

Permit Fact Sheet

General Information

Permit Number	WI-0020818-10-0
Permittee Name and Address	Village of Campbellsport 110 Columbus Parc Court PO Box 709, Campbellsport, WI 53010
Permitted Facility Name and Address	Campbellsport Wastewater Treatment Facility 110 Columbus Parc Court, Campbellsport, WI
Permit Term	January 01, 2027 to December 31, 2031
Discharge Location	South of 110 Columbus Parc Court, approximately 1600ft east of the bridge over the Milwaukee River on County Rd Y
Receiving Water	Milwaukee River, in the East and West Branches Milwaukee River Watershed (MI06) in the Milwaukee River Basin, in Fond Du Lac County
Stream Flow ($Q_{7,10}$)	0.10 cfs
Stream Classification	Warm Water Sport Fish (WWSF) community, non-public water supply
Discharge Type	Existing; Continuous
Annual Average Design Flow	0.47 MGD
Industrial or Commercial Contributors	Loehr's Meat Service
Plant Classification	A1 - Suspended Growth Processes; A4 - Ponds, Lagoons and Natural Systems; B - Solids Separation; C - Biological Solids/Sludges; P - Total Phosphorus; D - Disinfection; SS - Sanitary Sewage Collection System
Approved Pretreatment Program?	N/A

Facility Description

Wastewater from the main lift station is pumped to the Village of Campbellsport Wastewater Treatment Facility where it passes through a mechanical fine screen and then enters an oxidation ditch followed by circular clarifiers. Effluent from the clarifier goes to gravity anthracite filters. The effluent is seasonally disinfected via ultraviolet lights. The effluent flows down aeration steps prior to discharge to the Milwaukee River. The Village also has wastewater lagoons that receive 420,000 gallons of holding tank wastewater per month. These lagoons pretreat the wastewater prior to entering the treatment system. Biosolids are stored in an above-ground storage tank and are seasonally land applied.

Substantial Compliance Determination

Enforcement During Last Permit: A Notice of Noncompliance (NON) was sent in 2022 for several effluent limit exceedances for phosphorus, BOD and chloride. An additional NON was sent in 2023 for effluent limit exceedances for phosphorus and chloride. The facility has completed all previously required actions as part of the enforcement process.

After a desktop review of all discharge monitoring reports, CMARs, land application reports, compliance schedule items, and site visits on 12/5/23 and 8/6/26, this facility has been found to be in substantial compliance with their current permit.

Compliance determination made by Mark Stanek, Wastewater Engineer, on August 6, 2026.

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	0.199 MGD (Avg. July 2018 – May 2026)	Influent: Representative samples shall be collected at the main lift station.
001	0.209 MGD (Avg. July 2018 – May 2026)	Effluent: Representative composite samples shall be collected prior to the aeration steps and grab samples shall be collected at the bottom of the aeration steps.
003	Did not land apply in 2021 nor 2023-2025. In 2018-2020 and 2022 an avg. of 13 Metric Tons/Year was land applied.	Liquid Sludge: Representative samples of the aerobically digested, Class B, liquid sludge shall be collected from the storage tank manhole near the sludge load-out and decant lines.

Permit Requirements

1 Influent – Monitoring Requirements

1.1 Sample Point Number: 701- Influent

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
BOD ₅ , Total		mg/L	3/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total		mg/L	3/Week	24-Hr Flow Prop Comp	

1.1.1 Changes from Previous Permit

Influent limitations and monitoring requirements were evaluated for this permit term and the following changes were made from the previous permit.

- Increased sample frequency to 3/Week for BOD₅ and total suspended solids.

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.

2 Surface Water - Monitoring and Limitations

2.1 Sample Point Number: 001- Effluent

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
BOD5, Total	Weekly Avg	6.9 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies May-October.
BOD5, Total	Weekly Avg	10 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies November-April.
BOD5, Total	Monthly Avg	6.9 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies May-October.
BOD5, Total	Monthly Avg	10 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies November-April.
BOD5, Total	Weekly Avg	27 lbs/day	3/Week	Calculated	Limit applies May-October.
Suspended Solids, Total	Weekly Avg	10 mg/L	3/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Monthly Avg	10 mg/L	3/Week	24-Hr Flow Prop Comp	
pH Field	Daily Max	9.0 su	5/Week	Grab	
pH Field	Daily Min	6.0 su	5/Week	Grab	
Dissolved Oxygen	Daily Min	7.0 mg/L	5/Week	Grab	
E. coli	Geometric Mean - Monthly	126 #/100 ml	Weekly	Grab	Monitoring and limit effective May through September annually.
E. coli	% Exceedance	10 Percent	Monthly	Calculated	Monitoring and limit effective May through September annually. See the E. coli Percent Limit permit section. Enter the result in the DMR on the last day of the month.
Nitrogen, Ammonia (NH3-N) Total	Daily Max	11 mg/L	3/Week	24-Hr Flow Prop Comp	
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	11 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies November-April.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	8.2 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies in May.

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	4.0 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies in June.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	2.9 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies in July.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	3.0 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies in August.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	4.7 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies in September.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	6.7 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies in October.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	8.3 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies in January.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	9.6 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies in February.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	11 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies March-April.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	8.2 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies in May.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	4.0 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies in June.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	2.9 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies in July.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	3.0 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies in August.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	4.5 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies in September.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	4.4 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies in October.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	9.7 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies in November.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	8.5 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies in December.
Chloride	Weekly Avg	500 mg/L	4/Month	24-Hr Flow Prop Comp	This is an interim limit. Sampling shall be conducted on four consecutive days one week per month. See the Chloride Variance - Implement

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
					Source Reduction Measures permit section and the Chloride SRM (Target Value) Schedule.
Chloride		lbs/day	4/Month	Calculated	Calculate the daily mass discharge of chloride in lbs/day on the same days chloride sampling occurs. Mass (lbs/day) = Concentration (mg/L) x Flow (MGD) x 8.34
Phosphorus, Total	Monthly Avg	2.4 mg/L	2/Week	24-Hr Flow Prop Comp	
Phosphorus, Total	Monthly Avg	1.85 lbs/day	2/Week	Calculated	Limit applies in January.
Phosphorus, Total	Monthly Avg	1.83 lbs/day	2/Week	Calculated	Limit applies in February.
Phosphorus, Total	Monthly Avg	1.41 lbs/day	2/Week	Calculated	Limit applies in March.
Phosphorus, Total	Monthly Avg	2.11 lbs/day	2/Week	Calculated	Limit applies in April.
Phosphorus, Total	Monthly Avg	3.15 lbs/day	2/Week	Calculated	Limit applies in May.
Phosphorus, Total	Monthly Avg	2.34 lbs/day	2/Week	Calculated	Limit applies in June.
Phosphorus, Total	Monthly Avg	1.73 lbs/day	2/Week	Calculated	Limit applies in July.
Phosphorus, Total	Monthly Avg	1.36 lbs/day	2/Week	Calculated	Limit applies in August.
Phosphorus, Total	Monthly Avg	1.58 lbs/day	2/Week	Calculated	Limit applies in September.
Phosphorus, Total	Monthly Avg	1.69 lbs/day	2/Week	Calculated	Limit applies in October.
Phosphorus, Total	Monthly Avg	1.94 lbs/day	2/Week	Calculated	Limit applies in November.
Phosphorus, Total	Monthly Avg	1.61 lbs/day	2/Week	Calculated	Limit applies in December.
Nitrogen, Total Kjeldahl		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Annual in rotating quarters. See the Nitrogen Series Monitoring permit section.
Nitrogen, Nitrite + Nitrate Total		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Annual in rotating quarters. See the Nitrogen Series Monitoring permit section.
Nitrogen, Total		mg/L	See Listed Qtr(s)	Calculated	Annual in rotating quarters. See Nitrogen Series Monitoring permit section. Total Nitrogen shall be 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.
Temperature Maximum	Weekly Avg	55 deg F	Weekly	Grab	Monitoring only until the limit becomes effective on November 1, 2031. Limit applies in November. See the Effluent Temperature Monitoring and Effluent Temperature Limitations permit sections and the Temperature Limits (Municipal Facilities) Schedule.
Acute WET		TUa	See Listed Qtr(s)	24-Hr Flow Prop Comp	See the Whole Effluent Toxicity (WET) Testing permit section.
Chronic WET	Monthly Avg	1.0 TUC	See Listed Qtr(s)	24-Hr Flow Prop Comp	See the Whole Effluent Toxicity (WET) Testing permit section.

2.1.1 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.

- The sample frequency for BOD₅, TSS and Ammonia has been increased to 3/Week.
- BOD₅ weekly and monthly average effluent limits have been changed from a year-round value to seasonal. A mass limit was added and applies May-October.
- Removed the requirement to report TSS lbs/day as the weekly and monthly average effluent limits are more stringent than the TMDL limits.
- Fecal coliform monitoring and limits have been replaced with Escherichia coli (E. coli) monitoring and limits.
- The permittee has applied for a chloride variance. A chloride variance interim effluent limit has been added and that limit is 500 mg/L as a weekly average. Source reduction measures are included throughout the permit term.
- Annual total nitrogen monitoring was added and is required in specific quarters as outlined in the permit.
- Addition of effluent temperature monitoring and a temperature limit of 55°F which applies in November, starting November 1, 2031, per the compliance schedule.
- Addition of Acute Whole Effluent Toxicity (WET) testing and a Chronic WET limit.

2.1.2 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, by Nicole Krueger, Water Resources Engineer, dated 05/08/2026.

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. Changes have been made to the monitoring frequencies for BOD₅, TSS and Ammonia.

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.

Total Maximum Daily Load (TMDL) – The Milwaukee River Basin's TMDL Waste Load Allocation (WLA) for Total Phosphorus and Total Suspended Solids was approved by the US EPA in March 2018. The final effluent limits were derived from and comply with the applicable water quality criterion. Information on the Milwaukee River Basin TMDL may be found at: <https://dnr.wisconsin.gov/topic/TMDLs/Milwaukee/index.html>. The proposed permit includes limitations and requirements necessary to implement the recommendations of the TMDL.

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. Section NR 102.04(5)(a), Wis. Adm. Code, states that all surface waters shall be suitable for recreational use and meet the E. coli criteria established to protect this use. As part of the reissuance process, the requirements for disinfection were reviewed under s. NR 210.06(3), Wis. Adm. Code. It was determined that the permittee is required to disinfect and comply with E. coli limits during the months of May-September.

Chloride – The permittee has applied for a chloride variance, under the provisions of s. NR 106.83, Wis. Adm. Code, with its application for permit reissuance. The Department reviewed the permittee's application for a chloride variance and the information supplied in the application supports the establishment of an interim effluent limit. The permittee has requested an antidegradation review for chloride. See the Antidegradation Request Worksheet and Antidegradation Review attachments for more information. The proposed permit includes an interim chloride limit of 500 mg/L (expressed as a weekly average), a target value of 450 mg/L (weekly average), implementation of the chloride source reduction measures identified in the Source Reduction Measures Plan dated August 18, 2026, and submittal of annual progress reports each year by January 31st. The Department concludes that the Village of Campbellsport is qualified for a variance from the water quality standard for chloride and proposes reissuance of this permit with the proposed variance.

Thermal – Requirements for Temperature are included in chs. NR 102, Subchapter II Water Quality Standards for Temperature, and NR 106, Subchapter V Effluent Limitations for Temperature, Wis. Adm. Code. The previous permit did not include temperature limits because there was no reasonable potential for the permittee's discharge to exceed the calculated maximum temperature limits. Temperature limits were calculated for this permit reissuance based on the temperature criterion for the stream classification of Warm Water Sport Fish (WWSF). Reasonable potential to exceed the weekly average temperature limit was demonstrated for the month of November and that limit is included in the proposed permit. Effluent temperature monitoring is required weekly year-round. The permit includes a schedule to comply with the November effluent temperature limit (55°F) by November 1, 2031. See the Schedules section for more details.

Total Nitrogen Monitoring (TKN, NO₂+NO₃, and Total N) – The Department has included effluent monitoring for total nitrogen in the permit through the authority under s. 283.55(1)(e), Wis. Stats. Testing is required during the following quarters: October – December 2027; July – September 2028; April – June 2029; January – March 2030; and July – September 2031.

Acute WET – Testing is required during the following quarters: April – June 2029; and July – September 2031.

Chronic WET – Testing is required during the following quarters: October – December 2027; July – September 2028; April – June 2029; January – March 2030; and July – September 2031.

3 Land Application - Monitoring and Limitations

Municipal Sludge Description						
Sample Point	Sludge Class (A or B)	Sludge Type (Liquid or Cake)	Pathogen Reduction Method	Vector Attraction Method	Reuse Option	Amount Reused/Disposed (Dry Tons/Year)
003	B	Liquid	Fecal Coliform	Injection	Land Application	Approx. 24
Does sludge management demonstrate compliance? Yes.						
Is additional sludge storage required? No.						
Is Radium-226 present in the water supply at a level greater than 2 pCi/liter? Yes; special monitoring and recycling conditions are included in the permit to track any potential problems in land applying sludge from this facility.						
Is a priority pollutant scan required? N/A						
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.						

3.1 Sample Point Number: 003- Liquid Sludge

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Solids, Total		Percent	Annual	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	Annual	Composite	
Cadmium Dry Wt	Ceiling	85 mg/kg	Annual	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Annual	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Annual	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Annual	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	Annual	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Annual	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Annual	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Annual	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Annual	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Annual	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Annual	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Annual	Composite	

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Zinc Dry Wt	Ceiling	7,500 mg/kg	Annual	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Annual	Composite	
Nitrogen, Total Kjeldahl		Percent	Annual	Composite	
Nitrogen, Ammonium (NH ₄ -N) Total		Percent	Annual	Composite	
Phosphorus, Total		Percent	Annual	Composite	
Phosphorus, Water Extractable		% of Tot P	Annual	Composite	
Potassium, Total Recoverable		Percent	Annual	Composite	
Radium 226 Dry Wt		pCi/g	Annual	Composite	
PFOA + PFOS		ug/kg	Annual	Calculated	Report the sum of PFOA and PFOS. See PFAS permit sections for more information.
PFAS Dry Wt			Annual	Grab	Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS permit sections for more information.

3.1.1 Changes from Previous Permit

Sludge limitations and monitoring requirements were evaluated for this permit term and the following changes were made from the previous permit.

