

Clark County Health Care Public Noticed Permit Fact Sheet

General Information

Permit Number:	WI-0029700-11-0
Permittee Name:	Clark County Health Care Center, W4266 Hwy 29, Owen WI 54460
Discharge Location:	Clark County Health Care Center, W4266 HWY 29, Owen, WI West bank of the Popple River ¼ mile south of HWY 29 SE1/4, NE1/4, Section 5, T28N R01W, Town of Green Grove, Clark County, WI
Receiving Water:	the North Fork of the Popple River in the Popple River Watershed of the Black River Basin in Clark County
StreamFlow (Q _{7,10}):	0.09 cfs
Stream Classification:	Warmwater sport fish, non-public water supply
Discharge Type:	Existing, Fill & Draw discharging seasonally usually April – July and Oct - Dec
Design Flow:	0.045 MGD Annual Average
Significant Industrial Loading?	None
Operator at Proper Grade?	Yes
Approved Pretreatment Program?	N/A

Facility Description

The Clark County Health Care Center owns and operates a wastewater treatment facility that has a stabilization pond with a fill and draw method of operation. The facility discharges treated effluent seasonally to the North Fork of the Popple River during April-July and October-December, with an annual average design flow of 0.045 million gallons per day (MGD). The actual annual average influent flow in 2023 was 0.039 MGD. The actual annual average effluent flow in 2023 was 0.083 MGD. No major operational changes occurred during the last permit term. Significant effluent monitoring and/or limit changes in the upcoming permit term are as follows: 1) the addition of annual monitoring for total nitrogen, nitrite + nitrate nitrogen and total Kjeldahl nitrogen, 2) an increase in the monitoring frequency for BOD, TSS, ammonia, pH and phosphorus, and 3) addition of seasonal Escherichia coli (E. coli) monitoring, and 4) chloride monitoring has changed from weekly during one year of the permit term to monthly during the entire permit term. The influent & effluent flow monitoring frequencies have changed from “continuous” to “daily” for eDMR reporting purposes. Clarification language has been added notifying the permittee they must monitor sludge for List 2 nutrients and meet the requirements of List 3 (Pathogen Control) and List 4 (Vector Attraction Reduction) prior to landspreading if they remove sludge from the lagoon(s). Additionally, to quantitate the risk, PFAS sludge sampling has been included in the permit pursuant to ss. NR 214.18(5)(b) and NR 204.06(2)(b)9., Wis. Adm. Code. A schedule has been included requiring the permittee submit a sludge management plan prior to removal and land application of sludge from the pond(s). A schedule has also been added that requires the permittee investigate & remedy effluent flow meter inaccuracy issues.

Substantial Compliance Determination

Enforcement During Last Permit: The facility received a notice of noncompliance (NON) in February 2019 for some missing reports and submittals. After the NON all missing reports were submitted and all reports following have been submitted promptly and correctly. The facility missed their sludge sample in 2020, but it was taken in 2021 and no further enforcement was pursued.

After a desk top review of all discharge monitoring reports, land application reports, compliance schedule items and an inspection on 06/21/2023, Clark County Health Care Center has been found to be in substantial compliance with their current permit.

Compliance determined by Jenna Monahan on 01/25/2024.

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	Influent: 0.039 MGD (2023)	Representative influent samples shall be collected after the screen at the main lift station.
001	Effluent to North Fork Popple River: 0.083 (2023)	Representative effluent samples shall be collected from the discharge pipe prior to discharging to the North Fork of the Popple River. The flow monitoring sample shall be collected south of control structure "C". Discharge shall be limited to the months of April, May, June, July, October, November, and December.
002	Pond Sludge: Sludge has not been removed from the ponds since 1990 and sludge removal is not expected this permit term.	Representative composite sludge samples shall be collected in 2025 and monitored for the parameters as listed in the table below. If the permittee plans to remove sludge, they shall monitor sludge for Lists 1, 2, 3 & 4 prior to land application. The Department shall be notified at least 30 days in advance of sludge removal so that appropriate monitoring forms can be provided. Approval of landspreading sites must be completed prior to sludge removal.

