102 and 104, Wis. Adm. Code:
  - Diffuse surface water drainageway: Limited Aquatic Life (LAL) community, non-public water supply and recreational use.
  - Wetland: LAL community, non-public water supply and recreational use.
  - Cold Water and Public Water Supply criteria are used for bioaccumulating compounds of concern for both surface waterbodies because the discharge is within the Great Lakes basin.
  - Information about the site visit for determining the biological potential of the wetland tributary and wetland is discussed in greater detail in the Receiving Water Classification Memorandum (May 2026) and is available in the permit file for the Town of Port Wing. These classifications are consistent with what was historically used for these surface waters. The site visit also found

the effluent does not flow beyond the wetland area into Larson Creek, Bibon Lake, or Lake Superior. Therefore, only water quality standards for the wetland tributary will be considered in this evaluation.

- Low flows used in accordance with chs. NR 106 and 217, Wis. Adm. Code: The receiving water low flows are zero.
- % of low flow used to calculate limits in accordance with s. NR 106.06(4)(c)5., Wis. Adm. Code: Not applicable where the receiving water low flows are zero.
- Source of background concentration data: Background concentrations are not included because they do not impact the calculated WQBEL when the receiving water low flows are equal to zero.
- Multiple dischargers: None.
- Impaired water status: There are no known impairments for the wetland tributary.

Effluent Information

- Design Flow rate(s):
  Annual average = 0.05 million gallons per day (MGD)
  For reference, the actual average flow from January 2022 – June 2026 was 0.031 MGD.
- 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).
- Wastewater source: Domestic wastewater with no industrial contributors.
- Water supply: Municipality waterworks.
- Additives: None.
- Effluent characterization: This facility is categorized as a minor municipality and received instructions in the application notification letter that exempt it from standard monitoring requirements. The permit required phosphorus monitoring during the current permit term.

Ammonia Nitrogen Effluent Data

Statistics (mg/L)	April – May	June – Sept.	Oct. – Dec.	Jan. – March
1-day P_{99}	7.9	21	15	42
4-day P_{99}	4.3	11	8.8	23
30-day P_{99}	2.3	6.7	5.8	12
Mean*	1.5	4.6	4.5	7.3
Std	1.6	4.2	2.8	8.8
Sample size	44	74	53	64
Range	0.1 - 6.8	0.1 - 20.4	0.6 - 9.9	0.6 - 32.6

*Values lower than the limit of detection were substituted with a zero

The following table presents the average concentrations and loadings at Outfall 004 from January 2022 – June 2026 for all parameters with limits in the current permit to meet the requirements of s. NR 201.03(6), Wis. Adm. Code:

Parameters with Effluent Limits

Parameter	Average Measurement*
BOD_5	5.5 mg/L
TSS	3.1 mg/L
pH field	7.0 s.u.

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Parameter	Average Measurement*
Dissolved Oxygen	7.9 mg/L
Ammonia Nitrogen	4.7 mg/L

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

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

Mercury – The permit application did not require monitoring for mercury because the Town of Port Wing is categorized as a minor facility as defined in s. NR 200.02(8), Wis. Adm. Code. In accordance with s. NR 106.145(3)(a)3., Wis. Adm. Code, a minor municipal discharger shall monitor, and report results of influent and effluent mercury monitoring once every three months if, "there are two or more exceedances in the last five years of the high-quality sludge mercury concentration of 17 mg/kg specified in s. NR 204.07(5)." However, sludge sampling is not available because the Town of Port Wing is a recirculating sand filter-based facility and generates solids which are hauled away as septage. It is not expected that there are exceedances of the high-quality mercury concentration based on similar municipal treatment plants and the lack of industries. **Therefore, mercury monitoring is not recommended during the reissued permit term.**

PFOS and PFOA – The need for PFOS and PFOA monitoring is evaluated in accordance with s. NR 106.98(2), Wis. Adm. Code. Based on the type of discharge, the effluent flow rate, the lack of indirect dischargers contributing to the collection system, and the nondetectable levels of PFOS/PFOA in the source water, **PFOS and PFOA monitoring is not recommended during the reissued permit term.** The Department may re-evaluate the need for sampling at the next permit reissuance if new information becomes available that suggests PFOS or PFOA may be present in the discharge.

PART 3 – 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.

The Town of Port Wing had previously been exempted from disinfection based on the LAL or Limited Forage Fish (LFF) community classification of the receiving water. Section NR 210.06(3)(g), Wis. Adm. Code, states that disinfection decisions may be made based on the hydrologic classifications listed in s. NR 104.02(1), Wis. Adm. Code (**not** on the water quality classifications - i.e., LAL, LFF - that are defined in s. NR 104.02(3), Wis. Adm. Code). Wetlands are surface waters of the state, are therefore designated as recreational use and disinfection should not be exempted based solely on this hydrological classification.

Section NR 210.06(2)(a)1, Wis. Adm. Code, includes two limits which must be included in permits for facilities which are required to disinfect:

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.**

These limits are required during May through September. A compliance schedule will be included in the reissued permit to mee the final limits.

The facility can conduct effluent *E. coli* monitoring which shows that the discharge can meet bacteria limits during the recreation season without disinfection during the compliance schedule. *E. coli* effluent monitoring should be included in the permit in order to ensure that the recreational use is being protected (criteria are being met) without disinfection. Monitoring should be conducted at a minimum of 1x/wk for one disinfection season during the permit term and the need for disinfection revisited at permit reissuance or permit modification or if factors such as dilution or detention times change.