- Removed PCB monitoring requirements. PCB monitoring may be required at the next permit reissuance.
- Annual monitoring for PFAS is required pursuant to s. NR 204.06(2)(b)9., Wis. Adm. Code.

3.1.2 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), Wis. Adm. Code. Requirements for pathogens are specified in ss. NR 204.07(6) and NR 204.07(7), Wis. Adm. Code, for vector attraction requirements. Limitations for PCBs are addressed in s. NR 204.07(3)(k), Wis. Adm. Code. Radium requirements are addressed in s. NR 204.07(3)(n), Wis. Adm. Code.

PFAS – The presence and fate of PFAS in municipal and industrial sludges is an emerging public health concern. EPA has developed a draft risk assessment to determine future land application rates and released this risk assessment in January of 2025. The department is evaluating this new information. Until a decision is made, the “Interim Strategy for Land Application of Biosolids and Industrial Sludges Containing PFAS” should be followed.

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.

4 Schedules

4.1 Chloride Source Reduction Measures (Target Value)

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

Required Action	Due Date
Annual Chloride Progress Report: Submit an annual chloride progress report related to the source reduction activities for the previous year. The annual chloride progress report shall: Indicate which chloride source reduction measures or activities in the Source Reduction Plan have been implemented and state which, if any, source reduction measures from the Source Reduction Plan were not pursued and why. Include an assessment of whether each implemented source reduction measure appears to be effective or ineffective at reducing pollutant discharge concentrations and identify actions planned for the upcoming year; Include an analysis of trends in weekly, monthly and annual average chloride concentrations and total mass discharge of chloride based on chloride sampling and flow data; and Include an analysis of how effluent chloride varies with time and with significant loadings of chloride. Note that the interim limitation listed in the Surface Water section of this permit remains enforceable until new enforceable limits are established in the next permit issuance. The first annual chloride progress report is to be submitted by the Date Due.	01/31/2028
Annual Chloride Progress Report #2: Submit the chloride progress report, related to the source reduction activities for the previous year, as defined above.	01/31/2029
Annual Chloride Progress Report #3: Submit the chloride progress report, related to the source reduction activities for the previous year, as defined above.	01/31/2030
Final Chloride Report: Submit the final chloride report documenting the success in meeting the chloride target value of 450 mg/L (weekly avg), as well as the anticipated future reduction in chloride sources and chloride effluent concentrations. The report shall: Summarize chloride source reduction measures that have been implemented during the current permit term and state which, if any, source reduction measures from the Source Reduction Plan were not pursued and why; Include an assessment of which source reduction measures appear to have been effective or ineffective. Evaluate any needed changes to the pollutant reduction strategy accordingly; Include an analysis of trends in weekly, monthly and annual average chloride concentrations and total mass discharge of chloride based on chloride sampling and flow data during the current permit term; and Include an analysis of how influent and effluent chloride varies with time and with significant	01/31/2031

loadings of chloride as identified in the source reduction plan. If the permittee intends to reapply for a chloride variance, for the reissued permit, proposed target limits and a detailed source reduction measures plan, outlining the source reduction activities proposed for the upcoming permit term, shall also be included per ss. NR 106.90(5) and NR 106.83(4), Wis. Adm. Code. An updated source reduction measures plan shall: Include an explanation of why or how each source reduction measure will result in reduced discharge of the target pollutant; and Evaluate any available information on pollutant sources, timing, and concentration to update the mass balance assumptions and expected sources of the pollutant, and Identify any information needs that would help to better determine pollutant sources and make plans to collect that information. Note that the target value is the benchmark for evaluating the effectiveness of the chloride source reduction measures but is not an enforceable limitation under the terms of this permit.	
Annual Chloride Reports After Permit Expiration: In the event that this permit is not reissued by the date the permit expires the permittee shall continue to submit annual chloride reports for the previous year following the due date of Annual Chloride Progress Reports listed above. Annual Chloride Progress Reports shall include the information as defined above.	

4.1.1 Explanation of Schedule

Chloride Source Reduction Measures (Target Value) – This schedule is required to ensure that the permittee maintains compliance with the conditions and requirements of receiving a variance from the water quality-based chloride effluent limit. Since a compliance schedule is being granted, an interim limit is required, and that limit is established as 500 mg/L as a weekly average. The schedule requires that annual reports indicate which source reduction measures have been implemented during each calendar year, and an analysis of chloride concentration and mass discharge data based on chloride sampling and flow data. The annual reports shall document progress made towards meeting the chloride target value of 450 mg/L (weekly average) by the end of the permit term.

4.2 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 management plan to optimize the land application system performance and demonstrate compliance with ch. NR 204, Wis. Adm. Code, by the Due Date. This management plan shall 1) specify information on pretreatment processes (if any); 2) identify land application sites; 3) describe site limitations; 4) address vegetative cover management and removal; 5) specify availability of storage; 6) describe the type of transporting and spreading vehicle(s); 7) specify monitoring procedures; 8) track site loading; 9) address contingency plans for adverse weather and odor/nuisance abatement; and 10) include any other pertinent information. Once approved, all landspreading activities shall be conducted in accordance with the plan. Any changes to the plan must be approved by the Department prior to implementing the changes.	06/30/2027

4.2.1 Explanation of Schedule

Land Application Management Plan – 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.

4.3 Temperature Limits (Municipal Facilities)

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

Required Action	Due Date
Report on Effluent Discharges: Submit a report on effluent temperature with conclusions regarding compliance. Informational Note: Refer to the Surface Water subsection regarding 'Determination of Need for Effluent Limits' for information concerning a Department determination on the need for limits and pursuing re-evaluation of limits per ch. NR 106, Subchapters V and VI, or s. NR 102.26, Wis. Adm. Code.	12/31/2027
Action Plan: Submit an action plan for complying with all effluent temperature limits that remain following the Department's review of necessity.	12/31/2028
Construction Plans: Submit construction plans (if construction is required for complying with effluent temperature limits) and include plans and specifications with the submittal.	06/30/2029
Initiate Actions: Initiate actions identified in the plan.	12/31/2029
Complete Actions: Complete actions necessary to achieve compliance with effluent temperature limits.	12/31/2030

4.3.1 Explanation of Schedule

Temperature Limits (Municipal Facilities) – This schedule is included in the permit to provide time for the permittee to develop an action plan (and submit construction plans, if construction is required) in order to come into compliance with the effluent temperature limits.

Attachments

Water Quality-Based Effluent Limitations for Campbellsport Wastewater Treatment Facility WPDES Permit No. WI-0020818-10, by Nicole Krueger, Water Resources Engineer, dated 05/08/2026

Chloride Variance EPA Data Sheet

Village of Campbellsport WWTP, Source Reduction Measures Plan, dated August 18, 2026

Antidegradation Request Worksheet for the Village of Campbellsport

Antidegradation Review for the Village of Campbellsport

Justification Of Any Waivers From Permit Application Requirements

No waivers from permit application requirements were requested or granted.

Prepared By: Sarah Donoughe, Wastewater Specialist-Adv

Date: August 19, 2026

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: 05/08/2026

TO: Sarah Donoughe – SER

FROM: Nicole Krueger – SER *Nicole Krueger*

SUBJECT: Water Quality-Based Effluent Limitations for Campbellsport Wastewater Treatment Facility
WPDES Permit No. WI-0020818-10

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 Campbellsport Wastewater Treatment Facility in Fond du Lac County. This municipal wastewater treatment facility (WWTF) discharges to the Milwaukee River, located in the East and West Branches Milwaukee River Watershed in the Milwaukee River Basin. This discharge is included in the Milwaukee River Basin TMDL as approved by EPA in March 2018. 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
BOD ₅ May – October			6.9 mg/L 27 lbs/day	6.9 mg/L	3
November – April			10 mg/L	10 mg/L	
TSS			10 mg/L	10 mg/L	1,3
pH	9.0 s.u.	6.0 s.u.			1
Dissolved Oxygen		7.0 mg/L			1
Bacteria					4
<i>E. coli</i>				126 #/100 mL geometric mean	
Ammonia Nitrogen	11 mg/L				5
Chloride			410 mg/L		6
Phosphorus Interim Final				2.4 mg/L TMDL	7
TKN, Nitrate+Nitrite, and Total Nitrogen					8
Temperature November			55 deg F		9
Acute WET					10,11
Chronic WET				1.0 TUc	10,11

Footnotes:

1. No changes from the current permit.
2. Monitoring only.
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. Bacteria limits apply during the disinfection season of May through September. Additional limit: No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 count/100 mL.
5. In addition to the year-round daily maximum limit, the following weekly and monthly average ammonia limits are recommended in the reissued permit:

Month	Weekly Avg Ammonia Effluent Limit (mg/L)	Monthly Avg Ammonia Effluent Limit (mg/L)
Jan	11	8.3
Feb	11	9.6
Mar	11	11
Apr	11	11
May	8.2	8.2
Jun	4.0	4.0
Jul	2.9	2.9
Aug	3.0	3.0
Sep	4.7	4.5
Oct	6.7	4.4
Nov	11	9.7
Dec	11	8.5

6. This is the WQBEL for chloride. An alternative effluent limitation of 500 mg/L, equal to the 4-day P₉₉, as a weekly average may be included in the permit in place of this limit if the chloride variance application that was submitted is approved by EPA and the limit is authorized through an antidegradation review.
7. The phosphorus mass limits are based on the Total Maximum Daily Load (TMDL) for the Milwaukee River Basin TMDL to address phosphorus water quality impairments within the TMDL area. The TMDL was approved by EPA in March 2018. Compliance with the TMDL-based limits is expected by July 1, 2025.

Month	Monthly Avg Total P Effluent Limit (lbs/day)
Jan	1.85
Feb	1.83
Mar	1.41
Apr	2.11
May	3.15
Jun	2.34
Jul	1.73
Aug	1.36
Sep	1.58
Oct	1.69
Nov	1.94
Dec	1.61

8. 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. Total Nitrogen is the sum of nitrate (NO₃), nitrite (NO₂), and total Kjeldahl nitrogen (TKN) (all expressed as N).
9. A compliance schedule to meet the temperature limits may be included in the reissued permit. Monitoring only for the rest of the year is recommended.
10. 3 tests/permit term acute WET testing and 2x yearly chronic WET testing is recommended. The Instream Waste Concentration (IWC) to assess chronic test results is 97%. According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), chronic testing shall be performed using a dilution series of 100%, 75%, 50%, 25% & 12.5% and the dilution water used in WET tests conducted on Outfall 001 shall be a grab sample collected from the Milwaukee River outside the influence of the discharge.
11. 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).

If Campbellsport submits an approvable SOP for ferric sulfate, **2/permit term acute and 1x annual chronic testing would be required in the reissued permit.**

Please consult the attached report for details regarding the above recommendations. If there are any questions or comments, please contact Nicole Krueger at Nicole.Krueger@wisconsin.gov or Diane Figiel at Diane.Figiel@wisconsin.gov.

Attachments (4) – Narrative, Outfall Map, Ammonia Calculations, & Thermal Table

PREPARED BY: Nicole Krueger, Water Resources Engineer – SER

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Attachment #1
**Water Quality-Based Effluent Limitations for
Campbellsport Wastewater Treatment Facility**

WPDES Permit No. WI-0020818-10

Prepared by: Nicole Krueger

PART 1 – BACKGROUND INFORMATION

Facility Description

Wastewater from the main lift station is pumped to the treatment plant where it passes through a mechanical fine screen and then enters an oxidation ditch followed by circular clarifiers. Effluent from the clarifier goes to gravity anthracite filters. The effluent is seasonally disinfected via ultraviolet lights. The effluent flows down aeration steps prior to discharge.

The Village has wastewater lagoons that receive 420,000 gallons of holding tank wastewater per month. These lagoons pretreat the wastewater prior to entering the treatment system.

Biosolids are stored in an above ground storage tank and are seasonally land applied.

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

Existing Permit Limitations

The current permit, which expired on June 30, 2023, includes the following effluent limitations and monitoring requirements.

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Footnotes
Flow Rate					1
BOD ₅			10 mg/L	10 mg/L	2
TSS			10 mg/L	10 mg/L	2,3
pH	9.0 s.u.	6.0 s.u.			3
Dissolved Oxygen		7.0 mg/L			3
Fecal Coliform May – September			656#/100 mL geometric mean	400#/100 mL geometric mean	2
Ammonia Nitrogen	17 mg/L				4
Chloride					5
Phosphorus Interim Final				2.4 mg/L TMDL	6
Chronic WET					7

Footnotes:

1. Monitoring only.
2. 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.

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3. 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.
4. Monthly variable ammonia limits are shown below:

Month	Weekly Avg Ammonia Effluent Limit (mg/L)	Monthly Avg Ammonia Effluent Limit (mg/L)
Jan	11	8.3
Feb	11	9.6
Mar	13	13
Apr	13	13
May	8.2	8.2
Jun	4.0	4.0
Jul	2.9	2.9
Aug	3.0	3.0
Sep	4.7	4.5
Oct	6.7	4.4
Nov	11	9.7
Dec	11	8.5

5. Currently effective chloride limits are shown below:

Month	Weekly Avg Chloride Effluent Limit (mg/L)	Monthly Avg Chloride Effluent Limit (mg/L)	Weekly Avg Chloride Effluent Limit (lbs/day)
Jan	470	470	1,840
Feb	500	500	1,960
Jul	430	430	1,690
Aug	420	420	1,650
Sep	440	440	1,720
Oct	460	460	1,800
Dec	450	450	1,760

6. A compliance schedule is in the current permit to meet the final Milwaukee River Basin TMDL-based limits by July 1, 2025.

Month	Monthly Avg Total P Effluent Limit (lbs/day)
Jan	1.85
Feb	1.83
Mar	1.41
Apr	2.11
May	3.15
Jun	2.34

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Month	Monthly Avg Total P Effluent Limit (lbs/day)
Jul	1.73
Aug	1.36
Sep	1.58
Oct	1.69
Nov	1.94
Dec	1.61

7. Chronic WET tests are required twice during the permit term. The IWC for chronic WET was 97%.

Receiving Water Information

- Name: Milwaukee River
- Waterbody Identification Code (WBIC): 15000
- Classification used in accordance with chs. NR 102 and 104, Wis. Adm. Code: Warm Water Sport Fish (WWSF) community, non-public water supply. Cold Water and Public Water Supply criteria are used for bioaccumulating compounds of concern, because the discharge is within the Great Lakes basin.
- Low flows used in accordance with chs. NR 106 and 217, Wis. Adm. Code: The following 7-Q₁₀ and 7-Q₂ values are from USGS for Station MI1, where Outfall 001 is located.