1 Influent – Monitoring Requirements

Sample Point Number: 701- INFLUENT TO PLANT

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
BOD5, Total		mg/L	2/Month	Grab	
Suspended Solids, Total		mg/L	2/Month	Grab	

Changes from Previous Permit:

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

Explanation of Limits and Monitoring Requirements

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

2 Surface Water - Monitoring and Limitations

Sample Point Number: 001- EFFLUENT TO POPPLE RIVER

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate	Daily Max	0 MGD	Daily	Continuous	Limit applies Jan, Feb, March, August, September annually.
Flow Rate	Daily Max	MGD	Daily	Continuous	Discharge is permitted in April-July and Oct-Dec.
BOD5, Total	Weekly Avg	45 mg/L	Weekly	Grab	Limit applies year-round
BOD5, Total	Monthly Avg	30 mg/L	Weekly	Grab	Limit applies year-round
BOD5, Total	Daily Max	60 lbs/day	Weekly	Calculated	Limit applies April - June
BOD5, Total	Daily Max	24.4 lbs/day	Weekly	Calculated	Limit applies in July
BOD5, Total	Daily Max	16.9 lbs/day	Weekly	Calculated	Limit applies in October
BOD5, Total	Daily Max	33.8 lbs/day	Weekly	Calculated	Limit applies in November
BOD5, Total	Daily Max	26.6 lbs/day	Weekly	Calculated	Limit applies in December
Suspended Solids, Total	Weekly Avg	45 mg/L	Weekly	Grab	Limit applies year-round
Suspended Solids, Total	Monthly Avg	30 mg/L	Weekly	Grab	Limit applies year-round
Suspended Solids, Total	Daily Max	60 lbs/day	Weekly	Calculated	Limit applies April - June
Suspended Solids, Total	Daily Max	24.4 lbs/day	Weekly	Calculated	Limit applies in July
Suspended Solids, Total	Daily Max	16.9 lbs/day	Weekly	Calculated	Limit applies in October
Suspended Solids, Total	Daily Max	33.8 lbs/day	Weekly	Calculated	Limit applies in November

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Suspended Solids, Total	Daily Max	26.6 lbs/day	Weekly	Calculated	Limit applies in December
pH Field	Daily Min	6.0 su	5/Week	Grab	
pH Field	Daily Max	9.0 su	5/Week	Grab	
Nitrogen, Ammonia (NH ₃ -N) Total	Daily Max - Variable	mg/L	Weekly	Grab	Daily maximum limit varies with effluent pH. See ammonia section below for limits.
Nitrogen, Ammonia Variable Limit		mg/L	Weekly	Grab	
Phosphorus, Total	Monthly Avg	1.0 mg/L	Weekly	Grab	This is an interim MDV limit effective throughout the permit term. See the MDV/Phosphorus sections and phosphorus schedules.
Phosphorus, Total		lbs/month	Monthly	Calculated	Report the total monthly phosphorus discharged in lbs/month on the last day of the month on the DMR. See Standard Requirements for 'Appropriate Formulas' to calculate the Total Monthly Discharge in lbs/month.
Phosphorus, Total		lbs/yr	Annual	Calculated	Report the sum of the total monthly discharges for the calendar year on the Annual report form.
E. coli		#/100 ml	Weekly	Grab	Monitoring required May - Sept
Nitrogen, Total Kjeldahl		mg/L	See Listed Qtr(s)	Grab	Monitoring required in specific quarters. See Nitrogen Series Monitoring section for more info.
Nitrogen, Nitrite + Nitrate Total		mg/L	See Listed Qtr(s)	Grab	
Nitrogen, Total		mg/L	See Listed Qtr(s)	Calculated	
Chloride		mg/L	Monthly	Grab	

Changes from Previous Permit

1) the addition of annual monitoring for total nitrogen, nitrite + nitrate nitrogen and total Kjeldahl nitrogen, 2) the monitoring frequency for BOD, TSS, ammonia, pH and phosphorus has increased, 3) addition of seasonal Escherichia coli (E. coli) monitoring, 4) the sample frequency for flow has been changed from “continuous” to “daily” for eDMR

reporting purposes, and 5) chloride monitoring has changed from weekly during one year of the permit term to monthly during the entire permit term.