Total Residual Chlorine – **If the Town of Port Wing decides to upgrade to use chlorination for disinfection, effluent limitations would be recommended to assure proper operation of the de-chlorination system.** Section NR 210.06(2)(b), Wis. Adm. Code, states, "When chlorine is used for disinfection, the daily maximum total residual chlorine concentration of the discharge may not exceed 0.10 mg/L." Because the WQBELs are more restrictive, they are recommended instead. Specifically, **a daily maximum limit of 19 µg/L would be required if the facility decides to use chlorination for disinfection.** Due to revisions to s. NR 106.07(2), Wis. Adm. Code, mass limitations are no longer required. **The calculated weekly average effluent limitation of 7.3 µg/L would also be included in the permit because it is more restrictive than the daily maximum limit.**

PART 4 – 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 Town of Port Wing does not currently have an existing technology-based limit, the need for this limit in the reissued permit is evaluated. The data demonstrates that the annual monthly average phosphorus loading is less than 150 lbs/month, which is the threshold for municipalities in accordance with s. NR 217.04(1)(a)1, Wis. Adm. Code. **Therefore, a technology-based limit is not required during the reissued permit term. Phosphorus monitoring is recommended to continue during the reissued permit term to determine the need for a state technology-based limit at the following permit issuance.** In addition, the need for a WQBEL for phosphorus must be considered.

Annual Average Mass Total Phosphorus Loading

Month	Result (mg/L)	Total Flow (MG/month)	Total Phosphorus (lb./mo.)
March 2024	7.64	0.62	39

April 2024	8.36	1.72	120
May 2024	5.37	1.61	72
June 2024	5.54	1.65	76
July 2024	4.8	0.69	28
Aug. 2024	10.7	0.73	65
Sept. 2024	10.1	0.53	44
Oct. 2024	12.7	0.58	61
Nov. 2024	12.1	0.63	64
Dec. 2024	9.33	0.68	53
Jan. 2025	8.58	0.53	38
Feb. 2025	9.83	0.62	51
		Average =	59

Total P (lbs/month) = Monthly average (mg/L) × total flow (MG/month) × 8.34 (lbs/gallon)
Where total flow is the sum of the actual flow (MGD) for that month

Water Quality-Based Effluent Limits (WQBEL)
Revisions to administrative rules regulating phosphorus took effect on December 1, 2010. These rule revisions include additions to s. NR 102.06, Wis. Adm. Code, which establish phosphorus standards for surface waters. Subchapter III of NR 217, Wis. Adm. Code, establishes procedures for determining WQBELs for phosphorus, based on the applicable standards in ch. NR 102, Wis. Adm. Code.

Phosphorus criteria in s. NR 102.06, Wis. Adm. Code, do not apply to LAL community waters as described in s. NR 102.06(6)(d), Wis. Adm. Code. These waters were not included in the USGS/WDNR stream and river studies and, therefore, the Department lacked the technical basis to determine and propose applicable criteria. At some time in the future, the Department may adopt phosphorus criteria based on new studies focusing on LAL community waters. *The Guidance for Implementing Wisconsin's Phosphorus Water Quality Standards for Point Source Discharges (2020)* suggests that during the interim, WQBELs should be based on the criteria and flow conditions for the next stream segment downstream (or downstream lake or reservoir, if appropriate), because ss. 217.12 and 217.13, Wis. Adm. Code, state that the Department must set WQBELs to protect downstream waters. The receiving waters under the influence of Outfall 004 are the wetland tributary and the wetland, which are both LAL community waters. Because the discharge does not flow further downstream to another surface water with a different fish and aquatic life classification, **the phosphorus WQBEL based on s. NR 217.13, Wis. Adm. Code, is not recommended during the reissued permit term.**

Effluent Data
The following table summarizes effluent total phosphorus monitoring data from March 2024 – February 2025 for informational purposes.

Total Phosphorus Effluent Data

Statistics	Conc. (mg/L)
1-day P_{99}	16.4
4-day P_{99}	12.2
30-day P_{99}	9.90
Mean	8.75
Std	2.57
Sample size	12

Attachment #1

Statistics	Conc. (mg/L)
Range	4.8 - 12.7

PART 5 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR THERMAL

Surface water quality standards for temperature took effect on October 1, 2010. These regulations are detailed in Chapters NR 102 (Subchapter II – Water Quality Standards for Temperature) and NR 106 (Subchapter V – Effluent Limitations for Temperature) of the Wisconsin Administrative Code. The daily maximum effluent temperature limitation shall be 86 °F for discharges to surface waters classified as Limited Aquatic Life according to s. NR 104.02(3)(b)1, Wis. Adm. Code, except for those classified as wastewater effluent channels and wetlands regulated under ch. NR 103 and described in s. NR 106.55(2), Wis. Adm. Code, which has a daily maximum effluent temperature limitation of 120 °F. The 86 °F limit applies because the hydrologic classification of the wetland tributary is not listed as a wetland or wastewater effluent channel in ch. NR 104, Wis. Adm. Code.

Due to the frequency of the discharge (1 – 2 hrs/day) and the lack of industrial contributors in the sewershed, elevated effluent temperatures greater than 90 °F are unlikely and discharge temperatures are expected to be similar to ambient conditions. **Therefore, temperature limits and monitoring are not recommended during the reissued permit term.**

PART 6 – 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).

Guidance in Chapter 1.11 of the WET Guidance Document (WET Testing of Minor Municipal Discharges) was consulted. This is a minor municipal discharge (< 1.0 MGD) comprised solely of domestic wastewater, no additives, no history of WET failures, and no toxic compounds detected at levels of concern. **Therefore, WET testing is not recommended during the reissued permit term.**

Attachment #2