7-Q₁₀ = 0.10 cfs (cubic feet per second)

7-Q₂ = 0.91 cfs

The Harmonic Mean has been estimated based on average flow and the 7-Q₁₀ using an equation from U.S. EPA's *Technical Support Document for Water Quality-Based Toxics Control* (March 1991, EPA/505/2-90-001, pgs. 88-89).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7-Q ₁₀ (cfs)	0.56	0.74	2.31	8.51	2.56	0.75	0.28	0.16	0.30	0.51	0.90	0.43
7-Q ₂ (cfs)	3.54	4.65	15.9	25.1	10.7	4.22	2.14	1.66	1.55	2.56	4.71	3.65

- Hardness = 371 mg/L as CaCO₃. This value represents the geometric mean of data from chronic WET testing from 04/28/2005 – 10/12/2006.
- % 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: Metals data from Milwaukee River at Batavia is used for this evaluation. 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 Milwaukee 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: The Milwaukee River is 303(d) listed as impaired for total phosphorus and

PCBs.

Effluent Information

- Design flow rate(s):

Annual average = 0.47 MGD (Million Gallons per Day)

Peak daily = 1.13 MGD

Peak weekly = 1.04 MGD

Peak monthly = 0.95 MGD

For reference, the actual average flow from 01/01/2021 – 01/31/2026 was 0.19 MGD.

- Hardness = 399 mg/L as CaCO₃. This value represents the geometric mean of data from 12/16/2022 – 01/15/2023 from the permit reissuance application.
- 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 with industrial waste from Loehr's Meat Service.
- Additives: Ferric sulfate is used for phosphorus removal. An additive review is not necessary for any additives where either the toxicity is well documented and understood, can be controlled by a WQBEL, or are not believed to be present in the discharge. This is the case for ferric sulfate, and an additive review is not needed.
- Effluent characterization: This facility is categorized as a minor municipality, so the permit application required effluent sample analyses for a limited number of common pollutants, as specified in s. NR 200.065, Table 1, Wis. Adm. Code, primarily metal substances plus ammonia, chloride, hardness and phosphorus.
- 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.". Otherwise, substances with multiple effluent data are shown in the tables below or in their respective parts in this evaluation.

Effluent Copper Data

Sample Date	Copper µg/L	Sample Date	Copper µg/L	Sample Date	Copper µg/L
12/11/2022	5.7	12/21/2022	5.3	01/08/2023	7.3
12/14/2022	7.1	12/25/2022	4.1	01/11/2023	3.8
12/16/2022	<9.5	12/28/2022	5.6	01/15/2023	6.2
12/18/2022	9.6	01/05/2023	4.9		
Average = 6.0 µg/L					

"<" means that the pollutant was not detected at the indicated level of detection. The mean concentration was calculated using zero in place of the non-detected results.

The effluent chloride data is summarized below. The data that was reported on 10/19/2025 and 10/20/2025 was removed from this evaluation due to the values being unusually high and not representative of normal conditions.

Effluent Chloride Data

	Concentration mg/L	Mass lbs/day
1-day P ₉₉	586	1769
4-day P ₉₉	500	1142
30-day P ₉₉	450	823

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	Concentration mg/L	Mass lbs/day
Mean	423	671
Std	61.4	328
Sample size	238	238
Range	210 – 590	189 – 2157

The following table presents the average concentrations and loadings at Outfall 001 from 01/01/2021 – 01/31/2026 for all parameters with limits in the current permit to meet the requirements of s. NR 201.03(6), Wis. Adm. Code:

Parameter Averages with Limits

	Average Measurement	Average Mass Discharged
BOD ₅	2.76 mg/L*	
Dissolved Oxygen	9.14 mg/L	
TSS	1.25 mg/L*	
pH field	7.51 s.u.	
Phosphorus	1.94 mg/L	2.62 lbs/day
Ammonia Nitrogen	0.31 mg/L*	
Fecal Coliform	1.89 #/100 mL	
Chloride	423 mg/L	671 lbs/day

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

PART 2 – BIOLOGICAL OXYGEN DEMAND

In establishing BOD₅ (Biochemical Oxygen Demand) limitations, the primary intent is to prevent a lowering of dissolved oxygen levels in the receiving water below water quality standards as specified in ss. NR 102.04(4)(a) and (b). The 26-lb method is the most frequently used approach for calculating BOD₅ limits when resources are not available to develop a detailed water quality model. This simplified model was developed in the 1970's by the Wisconsin Committee on Water Pollution on the Fox, Wisconsin, Oconto, and Flambeau Rivers. Further studies throughout the 1970's proved this model to be relatively accurate. The model has since then been used by the Department on many occasions when resources are not available to perform a site-specific model. The "26" value stems from the following equation:

$$\frac{26 \text{ lbs/day}}{\text{ft}^3/\text{sec}} * \frac{1 \text{ day}}{86,400 \text{ sec}} * \frac{454,000 \text{ mg}}{\text{lbs}} * \frac{1 \text{ ft}^3}{28.32 \text{ L}} = 4.8 = 2.4 * 2 \text{ mg/L}$$

The 4.8 has been calculated by taking 2.4 which is the number one receives when converting 26 lbs of BOD/day/cfs into mg/L, multiplied by 2.0 which is the change in the DO level. A typical background DO level for Wisconsin waters is 7 mg/L, so a 2 mg/L decrease is allowed in order to meet the 5 mg/L standard for warm water streams. The above relationship is temperature dependent and an appropriate temperature correction factor is applied. The 26-lb method is based on a typical 24°C summer value for warm water streams. Adjustments for temperature are made using the following equation:

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$$k_t = k_{24} (0.967^{(T-24)})$$

Where $k_{24} = 26$ lbs of BOD/day/cfs

Calculations based on Full Assimilative Capacity at 7Q10 Conditions:

$$Limitation(mg / L) = 2.4(DO_{stream} - DO_{std}) \left(\frac{(7Q_{10} + Q_{eff})}{Q_{eff}} \right) (0.967^{(T-24)})$$

Where:

Q_{eff} = effluent design flow = 0.47 MGD

DO_{stream} = background dissolved oxygen = 7 mg/L

DO_{std} = dissolved oxygen criteria from s. NR 102.04(4) = 5.0 mg/L

$7Q_{10}$ = 0.1 cfs

T = Receiving water temperature from s. NR 102.25

BOD Effluent Limitations (26 LB Method)		November – April	May – October
Background Information:	7-Q ₁₀ (cfs)	0.47	0.47
	River Temperature (°C)	3.3	17
Dissolved Oxygen mg/L:	Effluent	7	7
	Background	7	7
	Mix DO	7	7
	Criteria	5	5
Weekly Ave BOD Effluent Limitations	Concentration limits (mg/L)	11	6.9
	Mass limits (lbs/day)	43	27

Campbellsport currently has a weekly and monthly average limit of 10 mg/L year-round.

The calculated limit for winter of 11 mg/L is less than the current limit of 10 mg/L. A determination of need must be provided to make a limit less stringent which includes consideration of operations, maintenance and temporary upsets. Campbellsport can meet the current limit of 10 mg/L for November – April. **Therefore, the current weekly and monthly average limits for BOD₅ are recommended for November - April consistent with ch. NR 207, Wis. Adm. Code.** Mass limits are not typically recommended for dischargers with a limit of 10 mg/L for November – April.

The calculated weekly average limits of 6.9 mg/L and 27 lbs/day for May – October are recommended in the reissued permit. Sections NR 106.07(3) and NR 205.067(7), Wis. Adm. Code require WPDES permits contain weekly average and monthly average limitations whenever practicable and necessary to protect water quality. **Therefore, a monthly average limit of 6.9 mg/L is required** to meet expression of limits requirements in addition to the weekly average limit.

PART 3 – 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. Adm. 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 the case for Campbellsport.

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

Daily Maximum Limits based on Acute Toxicity Criteria (ATC)

RECEIVING WATER FLOW = 0.08 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		377	75.4	<1.1		
Cadmium	457	58.9	0.02	65.4	13.1	<0.95		
Chromium	301	4446	0.50	4935	987	<5.5		
Copper	495	70.2	1.26	77.8	15.6	6.0		
Lead	356	365	0.65	405	80.9	<22		

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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.
Nickel	268	1080		1199	240	<47		
Zinc	333	345	2.61	382	76.5	<29		
Chloride (mg/L)		757		840			586	590

* The indicated hardness may differ from the effluent hardness because the effluent hardness exceeded the maximum range in ch. NR 105, Wis. Adm. Code, over which the acute criteria are applicable. In that case, the maximum of the range is used to calculate the criterion.

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

Weekly Average Limits based on Chronic Toxicity Criteria (CTC)

RECEIVING WATER FLOW = 0.025 cfs (¼ 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.	WEEKLY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	4-day P ₉₉
Arsenic		152		157	31.5	<1.1	
Cadmium	175	3.82	0.02	3.95	0.79	<0.95	
Chromium	301	326	0.50	337	67.4	<5.5	
Copper	495	40.7	1.26	42.0	8.41	6.0	
Lead	356	95.5	0.65	98.8	19.8	<22	
Nickel	268	120		124	24.9	<47	
Zinc	333	345	2.61	356	71.3	<29	
Chloride (mg/L)		395		409			500

* The indicated hardness may differ from the receiving water hardness because the receiving water hardness exceeded the maximum range in ch. NR 105, Wis. Adm. Code, over which the chronic criteria are applicable. In that case, the maximum of the range is used to calculate the criterion.

Monthly Average Limits based on Wildlife Criteria (WC)

The effluent characterization did not include any effluent sampling results for substances for which Wildlife Criteria exist.

Monthly Average Limits based on Human Threshold Criteria (HTC)

RECEIVING WATER FLOW = 0.57 cfs (¼ of Harmonic Mean), as specified in s. NR 106.06(4), Wis. Adm. Code.

SUBSTANCE	HTC	MEAN BACK- GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.
Cadmium	370	0.02	660	132	<0.95
Chromium (+3)	3818000	0.50	6805611	1361122	<5.5
Lead	140	0.65	249	49.8	<22
Nickel	43000		76648	15330	<47

Monthly Average Limits based on Human Cancer Criteria (HCC)

RECEIVING WATER FLOW = 0.57 cfs (¼ of Harmonic Mean), as specified in s. NR 106.06(4), Wis. Adm. Code.

SUBSTANCE	HCC	MEAN BACK- GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.
Arsenic	13.3		23.7	4.74	<1.1

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, effluent limitations are required for chloride.

Chloride – Considering available effluent data from the current permit term (01/03/2021 – 01/14/2026), the 1-day P₉₉ chloride concentration is 586 mg/L, and the 4-day P₉₉ of effluent data is 519 mg/L.

Because the 4-day P₉₉ exceeds the calculated weekly average WQBEL of 410 mg/L, **effluent limits are needed in accordance with s. NR 106.05(4)(b), Wis. Adm. Code.**

The current permit has chloride limits based on monthly low flows. The monthly low flows will no longer be used for chloride limit calculation due to high uncertainty and greatly reducing the safety factor.

Therefore, the WQBEL of 410 mg/L as a year-round limit is required.

However, Subchapter VII of ch. NR 106, Wis. Adm. Code, provides for a variance from water quality standards for this substance, and Campbellsport has requested such a variance. That variance may be granted subject to the following conditions:

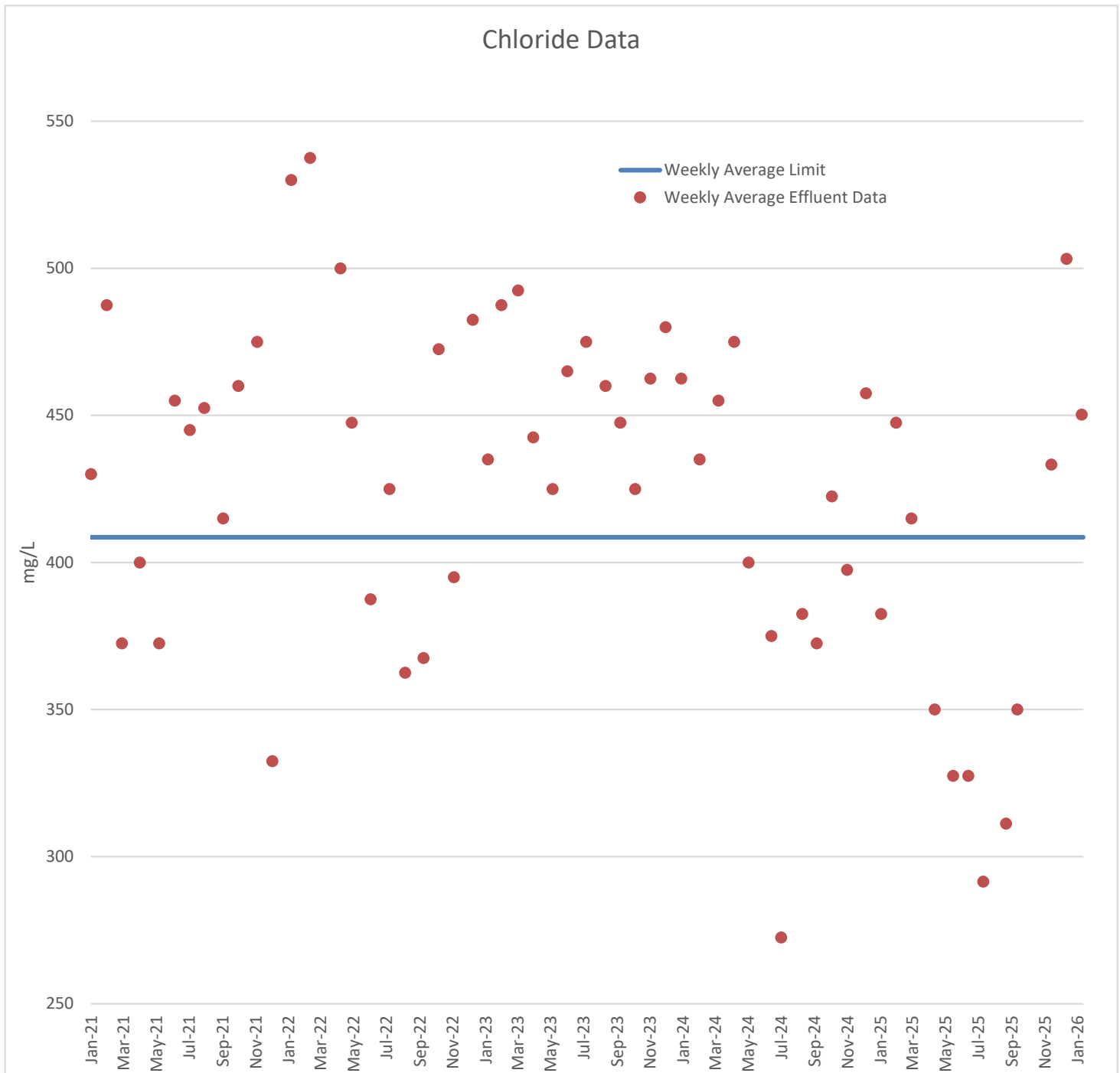
- 1) The permit shall include an “Interim” limitation intended to prevent an increase in the discharge of Chloride;
- 2) The permit shall specify “Source Reduction Measures” to be implemented during the permit term, with periodic progress reports; and
- 3) The permit shall include a “Target Limit” or “Target Value” to gage the effectiveness of the Source Reduction Measures, and progress toward the WQBELs.