Explanation of Limits and Monitoring Requirements

The effluent monitoring frequency for all parameters were considered. Monitoring frequencies are based on the size and type of the facility and are established to best characterize effluent quality and variability, to detect events of noncompliance, and to ensure fairness and consistency in permits issued across the state. Requirements in administrative code (NR 108, 205, 210 and 214 Wis. Adm. Code) and Section 283.55, Wis. Stats. were considered, where applicable, when determining the appropriate monitoring frequencies for pollutants that have final effluent limits in effect during this permit term. For more information see the March 22, 2021 version of the Bureau of Water Quality Program Guidance Document “Monitoring Frequencies for Individual Wastewater Permits”. Using the criteria previously stated the department has determined monitoring frequency increases are appropriate for BOD, TSS, ammonia, pH and phosphorus. BOD, TSS and phosphorus are increasing from 2/month to weekly, ammonia is increasing from 2/month to 2/week and pH is increasing from 2/month to 5/week. These monitoring frequency increases are necessary in order to effectively characterize the effluent quality and variability, and to best determine compliance with effluent limitations.

Limits were determined for Clark County Health Care’s existing discharge to the North Fork Popple River using chs. NR 102, 104, 105, 106, 207, 210, 212 and 217 of the Wisconsin Administrative Code (where applicable). For additional information on any of the limits see the March 28, 2024 memo from Ben Hartenbower to Holly Heldstab titled “Water Quality-Based Effluent Limitations for the Clark County Health Care Wastewater Treatment Facility WPDES Permit No. WI-0029700”.

MUNICIPAL EFFLUENT LIMITS – Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Codes, are not required due to the non-continuous nature of the discharge.

BOD, TSS and pH: Monitoring frequency for these parameters have increased in order to effectively characterize the effluent quality and variability, and to best determine compliance with effluent limitations. However, limits for these pollutants correspond to the requirements of the current permit since the facility has not increased the capacity of the wastewater treatment system since the last permit issuance, nor are increases expected during the term of the proposed permit.

Ammonia: Current acute and chronic ammonia toxicity criteria for the protection of aquatic life are included in Tables 2C and 4B of ch. NR 105, Wis. Adm. Code. Subchapter IV of ch. NR 106 establishes the procedure for calculating water quality based effluent limitations (WQBELs) for ammonia. Daily maximum ammonia limits that vary with effluent pH apply year-round. See table below titled “Variable Daily Maximum Ammonia Limits” for more information. Samples for ammonia shall be collected at the same time as the pH samples.

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	70	7.0 < pH ≤ 7.1	42	8.0 < pH ≤ 8.1	8.9
6.1 < pH ≤ 6.2	69	7.1 < pH ≤ 7.2	38	8.1 < pH ≤ 8.2	7.4
6.2 < pH ≤ 6.3	67	7.2 < pH ≤ 7.3	34	8.2 < pH ≤ 8.3	6.0
6.3 < pH ≤ 6.4	65	7.3 < pH ≤ 7.4	30	8.3 < pH ≤ 8.4	5.0
6.4 < pH ≤ 6.5	63	7.4 < pH ≤ 7.5	26	8.4 < pH ≤ 8.5	4.1
6.5 < pH ≤ 6.6	61	7.5 < pH ≤ 7.6	22	8.5 < pH ≤ 8.6	3.4
6.6 < pH ≤ 6.7	58	7.6 < pH ≤ 7.7	19	8.6 < pH ≤ 8.7	2.8
6.7 < pH ≤ 6.8	54	7.7 < pH ≤ 7.8	16	8.7 < pH ≤ 8.8	2.3
6.8 < pH ≤ 6.9	51	7.8 < pH ≤ 7.9	13	8.8 < pH ≤ 8.9	2.0
6.9 < pH ≤ 7.0	47	7.9 < pH ≤ 8.0	11	8.9 < pH ≤ 9.0	1.7