Interim Limit for Chloride

Section NR 106.82(9), Wis. Adm. Code, defines a “Weekly average interim limitation” as either the 4-day P₉₉ concentration or 105% of the highest weekly average concentration of the representative data. It is recommended that the weekly average interim limit be set equal to the 4-day P₉₉ of 500 mg/L.

The graph below shows the weekly average concentrations reported during the permit term, compared to the WQBEL of 410 mg/L.

Chloride Data



A target limit and permit language for Source Reduction Measures are not recommended as part of this evaluation. These should follow contact with Campbellsport. Though if the Department and Campbellsport are unable to reach agreement on all the terms of a Chloride Variance, the calculated limits described earlier should be included in the permit, in accordance with s. NR 106.83(3), Wis. Adm. Code.

Antidegradation/Antibacksliding

The recommended interim limit is less stringent than the current weekly average limits for some months. The current monthly variable limits are WQBELs based on monthly 7-Q₁₀'s so they are less stringent than the year-round WQBEL based on the annual 7-Q₁₀. Campbellsport has had numerous exceedances of the currently effective limits, especially during dry, low flow conditions. The occurrences of weekly average limit exceedances from the current permit term are shown below:

Weekly Average Chloride Exceedances

Date	Weekly Exceedance (mg/L)	Date	Weekly Exceedance (mg/L)
Feb 2019	508	July 2023	475
Jan 2022	530	Aug 2023	463
Feb 2022	540, 535	Dec 2023	480
Oct 2022	473	Oct 2025	703
Dec 2022	483	Dec 2025	469, 515

The less stringent interim limit of 500 mg/L as a weekly average may be allowed in the reissued permit if Campbellsport provides antidegradation review requirements under s. NR 207.031, Wis. Adm. Code. The antidegradation review is completed outside of this memo.

Chloride Monitoring Recommendations

Four samples per month (on consecutive days) are recommended. This allows for averaging of the results to compare with the interim limit and allows the use of the average in determining future interim limits, and degree of success with chloride reduction measures.

In the absence of a variance, Campbellsport is subject to the WQBEL of 410 mg/L as a weekly average; the weekly average mass limit of 1,600 lbs/day ($410 \text{ mg/L} \times 0.47 \text{ MGD} \times 8.34$); and an alternative wet weather mass limit of 3,500 lbs/day ($410 \text{ mg/L} \times 1.04 \text{ MGD} \times 8.34$) based on the peak weekly flow rate.

Nickel – The nickel sample from the permit application (12/16/2022) was reported as 220 µg/L. Due to this unusually high result, it was requested that Campbellsport resample for nickel. Campbellsport submitted two additional samples (08/19/2024 and 08/21/2024) which were both reported as <47 µg/L. All available nickel samples from 2002-2024 are shown in the table below:

Effluent Nickel Data

Sample Date	Nickel µg/L
2002	<17
2007	<1.1
01/17/2012	13
12/16/2022	220
08/19/2024	<47
08/21/2024	<47

Considering all available data, the 220 ug/L result is not representative of normal conditions, and **there is not reasonable potential for nickel limits**. It's recommended that a more sensitive LOD is used in the next permit application.

Attachment #1

Mercury – The permit application did not require monitoring for mercury because Campbellsport is categorized as a minor facility as defined in s. NR 200.02(8), Wis. Adm. Code. In accordance with s. NR 106.145(3)(a)3, Wis. Adm. Code, a minor municipal discharger shall monitor, and report results of influent and effluent mercury monitoring once every three months if, “there are two or more exceedances in the last five years of the high-quality sludge mercury concentration of 17 mg/kg specified in s. NR 204.07(5), Wis. Adm. Code.” A review of the past five years of sludge characteristics data reveals that all the sample results are within expected analytical ranges and well below the 17 mg/kg level. The average concentration in the sludge from 09/22/2021 – 10/01/2025 was 0.20 mg/kg, with a maximum reported concentration of 1.0 mg/kg. Therefore, **no mercury monitoring is recommended at Outfall 001.**

PFOS and PFOA – The need for PFOS and PFOA monitoring is evaluated in accordance with s. NR 106.98(2), Wis. Adm. Code. Available monitoring sample data from the Campbellsport Waterworks (PWS ID: 42004611) is provided in the table below:

Water Supply PFAS Data			
Sample Date	Sample ID	PFOS (ng/L)	PFOA (ng/L)
06/06/2023	CB06061-01	ND	ND

The limited data above shows the municipal water supply is below 1/5th of the applicable PFOS and PFOA criteria. Based on the discharge type, effluent flow rate and known levels in the source water, **PFOS and PFOA monitoring is not recommended.** 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 4 – 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.

Attachment #1

The effluent pH data was examined as part of this evaluation. A total of 1556 sample results were reported from 01/04/2021 – 01/30/2026. The maximum reported value was 8.1 s.u. (Standard pH Units). The effluent pH was 7.9 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 7.9 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 7.9 s.u. Therefore, a value of 7.9 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 7.9 s.u. into the equation above yields an ATC = 10 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

	Ammonia Nitrogen Limit mg/L
2×ATC	20
1-Q ₁₀	11

The 1-Q₁₀ method yields the most stringent limits for Campbellsport.

Presented below is a table of daily maximum limitations corresponding to various effluent pH values. Use of this table is not necessarily recommended in the permit, but it is presented herein for informational purposes.

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	60	7.0 < pH ≤ 7.1	36	8.0 < pH ≤ 8.1	7.7
6.1 < pH ≤ 6.2	59	7.1 < pH ≤ 7.2	33	8.1 < pH ≤ 8.2	6.4
6.2 < pH ≤ 6.3	58	7.2 < pH ≤ 7.3	29	8.2 < pH ≤ 8.3	5.2
6.3 < pH ≤ 6.4	56	7.3 < pH ≤ 7.4	25	8.3 < pH ≤ 8.4	4.3
6.4 < pH ≤ 6.5	54	7.4 < pH ≤ 7.5	22	8.4 < pH ≤ 8.5	3.6
6.5 < pH ≤ 6.6	52	7.5 < pH ≤ 7.6	19	8.5 < pH ≤ 8.6	2.9
6.6 < pH ≤ 6.7	49	7.6 < pH ≤ 7.7	16	8.6 < pH ≤ 8.7	2.4
6.7 < pH ≤ 6.8	47	7.7 < pH ≤ 7.8	13	8.7 < pH ≤ 8.8	2.0
6.8 < pH ≤ 6.9	43	7.8 < pH ≤ 7.9	11	8.8 < pH ≤ 8.9	1.7
6.9 < pH ≤ 7.0	40	7.9 < pH ≤ 8.0	9.3	8.9 < pH ≤ 9.0	1.5

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

Weekly and monthly average limits are not included in the current permit but are being evaluated here due to changes to ch. NR 106, Wis. Adm. Code. **The weekly and monthly average ammonia nitrogen limits calculation from the previous memo do not change** because there have been no changes in the effluent and receiving water flow rates. The calculations from the 2007 WQBEL memo are shown in Attachment #3.

Effluent Data

The following table evaluates the statistics based upon ammonia data reported from 01/03/2021 – 01/26/2026, with those results being compared to the calculated limits to determine the need to include ammonia limits in Campbellsport's permit for the respective month ranges. That need is determined by calculating 99th upper percentile (or P₉₉) values for ammonia during each of the month ranges and comparing the daily maximum values to the daily maximum limit.

Ammonia Nitrogen Effluent Data

Ammonia Nitrogen mg/L	April - May	June - September	October - March
1-day P ₉₉	1.76	2.11	4.36
4-day P ₉₉	1.00	1.18	2.89
30-day P ₉₉	0.44	0.53	1.23
Mean*	0.21	0.27	0.36
Std	0.40	0.48	1.39
Sample size	40	82	126
Range	0.021 - 1.82	<0.13 - 3.174	<0.028 - 12.1

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

Reasonable Potential

Based on this comparison, there is a reasonable potential for daily limits for January due to one daily result being above the calculated daily maximum limit of 11 mg/L. The permittee believes this higher-than-normal data was a result of unusually cold temperatures and may not be representative of normal conditions.

However, the permit currently has daily maximum, weekly average, and monthly average limits year-round. **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.

Expression of Limits

Revisions to ch. NR 106, Wis. Adm. Code, in September 2016 aligned Wisconsin's WQBELs with 40 CFR § 122.45(d), which specifies that effluent limits for continuous dischargers must be expressed as weekly and monthly averages for publicly owned treatment works and as daily maximums and monthly averages for all other dischargers, unless shown to be impracticable. Because a daily maximum ammonia limit is necessary for Campbellsport, weekly and monthly average limits are also required under this code revision.

Attachment #1

The methods for calculating limitations for municipal treatment facilities to conform to 40 CFR 122.45(d) are specified in s. NR 106.07(3), Wis. Adm. Code, and are as follows:

Whenever a daily maximum limitation is determined necessary to protect water quality, a weekly and monthly average limitation shall also be included in the permit and set equal to the daily maximum limit unless a more restrictive limit is already determined necessary to protect water quality.

In this case, the recommended daily maximum limits are more stringent than the current weekly and monthly average limits for the months of March and April, so the limits are set equal to the daily maximum limit of 11 mg/L for these two months.

Conclusions and Recommendations

In summary, after rounding to two significant figures, the following ammonia nitrogen limitations are recommended. No mass limitations are recommended in accordance with s. NR 106.32(5), Wis. Adm. Code. Limits to meet the requirements in s. NR 106.07, Wis. Adm. Code, are shown below in bold.

Final Ammonia Nitrogen Limits			
Month	Daily Max Ammonia Effluent Limit (mg/L)	Weekly Avg Ammonia Effluent Limit (mg/L)	Monthly Avg Ammonia Effluent Limit (mg/L)
Jan	11	11	8.3
Feb	11	11	9.6
Mar	11	11	11
Apr	11	11	11
May	11	8.2	8.2
Jun	11	4.0	4.0
Jul	11	2.9	2.9
Aug	11	3.0	3.0
Sep	11	4.7	4.5
Oct	11	6.7	4.4
Nov	11	11	9.7
Dec	11	11	8.5

PART 5 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR BACTERIA

On May 1, 2020, revisions to chs. NR 102 and NR 210, Wis. Adm. Codes, became effective which replace fecal coliform limits with new *Escherichia coli* (*E. coli*) limits for protection of recreational uses. 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.

Attachment #1

E. coli monitoring is recommended at the same frequency that fecal coliform monitoring is required in the current permit. Because Campbellsport's permit requires weekly monitoring, the 410 counts/100 mL limit will effectively function as a daily maximum limit unless the facility performs additional 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 current recreational period and the required disinfection season.

Effluent Data

Campbellsport has monitored effluent *E. coli* from 05/04/2022 – 09/27/2022 and a total of 20 results are available. A geometric mean of 126 counts/100 mL was not exceeded. Effluent data has not exceeded 410 counts/100 mL. The maximum reported value was 35 counts/100 mL. **Based on this effluent data, it appears that Campbellsport can meet new *E. coli* limits and a compliance schedule is not needed in the reissued permit.**

PART 6 – PHOSPHORUS

Campbellsport currently has a monthly average concentration limit of 2.4 mg/L and monthly average TMDL-based mass limits year-round. The TMDL limits became effective on 07/01/2025.

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 Campbellsport 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 to s. NR 217.04(1)(a)1, Wis. Adm. Code, and therefore no technology-based limit is required.

Annual Average Mass Total Phosphorus Loading

Month	Monthly Avg. mg/L	Total Flow MG/month	Total Phosphorus lb./mo.
Jan 2025	4.15	0.78	26.9
Feb 2025	3.52	0.60	17.6
Mar 2025	6.09	0.55	28.0
Apr 2025	8.60	0.45	32.0
May 2025	7.88	0.37	24.1
Jun 2025	7.56	1.25	78.5
Jul 2025	8.28	2.53	175
Aug 2025	8.51	0.92	64.9
Sep 2025	5.07	1.45	61.5
Oct 2025	4.28	2.40	85.6
Nov 2025	4.07	3.28	111
Dec 2025	3.72	3.03	94.0
Average			66.6

Total P (lbs/month) = Monthly average (mg/L) × total flow (MG/month) × 8.34 (lbs/gallon)

Attachment #1

Where total flow is the sum of the actual (not design) flow (in MGD) for that month

In addition, the need for a WQBEL for phosphorus must be considered.

Milwaukee River Basin TMDL

The TMDL report addresses phosphorus water quality impairments within the Milwaukee River Basin and provides waste load allocations (WLAs) required to meet water quality standards. Effluent limitations based on these WLAs must be included in WPDES permits according to s. NR 217.16, Wis. Adm. Code. The TMDL-derived phosphorus limits may be included in lieu of or in addition to the calculated limits upon permit reissuance or modification if certain conditions are met and the s. NR 217.13, Wis. Adm. Code WQBEL has not yet taken effect.