Phosphorus: Phosphorus rules became effective December 1, 2010 per NR 217, Wis. Adm. Code, that required the permittee to comply with water quality based effluent limits (WQBELs) for total phosphorous. The final phosphorus

WQBELs (0.225 monthly average and 0.075 6-month average) were to become effective as scheduled unless a variance was granted. For this permit term, the permittee has re-applied for the Multi-Discharger Variance (MDV) for phosphorus as provided for in s. 283.16, Wis. Stats., and approved by USEPA on February 6, 2017 for a 10-year duration. Clark County Health Care's MDV application was conditionally approved by the DNR on January 24, 2024. The permittee qualifies for the MDV because it is an existing source and a major facility upgrade is needed to comply with the applicable phosphorus WQBELs, thereby creating a financial burden. The new interim monthly average highest attainable condition (HAC) limit of 1.0 mg/L applies at the permit effective date.

Note that the MDV Checklist/Approval (by Matt Claucherty 01/24/2024) recommend the next step down in effluent phosphorus concentrations, aka the highest attainable condition (HAC), to be 0.6 mg/L (monthly average) pursuant to s. 283.16(6)(a)2, Wis. Stats. However, in accordance with s. 283.16(6)(am), Wis. Stats., along with additional consideration, the department has concluded 1.0 mg/L is an appropriate HAC because the facility would need to undergo a major facility upgrade to meet the 0.6 mg/L limit.

Conditions of the MDV require the permittee to optimize phosphorus removal throughout the proposed permit term, comply with interim limits and make annual payments to participating county(s) by March 1 of each year based on the pounds of phosphorus discharged during the previous year in excess of the specified target value. A reopener clause is included in the permit to address the current MDV's expiration date, as a permit action may be required to update or remove variance provisions if the MDV is altered or unavailable after February 6, 2027.

The "price per pound" value is \$50.00 adjusted for CPI annually during the first quarter as defined by s. 283.16(8)(a)2, Wis. Stats and takes effect for reissued permits with effective dates starting April 1. This may differ from the "price per pound" that is public noticed; however, the "price per pound" is set upon reissuance and is applicable for the entire permit term. The participating county(s) uses these payments to implement non-point source phosphorus control strategies at the watershed level.

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

Whenever lagoon detention time is 180 days or longer, no risk is assumed to pose a threat to human and animal health (NR 210.06(3)(h), Wis. Adm. Code) and no disinfection of effluent is required. Although we expect that effluent will be detained in the ponds for a period greater than 180 days, monitoring for *E. coli* is required to confirm. Note that the disinfection requirements may be re-evaluated in the future and could result in a disinfection requirements of the effluent at that time.

Total Nitrogen Monitoring (NO₂+NO₃, TKN and Total N): The Department has included effluent monitoring for Total Nitrogen in the permit through the authority under §§ 283.55(1)(e), Wis. Stats., which allows the department to require the permittee to submit information necessary to identify the type and quantity of any pollutants discharged from the point source, and through s. NR 200.065(1)(h), Wis. Adm. Code, which allows for this monitoring to be collected during the permit term. More information on the justification to include total nitrogen monitoring in wastewater permits can be found in the "Guidance for Total Nitrogen Monitoring in Wastewater Permits" dated October 1, 2019. Annual tests are scheduled in the following rotating quarters:

- 4th quarter (Oct – Dec) 2024
- 3rd quarter (July-Sept) 2025
- 2nd quarter (April-June) 2026

- 3rd quarter (July-Sept) 2027
- 4th quarter (Oct – Dec) 2028

Chloride: Acute and chronic chloride toxicity criteria for the protection of aquatic life are included in Tables 1 and 5 of ch. NR 105, Wis. Adm. Code. Subchapter VII of ch. NR 106 establishes the procedure for calculating water quality based effluent limitations (WQBELs) for chloride. Effluent chloride concentrations submitted with the permit application indicate low to no risk for toxicity, therefore no effluent limits are required. Monitoring is required monthly in order to have a baseline of chloride effluent data for the next permit reissuance.