The monthly average total phosphorus (TP) effluent limits in lbs/day are calculated based on the maximum monthly phosphorus WLA given in pounds per month as suggested in the TMDL report and implementation guidance. The monthly maximum TP WLAs for this facility are found in Appendix A of the Milwaukee River Basin TMDL report. **The monthly average limits shown in the table below are recommended in place of the s. NR 217.13, Wis. Adm. Code, limit, and should be expressed in pounds per day.** For informational purposes, the TMDL mass limits in the following table are equivalent to monthly average concentrations ranging 0.35 mg/L to 0.80 mg/L at the annual average design flow of 0.47 MGD.

Total Phosphorus Wasteload Allocations and Effluent Limits

Month	Monthly Maximum TP WLA ¹ (lbs/month)	Days Per Month	Monthly Average TP Effluent Limit ² (lbs/day)
Jan	57.29	31	1.85
Feb	51.26	28	1.83
Mar	43.72	31	1.41
Apr	63.40	30	2.11
May	97.64	31	3.15
Jun	70.30	30	2.34
Jul	53.62	31	1.73
Aug	42.28	31	1.36
Sep	48.84	30	1.63
Oct	52.31	31	1.69
Nov	60.28	30	2.01
Dec	50.03	31	1.61

Footnotes:

1- Milwaukee River Basin TMDL Appendix A. Monthly Total Suspended Solids Wasteload Allocation by Permitted Point Source. Table A.17 for the Milwaukee River Watershed

2- Monthly Average Total P effluent limit (lbs/day) = monthly Total P WLA (lbs/month) ÷ days per month

Because these WLAs must be included in the reissued permit, no reasonable potential determination is needed.

Effluent Data

The following table summarizes effluent total phosphorus monitoring data collected at the facility from 07/07/2025 – 01/28/2026. The TMDL-based limits became effective on July 1, 2025, so data collected

after this date is included in this evaluation. Campbellsport utilizes ferric sulfate for phosphorus removal.

Total Phosphorus Statistics

	Concentration (mg/L)	Mass (lbs/day)
1-day P ₉₉	5.89	11.7
4-day P ₉₉	3.80	6.74
30-day P ₉₉	2.73	4.21
Mean	2.23	3.10
Std	1.09	2.32
Sample Size	60	60
Range	0.42 - 6.11	0.81 - 16.3

It is recommended that the currently effective monthly average limit of 2.4 mg/L continue in the reissued permit.

PART 7 – TOTAL SUSPENDED SOLIDS

The TMDL also has wasteload allocations (WLAs) for total suspended solids (TSS). For a municipal facility, the limits for TSS must be expressed as weekly and monthly averages. The current permit includes weekly and monthly average limits of 10 mg/L.

Monthly average and weekly average mass effluent limitations derived from the TMDL WLAs should be included in the permit according to the table below, along with the currently imposed concentration limits. Consistent with Section 6.4.1 of the Milwaukee River TMDL Report, in cases where the equivalent TSS concentration limit is ≤ 12 mg/L, the effluent limit will be expressed as a concentration of 12 mg/L monthly average.

Total Suspended Solids Wasteload Allocations

Month	Monthly TSS WLA ¹ (lbs/month)	Days Per Month	Monthly Ave TSS Effluent Limit ² (lbs/day)	Equivalent Conc. Limit ³ at 0.47 MGD (mg/L)	Weekly Ave TSS Effluent Limit ⁴ (lbs/day)	Equivalent Conc. Limit ³ at 0.47 MGD (mg/L)
Jan	685.85	31	22	5.6	46	12
Feb	343.75	28	12	3.1	25	6.5
Mar	188.94	31	6.1	1.6	13	3.2
Apr	309.13	30	10	2.6	21	5.4
May	1,036.24	31	33	8.5	69	18
Jun	693.56	30	23	5.9	48	12
Jul	746.24	31	24	6.1	50	13
Aug	608.15	31	20	5.0	41	10
Sep	740.94	30	25	6.3	51	13
Oct	722.08	31	23	5.9	48	12
Nov	866.23	30	29	7.4	60	15
Dec	737.97	31	24	6.1	49	13

Footnotes:

1- Milwaukee River Basin TMDL Appendix A. Monthly Total Suspended Solids Wasteload Allocation by Permitted Point Source. Table A.19 for the Milwaukee River Watershed

2- Monthly average TSS effluent limit (lbs/day) = maximum monthly TSS WLA (lbs/month) ÷ days per month

Attachment #1

3- Equivalent Concentration = mass / (annual average design flow * 8.34)

4- Weekly average effluent limit (lbs/day) = monthly average limit (lbs/day) x multiplier (1.47)

The multiplier used in the weekly average calculation was determined according to implementation guidance. A coefficient of variation was calculated, based on TSS mass monitoring data, to be 4.3. This is the standard deviation divided by the mean of mass data. However, it is believed that the optimization of the wastewater treatment system to achieve the WLA-derived permit limits will reduce effluent variability. Thus, the maximum anticipated coefficient of variation expected by the facility is 0.6. This value, along with monitoring frequency, is used to select the multiplier. The current permit specifies TSS monitoring as 2/week; however, the minimum recommended sampling frequency is 3/week, so this frequency is used instead to select a multiplication factor.

Because the existing concentration limits of 10 mg/L as weekly and monthly averages are more restrictive than 12 mg/L, the Department would be unable to increase the permit limits for TSS without a demonstration of need as required in ch. NR 207, Wis. Adm. Code. An initial review suggests that the requirements of s. NR 207.04(1)(a), Wis. Adm. Code, do not appear to be met based on Campbellsport's effluent concentrations from the current permit term's discharge monitoring reports. In consideration of these findings, **no changes to the existing effluent limits for TSS at Campbellsport are recommended for permit reissuance.**

Effluent Data

The following table lists the statistics for effluent TSS as both a concentration and a mass, from 01/03/2021 – 01/28/2026.

Effluent TSS Data

	TSS (mg/L)	TSS (lbs/day)
1-day P ₉₉	8.65	39.0
4-day P ₉₉	4.76	20.7
30-day P ₉₉	2.41	8.67
Mean*	1.25	3.09
Std	2.09	13.3
Sample Size	501	501
Range	<2 – 14	0 – 99.8

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

PART 8 – WATER QUALITY-BASED EFFLUENT LIMITATIONS 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.

In accordance with s. NR 106.53(2)(b), Wis. Adm. Code, the highest daily maximum flow rate for a calendar month is used to determine the acute (daily maximum) effluent limitation. In accordance with s. NR 106.53(2)(c), Wis. Adm. Code, the highest 7-day rolling average flow rate for a calendar month is used to determine the sub-lethal (weekly average) effluent limitation. These values were based off actual

flow reported from 01/01/2021 – 01/31/2026.

The table below summarizes the maximum temperatures reported during monitoring from 10/01/2011 – 12/31/2017.

Monthly Temperature Effluent Data & Limits

Month	Representative Highest Monthly Effluent Temperature		Calculated Effluent Limit	
	Weekly Maximum	Daily Maximum	Weekly Average Effluent Limitation	Daily Maximum Effluent Limitation
	(°F)	(°F)	(°F)	(°F)
JAN	47	48	55	86
FEB	46	46	56	87
MAR	54	55	63	100
APR	54	55	73	120
MAY	61	63	71	101
JUN	68	70	78	86
JUL			82	86
AUG			83	85
SEP			75	85
OCT	65	65	66	87
NOV	58	60	55	92
DEC	52	53	53	84

Reasonable Potential

Permit limits for temperature are recommended based on the procedures in s. NR 106.56, Wis. Adm. Code.

- An acute limit for temperature is recommended for each month in which the representative daily maximum effluent temperature for that month exceeds the acute WQBEL. The representative daily maximum effluent temperature is the greater of the following:
 - (a) The highest recorded representative daily maximum effluent temperature
 - (b) The projected 99th percentile of all representative daily maximum effluent temperatures
- A sub-lethal limitation for temperature is recommended for each month in which the representative weekly average effluent temperature for that month exceeds the weekly average WQBEL. The representative weekly average effluent temperature is the greater of the following:
 - (a) The highest weekly average effluent temperature for the month.
 - (b) The projected 99th percentile of all representative weekly average effluent temperatures for the month

There is no temperature data available for the months of July, August, or September. Section NR 106.59(2)(b), Wis. Adm. Code, allows the use of temperature effluent data, on a case-by-case basis, from at least two other POTWs within a 100-mile radius that utilize similar wastewater treatment technology and have a similar ratio of domestic to industrial waste stream composition, or representative data of the POTW. Lomira WWTF and Eden WWTF are within 100 miles of Campbellsport, and both have had

maximum temperature data of 71° F for July, August, and September. Because this is less than the limits calculated for these months, no limits are recommended for these months.

Comparing the representative highest effluent temperature to the calculated effluent limits determines the reasonable potential of exceeding the effluent limits. The months in which limitations are recommended are shown in bold. **Based on this analysis, weekly average temperature maximum limits are necessary for the month of November. Monitoring only is recommended for the rest of the year.**

The following general options are available for a facility to explore potential relief from the temperature limits:

- Effluent monitoring data: Verification or additional effluent monitoring (flow and/or temperature) may be appropriate if there were questions on the representativeness of the current effluent data.
- Mixing zone studies: A demonstration of rapid and complete mixing may allow for the use of a mixing zone other than the default 25%.
- Dissipative cooling demonstration: Effluent limitations based on sub-lethal criteria may be adjusted based on the potential for heat dissipation from municipal treatment plants as described in s. NR 106.59(4), Wis. Adm. Code.
- Collection of site-specific ambient temperature: default background temperatures for streams in Wisconsin, so actual data from the direct receiving water may provide for relaxed thermal limits but only if the site-specific temperatures are lower than the small stream defaults used in the above tables
- A variance to the water quality standard: This is typically considered to be the least preferable and most complex option as it requires the evaluation of the other alternatives.

These options are explained in additional detail in the August 15, 2013 Department *Guidance for Implementation of Wisconsin's Thermal Water Quality Standards*
<http://dnr.wi.gov/topic/surfacewater/documents/ThermalGuidance2edition8152013.pdf>

PART 9 – 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 tests predict the concentration that interferes with the growth or reproduction of test organisms during a seven-day exposure. To assure that a discharge is not chronically toxic to organisms in the receiving water, WET tests must produce a statistically valid IC₂₅ (Inhibition Concentration) greater than the instream waste concentration (IWC), according to s. NR 106.09(3)(b), Wis. Adm. Code. The IWC is an estimate of the proportion of effluent to total volume of water (receiving water + effluent). The IWC of **97%** shown in the WET Checklist summary below was calculated according to the following equation, as specified in s. NR 106.03(6), Wis. Adm. Code:

Attachment #1

$$IWC \text{ (as \%)} = Q_e \div \{(1 - f) Q_e + Q_s\} \times 100$$

Where:

Q_e = annual average flow = 0.47 MGD = 0.73 cfs

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

Q_s = ¼ of the 7- Q_{10} = 0.10 cfs ÷ 4 = 0.025 cfs

- According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), 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.
- According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), receiving water must be used as the dilution water and primary control in chronic WET tests, unless the use of different dilution water is approved by the Department prior to use. The dilution water used in WET tests conducted on Outfall 001 shall be a grab sample collected from the receiving water location, upstream and out of the influence of the mixing zone and any other known discharge. The specific receiving water location 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. 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. Data collected prior to July 1, 2005 is excluded in this evaluation.

WET Data History

Date Test Initiated	Chronic Results IC ₂₅ %				Footnotes or Comments
	<i>C. dubia</i>	Fathead Minnow	Pass or Fail?	Use in RP?	
02/21/2006		>100	Pass	Yes	
06/15/2006	>100		Pass	Yes	
10/12/2006	>100	>100	Pass	Yes	
01/20/2009	>100	>100	Pass	No	1
12/02/2010	>100	>100	Pass	No	1
09/13/2011	>100	>100	Pass	Yes	
08/11/2020	>100	72.9	Fail	Yes	
09/29/2020	>100	>100	Pass	Yes	
10/13/2020	>100	>100	Pass	Yes	
09/27/2022	>100	>100	Pass	Yes	

Footnotes:

1. *Tests done by S-F Analytical, July 2008 – March 2011.* The DNR has reason to believe that WET tests completed by SF Analytical Labs from July 2008 through March 31, 2011 were not performed using proper test methods. Therefore, WET data from this lab during this period has been disqualified and was not included in the analysis.
- 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

Attachment #1

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.**

$$\text{Chronic Reasonable Potential} = [(TU_c \text{ effluent}) (B)(IWC)]$$

According to s. NR 106.08(6)(d), Wis. Adm. Code, TU_a and TU_c effluent values are equal to zero whenever toxicity is not detected (i.e. when the LC₅₀, IC₂₅ or IC₅₀ ≥ 100%).

$$\text{Chronic Reasonable Potential} = [(TU_c \text{ effluent}) (B)(IWC)]$$

Chronic WET Limit Parameters

TU _c (maximum) 100/IC ₂₅	B (multiplication factor from s. NR 106.08(6)(c), Wis. Adm. Code, Table 4)	IWC
100/72.9 = 1.37	6.2 Based on 1 detect	97%

$$[(TU_c \text{ effluent}) (B)(IWC)] = 8.2 > 1.0$$

Therefore, reasonable potential is shown for chronic WET limits using the procedures in s. NR 106.08(6) and representative data from 02/21/2006 – 09/27/2022.

Expression of WET limits

Chronic WET limit = $[100/IWC] TU_c = 1.0 TU_c$ expressed as a monthly average

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

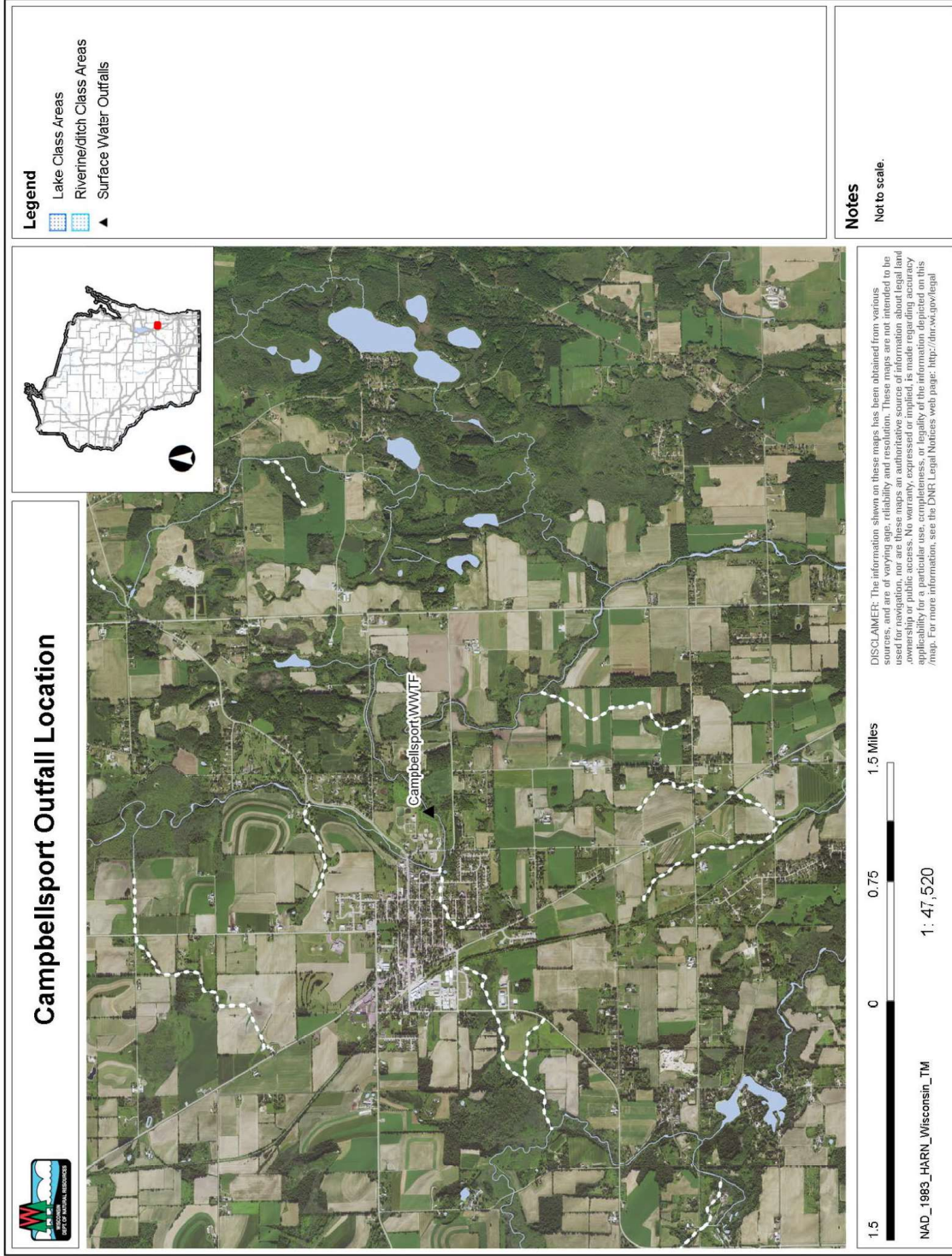
	Acute	Chronic
AMZ/IWC	Not Applicable. 0 Points	IWC = 97%. 15 Points
Historical Data	No data. 5 Points	7 tests used to calculate RP. 1 test failed. 0 Points
Effluent Variability	Little variability, no violations or upsets, consistent WWTF operations.	Same as Acute.

	Acute	Chronic
	0 Points	0 Points
Receiving Water Classification	WWSF 5 Points	Same as Acute. 5 Points
Chemical-Specific Data	No reasonable potential for limits based on ATC; Ammonia nitrogen limit carried over from the current permit. Copper, nickel, and chloride detected. Additional Compounds of Concern: None. 3 Points	Reasonable potential for limits for chloride based on CTC; Ammonia nitrogen limit carried over from the current permit. Copper, and nickel detected. Additional Compounds of Concern: None. 8 Points
Additives	0 Biocides and 1 Water Quality Conditioner (ferric sulfate) added. Permittee has proper P chemical SOPs in place: No. 16 Points	All additives used more than once per 4 days. 16 Points
Discharge Category	1 Industrial Contributor: Loehr's Meat Service. 5 Points	Same as Acute. 5 Points
Wastewater Treatment	Secondary treatment or better. 0 Points	Same as Acute. 0 Points
Downstream Impacts	No impacts known 0 Points	Same as Acute. 0 Points
Total Checklist Points:	33 Points	48 Points
Recommended Monitoring Frequency (from Checklist):	3 tests during permit term	2x yearly
Limit Required?	No	Yes Limit = 1.0 TU _c
TRE Recommended? (from Checklist)	No	No

- After consideration of the guidance provided in the Department's WET Program Guidance Document (2022) and other information described above, **3x/permit term acute and 2x yearly chronic WET tests are recommended in the reissued permit.** Tests should be done in rotating quarters to collect seasonal information about this discharge. WET testing 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, a chronic WET limit is required. The chronic WET limit shall be expressed as 1.0 TU_c as a monthly average in the effluent limits table of the permit.
- A minimum of annual chronic monitoring is required because a chronic 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.

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If Campbellsport submits an approvable SOP for ferric sulfate, 15 points would be removed from the acute and chronic checklists. This would result in the recommendation of **2/permit term acute and 1x annual chronic testing.**



Attachment #3
2007 Ammonia Limits Calculations

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

Weekly average and monthly average limits for Ammonia Nitrogen are based on chronic toxicity criteria. The 30-day chronic toxicity criterion (CTC) for ammonia in waters classified as a Warmwater sport fishery is calculated by the following equation.

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

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 simply 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. Only 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.

The rules provide 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. Burbot, an early spawning species, are not believed to be present in the Milwaukee River system. So “ELS Absent” criteria apply from October through March, and “ELS Present” criteria will apply from April through September.

As noted earlier, when USGS provided the revised estimated low-flow statistics for the Milwaukee River last year, monthly 7-Q₁₀ and 7-Q₂ values were included. Those values allow calculation of weekly average and monthly average effluent limitations for Ammonia Nitrogen for each individual month of the year. Since minimal ambient data is available, the “default” basin assumed values are used for Temperature, pH and background ammonia concentrations, shown in the table below, with the resulting effluent limitations. The current permit limits for Ammonia Nitrogen were derived using a background pH = 8.0 su, based on river monitoring data for a six month period from November 1989 to April 1990. That data appears to support the “default” values used for this evaluation. The current limits were based on the same basin “default” values for background ammonia concentration, 0.03 in summer and 0.11 in winter, but slightly modified values are used in this evaluation for spring and fall. The Temperature data was developed by staff working on thermal water quality standards.

The weekly average limitations calculated in this manner yield limits that utilize the full assimilative capacity of the Milwaukee River, which are considerably increased from the current permit limitations. The portion of the increase that results from revised water quality criteria is exempt from ch. NR 207 Antidegradation requirements. But the portion of the increase that is due to use of greater receiving water flow rates, and the revised background ammonia concentration, is subject to those requirements. So the table below includes three columns for the weekly average limits. The first column (on the left, nearest the middle of the full table) presents the limits that utilize the full assimilative capacity. The next column

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presents limits calculated using a value of 0.03 cfs for the 7-Q₁₀ of the Milwaukee River, the value used to derive the current limits. This column also used a value of 0.11 mg/L for the background ammonia concentration from November through April, and a value of 0.03 mg/L from May through October, as used to derive the current limits. The final column (on the far right hand side) presents the limits that prevent significant lowering of water quality (SLOWQ), defined as one third of the remaining assimilative capacity. This was calculated by adding one-third of the difference between the limits utilizing the full assimilative capacity and the limits that are exempt from antidegradation requirements, to the limits that are exempt. In order to write the permit with the limits utilizing the full assimilative capacity, the Village of Campbellsport would need to demonstrate the need for the higher limits. Given the compliance history with the current limits, it is doubtful that this could be done. So the limits that prevent SLOWQ are recommended for the reissued permit. Finally, the calculated monthly average limitations from March through August exceed the recommended weekly average limitations, so those limits are not needed in the permit. The weekly average limitations would be exceeded before the monthly average limits are exceeded, so the weekly average limits provide sufficient protection for the receiving water. The table below shows all recommended limits, rounded to two significant figures, in **bold type-face**.

Month	Background Information					Effluent Limits – mg/L			
	7-Q ₁₀ cfs	7-Q ₂ cfs	NH ₃ -N mg/L	Temp °C	pH su	Monthly Average	Weekly Average Full Cap.	Weekly Average Exempt	Weekly Average SLOWQ
January	0.56	3.54	0.11	1	7.97	8.3	12.28	10.42	11
February	0.74	4.65	0.11	1	7.97	9.6	12.91	10.42	11
March	2.31	15.9	0.11	4	7.97	23	18.41	10.42	13
April	8.51	25.1	0.04	9	7.97	21	24.81	6.41	13
May	2.56	10.7	0.04	17	8.21	20	16.85	3.91	8.2
June	0.75	4.22	0.03	21	8.21	6.8	5.87	3.02	4.0
July	0.28	2.14	0.03	23	8.21	3.5	3.52	2.66	2.9
August	0.16	1.66	0.03	22	8.21	3.1	3.32	2.83	3.0
September	0.03	1.55	0.03	16	8.21	4.5	5.65	4.17	4.7
October	0.51	2.56	0.05	9	8.21	4.4	7.39	6.36	6.7
November	0.90	4.71	0.05	7	7.97	9.7	13.49	10.42	11
December	0.43	3.65	0.05	3	7.97	8.5	11.83	10.42	11

Conclusions and Recommendations:

Because the Campbellsport WWTF is designed and operated to remove ammonia, it is not appropriate to ascertain the need for limits in accordance with the provisions of s. NR 106.05. A daily maximum limit of 17 mg/L is recommended on a year-round basis, and the weekly average and monthly average effluent limits shown in the table above in bold font are recommended during the respective months. These limits are not included in evaluating the need for whole effluent toxicity because they are not recommended per ch. NR 106. Mass limits are not required, in accordance with s. NR 106.32(5).

Temperature limits for receiving waters with unidirectional flow

(calculation using default ambient temperature data)

Facility:	Campbellsport		7-Q₁₀:	0.10	cfs	Temp Dates	Flow Dates
Outfall(s):	001		Dilution:	25%		Start:	07/01/18
Date Prepared:	02/23/2026		f:	0		End:	12/22/23
Design Flow (Qe):	0.47	MGD	Stream type: Small warm water sport or forage fish				
Storm Sewer Dist.	0	ft	Qs:Qe ratio:	0.0	:1	Calculation Needed? YES	

Month	Water Quality Criteria			Receiving Water Flow Rate (Qs)		Representative Highest Effluent Flow Rate (Qe)			f	Representative Highest Monthly Effluent Temperature		Calculated Effluent Limit	
	Ta (default) (°F)	Sub-Lethal WQC (°F)	Acute WQC (°F)	Flow Rate (Qs) (cfs)		7-day Rolling Average (Qesl) (MGD)	Daily Maximum Flow Rate (Qea) (MGD)			Weekly Average (°F)	Daily Maximum (°F)	Weekly Average Effluent Limit (°F)	Daily Maximum Effluent Limit (°F)
JAN	33	49	76	0.56		0.281	0.378		0	47	48	55	86
FEB	34	50	76	0.74		0.273	0.456		0	46	46	56	87
MAR	38	52	77	2.31		0.461	0.621		0	54	55	63	100
APR	48	55	79	8.51		0.453	0.633		0	54	55	73	120
MAY	58	65	82	2.56		0.346	0.417		0	61	63	71	101
JUN	66	76	84	0.75		0.253	0.333		0	68	70	78	86
JUL	69	81	85	0.28		0.319	0.426		0			82	86
AUG	67	81	84	0.16		0.527	0.917		0			83	85
SEP	60	73	82	0.30		0.503	0.697		0			75	85
OCT	50	61	80	0.51		1.197	1.984		0	65	65	66	87
NOV	40	49	77	0.90		0.444	0.489		0	58	60	55	92
DEC	35	49	76	0.43		0.361	0.438		0	52	53	53	84

Facility Specific Chloride Variance Data Sheet

Directions: Please complete this form electronically. Record information in the space provided. Select checkboxes by double clicking on them. Do not delete or alter any fields. For citations, include page number and section if applicable. Please ensure that all data requested are included and as complete as possible. Attach additional sheets if needed.

Section I: General Information

A. Name of Permittee: Village of Campbellsport
 B. Facility Name: Campbellsport Wastewater Treatment Facility
 C. Submitted by: Wisconsin Department of Natural Resources
 D. State: Wisconsin Substance: Chloride Date completed: August 19, 2026
 E. Permit #: WI-0020818-10-0 WQSTS #: (EPA USE ONLY)
 F. Duration of Variance Start Date: January 1, 2027 End Date: December 31, 2031
 G. Date of Variance Application: February 2, 2026
 H. Is this permit a: ☒ First time submittal for variance
☐ Renewal of a previous submittal for variance (Complete Section IX)

I. **Description of proposed variance:** The Village of Campbellsport WWTF (Campbellsport) discharges to the Milwaukee River, in the East and West Branches Milwaukee River Watershed in the Milwaukee River Basin, in Fond du Lac County. The proposed variance for chloride is from the water quality-based effluent limit (WQBEL) of 410 mg/L expressed as a weekly average. The proposed permit includes an interim limit of 500 mg/L expressed as a weekly average, a target value of 450 mg/L (weekly average), and the requirement to implement source reduction measures (SRMs). The term of the proposed variance is five years, concurrent with the term of the proposed WPDES permit. The underlying designated uses and criteria of Wisconsin's chloride water quality standards (WQS) will be retained, and all other applicable WQS will remain in effect with adoption of the proposed variance.

Citation: An interim chloride effluent limitation under s. NR 106.83(2), Wis. Adm. Code, represents a variance to water quality standards authorized by s. 283.15, Wis. Stats., and 40 CFR §131.14.