PFOS and PFOA: NR 106 Subchapter VIII – Permit Requirements for PFOS and PFOA Dischargers became effective on August 1, 2022. Pursuant to s. NR 106.98(3)(b), Wis. Adm. Code, the department evaluated the need for PFOS and PFOA monitoring taking into consideration the presence of potential PFOS or PFOA industrial wastes, remediation sites and other potential sources of PFOS or PFOA. Based on information available at the time the proposed permit was drafted, the department has determined the permittee does not need to sample for PFOS or PFOA as part of this permit reissuance. 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.

Whole Effluent Toxicity (WET): Whole effluent toxicity (WET) testing requirements and limits (if applicable) are determined in accordance with ss. NR 106.08 and NR 106.09 Wis. Adm. Code, as revised in August 2016. (See the current version of the Whole Effluent Toxicity Program Guidance Document and checklist and WET information, guidance and test methods at <http://dnr.wi.gov/topic/wastewater/wet.html>). No WET testing is required because information related to the discharge indicates low to no risk for toxicity.

Mercury: The permit application did not require monitoring for mercury because the Melrose Wastewater Treatment Facility is categorized as a minor facility as defined in s. NR 200.02(8), Wis. Adm. Code. In accordance with s. NR 106.145(3)(a)3, Wis. Adm. Code, a minor municipal discharger shall monitor, and report results of influent and effluent mercury monitoring once every three months if, “there are two or more exceedances in the last five years of the high-quality sludge mercury concentration of 17 mg/kg specified in s. NR 204.07(5), Wis. Adm. Code.” A review of the past five years of sludge characteristics data reveals that all the sample results are within expected analytical ranges and well below the 17 mg/kg level. The concentration in the one sludge sample from 2021 was 0.08 mg/kg. Therefore, no mercury monitoring is required at Outfall 001.

Thermal: Requirements for Temperature are included in NR 102 Subchapter II Water Quality Standards for Temperature and NR 106 Subchapter V Effluent Limitations for Temperature. Thermal discharges must meet the Public Health criterion of 120° F and the Fish & Aquatic Life criteria which are established to protect aquatic communities from lethal and sub-lethal thermal effects. Due to the amount of upstream flow available for dilution in the limit calculation (Qs:Qe >20:1), the lowest calculated limitation is 120° F (s. NR 106.55(6)(a), Wis. Adm. Code). For lagoon treatment systems of domestic waste, there is no reasonable potential for the discharge to exceed this limit. Therefore, temperature limits nor monitoring are not required.

3 Land Application - Monitoring and Limitations

Municipal Sludge Description						
Sample Point	Sludge Class (A or B)	Sludge Type (Liquid or Cake)	Pathogen Reduction Method	Vector Attraction Method	Reuse Option	Amount Reused/Disposed (Dry Tons/Year)
002	B	Liquid	Lagoon sludge was last removed 1/1/1990. Sludge removal is not anticipated this permit term.			
Does sludge management demonstrate compliance? Yes						
Is additional sludge storage required? No						
Is Radium-226 present in the water supply at a level greater than 2 pCi/liter? No						
Is a priority pollutant scan required? No						

Sample Point Number: 002- LAGOON SLUDGE

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Solids, Total		Percent	Once	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	Once	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	Once	Composite	
Cadmium Dry Wt	Ceiling	85 mg/kg	Once	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Once	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Once	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Once	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	Once	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Once	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Once	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Once	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Once	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Once	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Once	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Once	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Once	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Once	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Once	Composite	
Nitrogen, Total		Percent	Per	Composite	Prior to land application

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Kjeldahl			Application		
Nitrogen, Ammonia (NH ₃ -N) Total		Percent	Per Application	Composite	Prior to land application
Phosphorus, Total		Percent	Per Application	Composite	Prior to land application
Phosphorus, Water Extractable		% of Tot P	Per Application	Composite	Prior to land application
Potassium, Total Recoverable		Percent	Per Application	Composite	Prior to land application
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	
PFOA + PFOS		ug/kg	Once	Calculated	Report the sum of PFOA and PFOS. See PFAS Permit Sections for more information
PFAS Dry Wt			Once	Grab	Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS Permit Sections for more information.