J. List of all who assisted in the compilation of data for this form

Name	Email	Phone	Contribution
Sarah Donoughe	Sarah.Donoughe@Wisconsin.gov	920-366-6076	Permit Drafter/Variance Coordinator
Mark Stanek	Mark.Stanek@Wisconsin.gov	920-808-0670	Compliance Engineer
Nicole Krueger	Nicole.Krueger@Wisconsin.gov	414-897-5750	Limits Calculator

Section II: Criteria and Variance Information

A. **Water Quality Standard from which variance is sought:** 395 mg/L (Chloride CTC)
 B. **List other criteria likely to be affected by variance:** None.
 C. **Source of Substance:** Sources of chloride include regeneration wastewater from residential and non-residential ion exchange softeners and road salt intrusion into the collection system during winter road maintenance activities and during periods of snowmelt and heavy rain. Additional source identification will be conducted early on during the proposed permit term.
 D. **Ambient Substance Concentration:** 0 mg/L ☐ Measured ☒ Estimated
☐ Default ☐ Unknown
 E. **If measured or estimated, what was the basis? Include citation.** Estimated due to the low flows.
 F. **Average effluent discharge rate:** 0.47 MGD (annual average design flow) **Maximum effluent discharge rate:** 1.13 MGD (peak daily flow)
 G. **Effluent Substance Concentration:** 1-day P99 = 586 mg/L ☒ Measured ☐ Estimated
 4-day P99 = 500 mg/L ☐ Default ☐ Unknown
 30-day P99 = 450 mg/L
 Mean = 423 mg/L

H. If measured or estimated, what was the basis? Include Citation. Effluent concentration data collected from January 2021 through January 2026 (238 samples).	
I. Type of HAC:	☐ Type 1: HAC reflects waterbody/receiving water conditions ☐ Type 2: HAC reflects achievable effluent conditions ☒ Type 3: HAC reflects current effluent conditions
J. Statement of HAC: The Department has determined the highest attainable condition of the receiving water is achieved through the application of the variance limit in the permit, combined with a permit requirement that the permittee implement its Chloride SRM plan. Thus, the HAC at commencement of this variance is 500 mg/L, which reflects the greatest chloride reduction achievable with the current treatment processes, in conjunction with the implementation of the permittee's Chloride SRM plan. The current effluent condition is reflective of on-site optimization measures that have already occurred. This HAC determination is based on the economic feasibility of available compliance options for Campbellsport WWTF at this time (see Economic Section below). The permittee may seek to renew this variance in the subsequent reissuance of this permit; the Department will reevaluate the HAC in its review of such a request. A subsequent HAC cannot be defined as less stringent than this HAC.	
K. Variance Limit: 500 mg/L as a weekly average	
L. Level currently achievable (LCA): 500 mg/L as a weekly average	
M. What data were used to calculate the LCA, and how was the LCA derived? (Immediate compliance with LCA is required.) The LCA is the 4-day P99 from the current permit term.	
N. Explain the basis used to determine the variance limit (which must be $\leq$ LCA). Include citation. Chapter NR 106, Subchapter VII, Wis. Adm. Code, allows for a variance, the imposition of a less restrictive interim limit, a compliance schedule that stresses source reduction and public education, and allowance for a target value or limit to be a goal for reduction. The variance limit = 4-day P99. The limit is established in accordance with s. 283.15 (5), Wis. Stats., and ch. NR 106, Subchapter II, Wis. Adm. Code.	
O. Select all factors applicable as the basis for the variance provided ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☒ 6 under 40 CFR 131.10(g). Summarize justification below: The use of a reverse osmosis system was evaluated. The cost of the system was estimated at an average cost per household that would result in 4.92% of the MHI. Installing lime softening on the current municipal water supply system was also evaluated. The cost of installing lime softening was estimated at an average cost per household that would result in 6.28% of the MHI. Without a variance, meeting the water quality standard of 410 mg/L would result in substantial and widespread economic and social impacts.	
Section III: Location Information	
A. Counties in which water quality is potentially impacted: <u>Fond du Lac; Washington</u>	
B. Receiving waterbody at discharge point: <u>Milwaukee River</u>	
C. Flows into which stream/river? <u>Lake Michigan</u> How many miles downstream? <u>95 mi.</u>	
D. Coordinates of discharge point (UTM or Lat/Long): <u>43° 35' 51" N Latitude / 88° 16' 07" W Longitude</u>	
E. What is the distance from the point of discharge to the point downstream where the concentration of the substance falls to less than or equal to the chronic criterion of the substance for aquatic life protection? Within 3 miles.	
F. Provide the equation used to calculate that distance (Include definitions of all variables, identify the values used for the clarification, and include citation): (effluent flow x concentration + receiving water flow x background concentration) / total flow Effluent flow = 0.727 cfs Concentration = 500 mg/L Background concentration = 0 mg/L	

For the mixed concentration to be less than 395 mg/L to meet the chronic toxicity criteria, the receiving water flow must be greater than 0.2 cfs. The 7Q10 of the Milwaukee River is estimated to be 3.75 cfs within 3 miles of the outfall.			
G. What are the designated uses associated with the direct receiving waterbody, and the designated uses for any downstream waterbodies until the water quality standard is met? Warm Water Sport Fish (WWSF)			
H. Identify all other variance permittees for the same substance which discharge to the same stream, river, or waterbody in a location where the effects of the combined variances would have an additive effect on the waterbody: None.			
Permit Number	Facility Name	Facility Location	Variance Limit [mg/L]
N/A			
I. Please attach a map, photographs, or a simple schematic showing the location of the discharge point as well as all variances for the substance currently draining to this waterbody on a separate sheet See the "Campbellsport WWTF – Current Variance Outfalls" map.			
J. Is the receiving waterbody on the CWA 303(d) list? If yes, please list the impairments below. ☒ Yes ☐ No ☐ Unknown			
River Mile	Pollutant	Impairment	
0.00-2.90	Unspecified Metals, Chloride, Total Phosphorus, PCBs, E. coli	Unspecified Metals Contaminated Sediments, Low DO, Recreational Restrictions - Pathogens, PCBs Contaminated Fish Tissue, Chronic Aquatic Toxicity, PCB Contaminated Sediments	
2.90-19.35	Total Phosphorus, Unknown Pollutant, E. coli, PCBs	Elevated Water Temperature, Recreational Restrictions - Pathogens, Impairment Unknown, PCBs Contaminated Fish Tissue	
19.35-29.33	E. coli, PCBs	Recreational Restrictions - Pathogens, PCBs Contaminated Fish Tissue	
29.33-103.34	Total Phosphorus, Unknown Pollutant, PCBs	Elevated Water Temperature, Impairment Unknown	
K. Please list any contributors to the POTW in the following categories:			
Food processors (cheese, vegetables, meat, pickles, soy sauce, etc.)	Loehr's Meat Service		
Metal Plating/Metal Finishing	Swenson Tool and Die (tbd)		
Car Washes	Fire Bug Car Wash		
Municipal Maintenance Sheds (salt storage, truck washing, etc.)	Village Garage; Fond du Lac County Highway Department (tbd)		
Laundromats	None		
Other presumed commercial or industrial chloride contributors to the POTW	None		
L. If the POTW does not have a DNR-approved pretreatment program, is a sewer use ordinance enacted to address the chloride contributions from the industrial and commercial users? If so, please describe. No.			
Section IV: Pretreatment (complete this section only for POTWs with DNR-Approved Pretreatment Programs. See w:\Variances\Templates and Guidance\Pretreatment Programs.docx)			
A. Are there any industrial users contributing chloride to the POTW? If so, please list. N/A			

B. Are all industrial users in compliance with local pretreatment limits for chloride? If not, please include a list of industrial users that are not complying with local limits and include any relevant correspondence between the POTW and the industry (NOVs, industrial SRM updates and timeframe, etc) N/A	
C. When were local pretreatment limits for chloride last calculated? N/A	
D. Please provide information on specific SRM activities that will be implemented during the permit term to reduce the industry's discharge of the variance pollutant to the POTW N/A	
Section V: Public Notice	
A. Has a public notice been given for this proposed variance? ☒ Yes ☐ No	
B. If yes, was a public hearing held as well? ☒ Yes ☐ No ☐ N/A	
C. What type of notice was given? ☒ Notice of variance included in notice for permit ☐ Separate notice of variance	
D. Date of public notice: September 3, 2026 Date of hearing: October 20, 2026	
E. Were comments received from the public in regards to this notice or hearing? (If yes, see notice of final determination) ☐ Yes ☐ No	
Section VI: Human Health	
A. Is the receiving water designated as a Public Water Supply? ☐ Yes ☒ No	
B. Applicable criteria affected by variance: No human health criteria for chloride.	
C. Identify any expected impacts that the variance may have upon human health, and include any citations: None.	
Section VII: Aquatic Life and Environmental Impact	
A. Aquatic life use designation of receiving water: Warm Water Sport Fish (WWSF)	
B. Applicable criteria affected by variance: Chronic toxicity criteria for chloride = 395 mg/L from ch. NR 105, Wis. Adm. Code; applicable in all waters in Wisconsin	
C. Identify any environmental impacts to aquatic life expected to occur with this variance, and include any citations: The proposed interim limit of 500 mg/L results in an instream concentration of 439 mg/L at the edge of the mixing zone under design conditions. This result exceeds the genus mean chronic value for Ceriodaphnia (417 mg/L).	
D. List any Endangered or Threatened species known or likely to occur within the affected area, and include any citations: There are no Endangered or Threatened species known that would affect the water quality criterion, as the chronic toxicity criterion for chloride is more stringent than all genus mean chronic values for organisms with chloride toxicity data. As a result, no endangered species with data would need more protection than already provided by the existing criterion. Citation: U.S. Fish and Wildlife Service – Environmental Conservation Online System (http://www.fws.gov/endangered/) and National Heritage Index (http://dnr.wi.gov/topic/nhi/)	
Section VIII: Economic Impact and Feasibility	
A. Describe the permittee's current pollutant control technology in the treatment process: Wastewater from the main lift station is pumped to the Village of Campbellsport Wastewater Treatment Facility where it passes through a mechanical fine screen and then enters an oxidation ditch followed by circular clarifiers. Effluent from the clarifier goes to gravity anthracite filters. The effluent is seasonally disinfected via ultraviolet lights. The effluent flows down aeration steps prior to discharge to the Milwaukee River. The Village also has wastewater lagoons that receive 420,000 gallons of holding tank wastewater per month. These lagoons pretreat the wastewater prior to entering the treatment system. Biosolids are stored in an above-ground storage tank and are seasonally land applied.	
B. What modifications would be necessary to comply with the current limits? Include any citations. Installation of a reverse osmosis system or lime softening on the current municipal water supply system.	

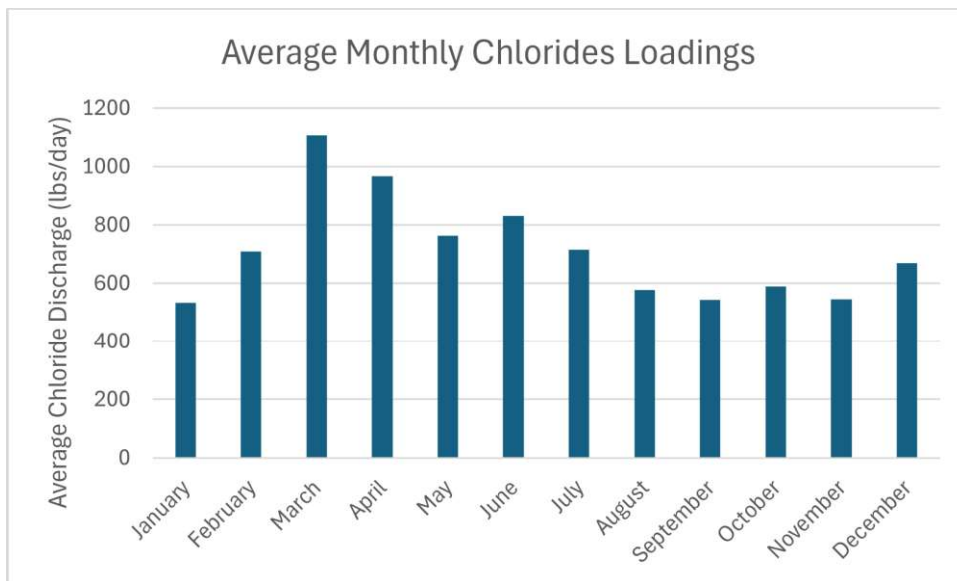
C. How long would it take to implement these changes? N/A – The costs of providing reverse osmosis (RO) at the wastewater treatment facility or installing lime softening on the current municipal water supply system were evaluated and determined to be prohibitively expensive. See Section II:O.	
D. Estimate the capital cost (Citation): \$528,750 for RO treatment (<i>WDNR Form 3400-193 Chloride Variance Application from permittee</i>)	
E. Estimate additional O & M cost (Citation): \$171,550 for RO treatment (<i>WDNR Form 3400-193 Chloride Variance Application from permittee</i>)	
F. Estimate the impact of treatment on the effluent substance concentration, and include any citations: A RO system at the WWTF could potentially remove chloride from the effluent to achieve levels below the water quality standard. Installing a centralized lime softening system would eliminate the need for ion exchange softeners and the associated chloride brine generated during the regeneration/backwash cycle that is ultimately discharged to the wastewater treatment system. However, neither option is considered to be economically feasible.	
G. Identify any expected environmental impacts that would result from further treatment, and include any citations: End-of-pipe RO wastewater treatment technology for chloride produces concentrated brine that can be as much or more of an environmental liability than the untreated effluent. Since the concentrated brine cannot be further treated, the only recourse for the disposal of the brine is transfer to another community, which is often not feasible. Appropriate chloride source reduction activities are preferable environmentally to effluent end-of-pipe treatment in most cases, since the end product of treatment (production of a concentrated brine) does not remove the load of chloride from the environment. There would be some impacts based on disposal of brine from RO. These include air pollution impacts from trucking brine and increased chloride impacts at the point where brine is discharged.	
H. Is it technically and economically feasible for this permittee to modify the treatment process to reduce the level of the substance in the discharge? ☐ Yes ☒ No ☐ Unknown RO treatment of the Campbellsport WWTF effluent to meet the WQBEL is technically feasible. However, it is not economically feasible. See WDNR Variance Application and Municipal RO Screening Tool for costs of RO. Use of RO was evaluated. The resulting total cost for sewer user rates was estimated to result in an average cost to households that would be 4.92% of the MHI. An increase of this magnitude would cause substantial and widespread adverse social and economic impacts in the area where the discharge is located. Lime softening treatment of Campbellsport's water supply is technically feasible and would potentially enable the WWTF effluent to meet the chloride WQBEL. However, lime softening is not economically feasible. See the Chloride Variance Economic Eligibility Tool (Lime Softening) for costs of lime softening. Use of municipal lime softening was evaluated; the resulting cost for sewer user rates was estimated to result in an average cost to households that would be 6.28% of the MHI. An increase of this magnitude would cause substantial and widespread adverse social and economic impacts in the area where the discharge is located.	
I. If treatment is possible, is it possible to comply with the limits on the substance? ☒ Yes ☐ No ☐ Unknown	
J. If yes, what prevents this from being done? Include any citations. See Section VIII:H. The costs associated with RO and lime softening treatment are prohibitively expensive.	
K. List any alternatives to current practices that have been considered, and why they have been rejected as a course of action, including any citations: Reverse Osmosis (RO) Treatment – not economically feasible (4.92% of the MHI) Centralized Lime Softening Treatment – not economically feasible (6.28% of the MHI)	
Section IX: Compliance with Water Quality Standards	
A. Describe all activities that have been, and are being, conducted to reduce the discharge of the substance into the receiving stream. This may include existing treatments and controls, consumer education, promising centralized or remote treatment technologies, planned research, etc. Include any citations.	