Changes from Previous Permit:

List 2 Nutrient monitoring – Monitoring for list 2 (nutrients) is highly recommended at the same time as the monitoring of List 1 (metals) in year 2 of the permit. Results will assist in the determination of the acres needed for land application of sludge should it be necessary. The number of acres needed is also required for the Sludge Management Schedule (see schedules for more information).

Change in form submittal – In prior permit reissuances when it has been noted in the application that sludge would not be removed during the permit term, the department required sampling during the second year of the permit term and the sludge characteristic report (3400-049) would be generated only during that year. Due to moving to electronic submittal of forms via Switchboard, forms 3400-049 (“Characteristics Report”), 3400-052 (“Other Methods of Disposal”) and 3400-055 (“Annual Land Application”) will now be generated by the department and the permittee will be required to submit all three reports each year of the permit term. This change was adopted to provide the permittee flexibility because many lagoon desludging projects can be unexpected, are delayed or staggered over multiple years. Additionally, it is used to officially report that no land application of sludge has occurred, and annual submittal of the forms is required per the standard requirements section.

PFAS – Monitoring is required once during the permit term pursuant s. NR 204.06(2)(b)9., Wis. Adm. Code.

Explanation of Limits and Monitoring Requirements

Requirements for land application of municipal sludge are determined in accordance with ch. NR 204 Wis. Adm. Code. Ceiling and high quality limits for metals in sludge are specified in s. NR 204.07(5). Requirements for pathogens are specified in s. NR 204.07(6) and in s. NR 204.07 (7) for vector attraction requirements.

PFAS- The presence and fate of PFAS in municipal and industrial sludges is an emerging public health concern. EPA is currently developing a risk assessment to determine future land application rates and expects to release this risk assessment by the end of 2024. In the interim, the department has developed the “Interim Strategy for Land Application of Biosolids and Industrial Sludges Containing PFAS”. Collecting sludge data on PFAS concentrations from a wide range of wastewater treatment facilities will help protect public health from exposure to elevated levels of PFAS and determine the department’s implementation of EPA’s recommendations. To quantitate this risk, PFAS sampling has been included in the WPDES permit pursuant to ss. NR 214.18(5)(b) and NR 204.06(2)(b)9., Wis. Adm. Code.

4 Schedules

4.1 Phosphorus Schedule - Continued Optimization

The permittee is required to optimize performance to control phosphorus discharges per the following schedule.

Required Action	Due Date
Optimization: The permittee shall continue to implement the optimization plan as previously approved to optimize performance to control phosphorus discharges. Submit a progress report on optimizing removal of phosphorus by the Due Date.	07/01/2025
Progress Report #2: Submit a progress report on optimizing removal of phosphorus.	07/01/2026
Progress Report #3: Submit a progress report on optimizing removal of phosphorus.	07/01/2027
Progress Report #4: Submit a progress report on optimizing removal of phosphorus.	07/01/2028
Progress Report #5: Submit a progress report on optimizing removal of phosphorus.	07/01/2029

Explanation of Continued Optimization Schedule: Per s. 283.16(6)(a), Wis. Stats. the Department may include a requirement that the permittee optimize the performance of a point source in controlling phosphorus discharges, which may be necessary to achieve compliance with multi-discharger variance interim limits. This compliance schedule requires the permittee to continue to implement the optimization plan that was approved during the previous permit term.

4.2 Phosphorus Payment per Pound to County

The permittee is required to make annual payments for phosphorus reductions to the participating county or counties in accordance with s. 283.16(8), Wis. Stats, and the following schedule. The price per pound will be set at the time of permit reissuance and will apply for the duration of the permit.

Required Action	Due Date
Annual Verification of Phosphorus Payment to County: The permittee shall make a total payment to the participating county or counties approved by the Department by March 1 of each calendar year. The amount due is equal to the following: [(lbs of phosphorus discharged minus the permittee’s target value) times (\$64.75 per pound) or \$640,000, whichever is less. See the payment calculation steps in the Surface Water section. The permittee shall submit Form 3200-151 to the Department by March 1 of each calendar year indicating total amount remitted to the participating counties to verify that the correct payment was	03/01/2025

made. The first payment verification form is due by the specified Due Date. Note: The applicable Target Value is 0.2 mg/L as defined by s. 283.16(1)(h), Wis. Stats. The "per pound" value is \$50.00 adjusted for CPI.	
Annual Verification of Payment #2: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2026
Annual Verification of Payment #3: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2027
Annual Verification of Payment #4: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2028
Annual Verification of Payment #5: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2029
Continued Coverage: If the permittee intends to seek a renewed variance, an application for the MDV (Multi Discharger Variance) shall be submitted as part of the application for permit reissuance in accordance with s. 283.16(4)(b), Wis. Stats.	
Annual Verification of Payment After Permit Expiration: In the event that this permit is not reissued prior to the expiration date, the permittee shall continue to submit Form 3200-151 to the Department indicating total amount remitted to the participating counties by March 1 each year.	

Explanation of County Payment Schedule: Subsection 283.16(6)(b), Wis. Stats., requires permittees that have received approval for the multi-discharger variance (MDV) to implement a watershed project that is designed to reduce non-point sources of phosphorus within the HUC 8 watershed in which the permittee is located. The permittee has selected the "Payment to Counties" watershed option described in s. 283.16(8), Wis. Stats. Under this option the permittee shall make annual payment(s) to participating county(s) that are calculated based on the amount of phosphorus actually discharged during a calendar year in pounds per year less the amount of phosphorus that would have been discharged had the permittee discharged phosphorus at a target value concentration of 0.2 mg/L. The pounds of phosphorus discharged in excess of the target value is multiplied by a per pound phosphorus charge that will equal \$64.75 per pound. This schedule requires the permittee to submit Form 3200-151 to the Department indicating the total amount remitted to the participating county(s).

4.3 Effluent Pipe and Flow Meter

Required Action	Due Date
Investigative Report: Permittee shall investigate reasons for potential errors in effluent flow meter readings and submit a report of findings. As part of the investigation the permittee shall examine backflows into the final manhole and its impact on the transducer and flow meter readings. It should also address the exposed effluent pipe and how this will be protected. A report shall be submitted detailing steps taken in the investigation, results of the investigation and planned actions to remedy the causes of incorrect effluent flow meter results and the exposed effluent pipe.	12/31/2024
Complete Repair: Permittee shall complete the actions necessary to remedy the issues determined in the investigation as the causes of incorrect effluent flow meter readings.	05/31/2025
Submit Completion Report: Permittee shall submit a report detailing that all appropriate remedies have been completed to ensure flow meter readings are accurate for future readings.	06/30/2025

Explanation of Effluent Flow Meter Schedule: The permittee has had issues with inaccurate effluent flow meter readings due to the elevation of the receiving water causing backflow events during discharge and skewing the sonar results. In addition, during the inspection the effluent pipe was found to be dug up and exposed as part of a prior

construction consideration and was not properly protected. This schedule requires the permittee investigate & remedy this issue.