The Village of Campbellsport currently monitors industries for their potential to discharge chlorides to the WWTF; additional source identification will be conducted early on during the proposed permit term. Chloride loadings from road salt infiltration into the collection system have been tracked for the last several years (2022-2025). The Village rehabilitates manholes and sewers, as the budget allows, resulting in a reduction in I/I and thereby reducing chloride loading to the WWTF during rain and snowmelt. Also, during the current permit term, the Village provided education to home and business owners about chloride reduction. Informational letters about water softener maintenance were posted and made available at the Village Hall year-round. The Village has also encouraged the use of demand-type softening units; the building inspector issues a fact sheet with new home building permits and plumbing permits that encourages the use of demand-type systems and explains their benefits.				
B. Describe all actions that the permit requires the permittee to complete during the variance period to ensure reasonable progress towards attainment of the water quality standard. Include any citations. As conditions of this variance the permittee is required to (a) maintain effluent quality at or below the interim effluent limitation in the proposed permit, (b) implement the chloride source reduction measures specified in the Source Reduction Measures Plan dated August 18, 2026, and (c) perform the actions listed in the Schedule section of the proposed permit. SRMs include SRMs targeting industrial, commercial, and municipal sources (source identification and reduction), SRMs targeting point-of-use softeners (providing information on increasing softener efficiency, developing an inventory of point-of-use softeners, and potentially enacting an ordinance that requires the use of demand-initiated regeneration, a high salt efficiency standard, and periodic tune-ups), and SRMs targeting municipal winter road maintenance (reducing I/I into the collection system, providing education and outreach to municipal officials and public works departments, and attending smart salting trainings/workshops biannually). Citation: Village of Campbellsport WWTP, Source Reduction Measures Plan, dated August 18, 2026				
Section X: Compliance with Previous Permit <i>(Variance Reissuances Only)</i>				
A. Date of previous submittal: <u> N/A </u> Date of EPA Approval: _____				
B. Previous Permit #: _____ Previous WQSTS #: _____ (EPA USE ONLY)				
C. Effluent substance concentration: _____ Variance Limit: _____				
D. Target Value(s): _____ Achieved? ☐ Yes ☐ No ☐ Partial				
E. For renewals, list previous steps that were to be completed. Show whether these steps have been completed in compliance with the terms of the previous variance permit. Attach additional sheets if necessary.				
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">Condition of Previous Variance</th> <th style="width: 50%; text-align: center;">Compliance</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">N/A</td> <td style="text-align: center;">☐ Yes ☐ No</td> </tr> </tbody> </table>	Condition of Previous Variance	Compliance	N/A	☐ Yes ☐ No
Condition of Previous Variance	Compliance			
N/A	☐ Yes ☐ No			

Village of Campbellsport WWTP
Source Reduction Measures Plan
Permit Number WI-0020818-10-0
Date: August 18, 2026

Narrative/Source Identification

This Source Reduction Measures (SRM) Plan is for a new variance request. Thus far, no industrial sources have been identified that contribute a significant chloride load to the WWTP. The Village currently monitors industries for their potential to discharge chlorides to the WWTP. Additional source identification will be conducted early on during the upcoming permit term. Regeneration wastewater from residential and non-residential ion exchange softeners is a source of chlorides to the WWTP but is not immediately controllable due to the need for softened water by residents and industries. The Village provides education related to this source. Chloride loadings from road salt infiltration into the collection system is also a source. A review of the annual trends shows that the chloride loadings are highest in March and April, a time typically associated with snowmelts and heavy rains. The chart below shows the average monthly chloride loadings from 2022 to 2025.



The Village rehabilitates manholes and sewers as the budget allows, resulting in a reduction in infiltration and inflow (I/I) thereby reducing chloride loading to the WWTP during rain and snowmelt. Street reconstruction projects also provide opportunities to replace sewer mains, laterals, and manholes.

During the current permit term, the Village provided education to home and business owners about chloride reduction in wastewater. Informational letters about water softener maintenance were posted and made available at Village Hall throughout the year. As potential contributors were identified, they were notified and asked to make reductions wherever possible. The Village has encouraged the use of demand-type softening units; the building inspector issues a fact sheet with new home building permits and plumbing permits that encourages the use of demand-type systems and explains their benefits.

Data Analysis

The table below shows the average monthly chloride loadings and concentration from 2022 through October 2025.

	Chlorides (mg/L)				Chlorides (lbs/day)			
	2022	2023	2024	2025	2022	2023	2024	2025
January	530	435	463	383	460	664	533	478
February	538	478	433	448	496	1012	883	445
March		475	465	415		1591	1198	535
April	500	428	423	350	928	1153	874	914
May	448	465	375	328	790	779	800	687
June	388	473	290	328	667	643	1388	627
July	425	458	390	292	939	693	675	552
August	363	448	400	311	533	569	572	636
September	368	463	398	350	624	642	445	465
October	473	478	443	626	537	571	527	720
November	395	453	410		475	705	458	
December	483	443	430		634	870	502	

Planned Actions

SRM/PMP Activities	1 st Year	2 nd Year	3 rd Year	4 th Year	5 th Year
SRMs Targeting Industrial, Commercial, and Municipal Sources					
1. Source Identification					
a. Evaluate potential contribution from Loehr's Meat Service. Results of this evaluation and any potential follow-up actions will be included in the Annual Report.	X				
b. Evaluate potential contribution from Swenson Tool and Die. Results of this evaluation and any potential follow-up actions will be included in the Annual Report.	X				
c. Evaluate potential contribution from Fond du Lac County Highway Department and Village garage. Results of this evaluation and any potential follow-up actions will be included in the Annual Report.	X	X			
d. Identify and investigate additional potential chloride sources. Potential sources and investigations will be documented in the Annual Reports.	X	X			
2. Source Reduction (as applicable)					
a. Work with identified industrial and commercial contributors to prevent increases in the amount of chloride discharged and seek reductions from those sources. Discussions with industrial and commercial contributors and any resulting actions will be documented in the Annual Reports.			X	X	X

SRMs Targeting Point-of-Use Softeners					
1. Provide information about increasing softener efficiency and reducing the use of softened water.					
a. Send information (e.g., brochures) to customers annually and post information on the Village's website (update annually). A copy of the brochure and posted information will be included in the Annual Reports.	X	X	X	X	X
2. Develop an inventory of point-of-use water softeners in use in the Village and collect information about the type of regeneration control unit and when each was last tuned-up. (Note: This action may extend beyond the five-year permit term before the inventory is complete.) An update on this inventory development will be included in the Annual Reports.			X	X	X
3. Consider enacting an ordinance that requires the use of demand-initiated regeneration, a high salt efficiency standard, and periodic tune-ups for new and replacement point-of-use softeners. Discussions and any potential follow-up actions will be documented in the Annual Reports.			X	X	X
SRMs Targeting Municipal Winter Road Maintenance					
1. Reduce inflow into the collection system through CMOM implementation. Document optimization efforts and plans for future maintenance in the Annual Reports.	X	X	X	X	X
2. Provide education and outreach to municipal officials and public works departments on the impacts of winter road maintenance on WWTP effluent quality. Document the frequency, method of outreach, copy of meeting minutes, and any resulting changes in the Annual Reports.	X	X	X	X	X
3. Staff who apply road salt will attend a Salt Wise or Smart Salting certification workshop (or similar training) at least biannually. Attendance and/or certifications will be documented in the Annual Reports.		X		X	

Full Antidegradation Request Worksheet

This worksheet is for applicants to provide details to support an antidegradation request under **s. NR 207.031(8), Wis. Adm. Code.**

Permittee: Village of Campbellsport Wastewater Treatment Facility

Location: Campbellsport, Wisconsin

WPDES Permit No. WI-0020818-10-0
(if applicable)

Receiving Water: Milwaukee River

The lowering of water quality from the proposed new or increased discharge is necessary to provide important social and/or economic development in the area of the discharge. Please provide descriptions of the important social and/or economic development that the proposed new or increased discharge will provide.

1. Assessment of Social Development (Place a check mark in the applicable boxes and briefly describe the economic and social developments below.)

- ☒ N/A – See Assessment of Economic Development
- ☐ Community services provided
- ☐ Public health or safety improvements
- ☐ Infrastructure improvements
- ☐ Education and training
- ☐ Cultural amenities
- ☐ Recreational opportunities
- ☐ Other areas that will accommodate important social development:

Description of Social Developments:

Infrastructure improvements that took place over the last permit was full reconstruction of Hwy 67/Main St/ N. Fond du lac Ave/ Sheboygan St/ Ladwig/ Martin/ and Cherry St.

2. Assessment of Economic Development (Place a check mark in the applicable boxes and briefly describe the economic and social developments below.)

- ☐ N/A – See Assessment of Social Development
- ☒ Employment, job availability, and salary impacts
- ☒ Impacts to the tax base or municipal utility customers
- ☐ Increases in production or energy efficiency
- ☐ Expanded leases and royalties
- ☒ Commercial activities
- ☐ Agricultural activities

- ☐ Access to resources
- ☐ Access to a transportation network
- ☐ Other areas that will accommodate important economic development:

Description of Economic Developments:

The wastewater utility supports local employment and enables business operations. Requiring advanced chloride treatment would result in significant capital and operational costs, leading to substantial rate increases for residents and businesses. Maintaining a less restrictive limit supports economic stability and affordability.

The user rate percentage of MHI is currently 1.5%

The use of a reverse osmosis system was evaluated. The cost of the system was estimated at an average cost per household that would result in 4.92% of the MHI. Installing lime softening on the current municipal water supply system was also evaluated. The cost of installing lime softening was estimated at an average cost per household that would result in 6.28% of the MHI. Without a variance, meeting the water quality standard of 410 mg/L would result in substantial and widespread economic and social impacts

3. Practicable alternatives analysis

Please include a description and analysis of practicable alternatives that could prevent or lessen water quality degradation associated with the proposed new or increased discharge. These alternatives may include source reduction, pollution prevention, facility optimization, and other control or treatment practices. If there are no practicable alternatives, please provide alternatives that are available and explain why they are not practicable.

The Village has implemented and plans to continue source reduction measures including public education, efficient water softener practices, commercial discharge evaluation, and inflow/infiltration reduction. Additional source reduction opportunities are limited and would have minimal impact. Advanced treatment technologies such as reverse osmosis and electrodialysis were evaluated but are technically complex, generate brine waste, and are cost prohibitive. Therefore, no practicable alternatives exist that would significantly reduce chloride concentrations.

The following estimated costs are calculations based on the equations used in the Chloride Variance Application. The capital cost is assumed to be significantly higher than the formula provided.

- Capital cost of \$528,750
- Annual O&M cost of \$171,550 which would represent an 18% increase in the overall O&M portion of the Utilities annual budget.

A RO system at the WWTF could potentially remove chloride from the effluent to achieve levels below the water quality standard. Installing a centralized lime softening system would eliminate the need for ion exchange softeners and the associated chloride brine generated during the regeneration/ backwash cycle that is ultimately discharged to the wastewater treatment system. However, neither option is considered to be economically feasible.

4. For discharges that include a BCC(s) directly to or upstream of a Great Lake

Provide any cost-effective pollution prevention alternatives and alternative or enhanced treatment techniques that would reduce or prevent the lower of water quality.

N/A

5. For 3 and 4, provide evaluation of costs for each alternative and any additional accompanying environmental impact including to aquatic life and public health.

Either of the alternatives listed would raise the sewer rates above 5% of MHI as outlined above. Both systems would also generate a concentrated waste that would create other disposal concerns and impacts. The continued public education and implementation of SRM's would be the preferred approach.

Full Antidegradation Review

This worksheet is for the department to review the antidegradation request from applicants to determine if significant lowering of water quality is allowed per **s. NR 207.031(9), Wis. Adm. Code.**

Permittee: Village of Campbellsport WWTF

Location: 110 Columbus Parc Court, Campbellsport, WI

WPDES Permit No. WI-0020818-10
(if applicable)

Receiving Water: Milwaukee River

1. Will the reduction of water quality due to the proposed new or increased discharge meet the applicable water quality criteria to protect existing and designated uses under chs. NR 102 to 105, Wis. Adm. Code?
☒ Yes
☐ No – Significant lowering of water quality is not allowed.
2. Is the proposed lowering of water quality necessary to support important social or economic development?
☒ Yes
☐ No – Significant lowering of water quality is not allowed.
3. Are one or more of the identified alternatives practicable and would lessen the degradation of water quality?
☐ Yes – A practicable alternative should be implemented to lessen degradation and limits shall be based on the implementation of this alternative.
☒ No
4. Can degradation be lessened through methods such as source reduction or optimization of the existing treatment?
☒ Yes – This method should be implemented to lessen degradation and limits shall be based on the implementation of this method.
☐ No

Final Permit Recommendations:

Substance	Current Effluent Limitations	Recommended Effluent Limitations
Chloride	Monthly variable*	500 mg/L (year-round weekly average)

*Current monthly variable limits:

Month	Weekly Avg Chloride Effluent Limit (mg/L)	Monthly Avg Chloride Effluent Limit (mg/L)	Weekly Avg Chloride Effluent Limit (lbs/day)
Jan	470	470	1,840
Feb	500	500	1,960
Jul	430	430	1,690
Aug	420	420	1,650
Sep	440	440	1,720
Oct	460	460	1,800
Dec	450	450	1,760