4.4 Sludge Management Plan

Required Action	Due Date
<p>Submit a Sludge Management Plan: The permittee shall submit a management plan for approval if removal of sludge will occur during this permit term. The plan shall demonstrate compliance with ch. NR 204, Wis. Adm. Code and at minimum address 1) How and where is sludge sampled; 2) Available sludge storage details and location(s); 3) How will the sludge be removed with details on volume, characterization and how will the treatment plant continue to function during the drawdown; 4) Describe the type of transportation and spreading vehicles and loading and unloading practices; 5) Identify approved land application sites, apply for needed sites, site limitations, total acres needed and vegetative cover management; 6) Specify record keeping procedures including site loading; 7) Address contingency plans for adverse weather and odor/nuisance abatement; and 8) Include any other pertinent information such as other disposal options that may be used or specifications of any pretreatment processes</p> <p>Once approved, all sludge management activities shall be conducted in accordance with the plan. Any changes to the plan must be approved by the Department prior to implementing the changes. No desludging may occur unless approval from the Department is obtained. Daily logs shall be kept that record where the sludge has been disposed.</p> <p>The plan is due at least 60 days prior to desludging.</p>	

Explanation of Sludge Management Plan Schedule: If the lagoons are to be de-sludged during this permit term, a management plan is needed to show compliance with ch NR 204, Wis. Adm. Code that clearly explains how the sludge will be safely removed, what contingencies are in place, the type of equipment that will be used and how the sludge will be land applied to ensure the proper precautions are in place to prevent any negative impacts to surface water or groundwater.

Special Reporting Requirements

None

Other Comments:

Publishing Newspaper: Enterprise Sentinel, PO Box F, Withee, WI 54498

Attachments:

- Water Quality Based Effluent Limits: March 28, 2024 memo from Ben Hartenbower to Holly Heldstab titled “Water Quality-Based Effluent Limitations for the Clark County Health Care Wastewater Treatment Facility WPDES Permit No. WI-0029700”
- MDV Evaluation Checklist, completed by Matt Claucherty, dated 01/24/2024
- MDV Conditional Approval Letter, completed by Matt Claucherty, dated 01/24/2024

Expiration Date:

June 30, 2029

Justification Of Any Waivers From Permit Application Requirements

N/A

Prepared By: Holly Heldstab, Wastewater Specialist

Date: May 1, 2024

CORRESPONDENCE/MEMORANDUM

DATE: March 28, 2024

TO: Holly Heldstab– WCR/Eau Claire

FROM: Benjamin Hartenbower – WCR/Eau Claire

SUBJECT: Water Quality-Based Effluent Limitations for the Clark County Healthcare Center Wastewater Treatment Facility
 WPDES Permit No. WI-0029700

This is in response to your request for an evaluation of the need for water quality-based effluent limitations (WQBELs) using chapters NR 102, 104, 105, 106, 207, 210, 212, and 217 of the Wisconsin Administrative Code (where applicable), for the discharge from the Clark County Healthcare Center Wastewater Treatment Facility in Clark County. This municipal wastewater treatment facility (WWTF) discharges to the North Fork Popple River, located in the Popple River Watershed in the Black River Basin. The evaluation of the permit recommendations is discussed in more detail in the attached report.

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

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Flow Rate Jan-March April-July August-September October-December	0 MGD 0 MGD					1
BOD ₅ April-June July October November December	60 lbs/day 24.4 lbs/day 16.9 lbs/day 33.8 lbs/day 26.6 lbs/day		45 mg/L 45 mg/L 45 mg/L 45 mg/L 45 mg/L	30 mg/L 30 mg/L 30 mg/L 30 mg/L 30 mg/L		1
TSS April-June July October November December	60 lbs/day 24.4 lbs/day 16.9 lbs/day 33.8 lbs/day 26.6 lbs/day		45 mg/L 45 mg/L 45 mg/L 45 mg/L 45 mg/L	30 mg/L 30 mg/L 30 mg/L 30 mg/L 30 mg/L		1
pH	9.0 s.u.	6.0 s.u.				1
Ammonia Nitrogen	Variable					2
Bacteria <i>E. coli</i>						3
Chloride						3
Phosphorus HAC Interim Limit Final WQBEL				1.0 mg/L 0.225 mg/L	0.075 mg/L	4
TKN, Nitrate+Nitrite, and Total Nitrogen						5

Footnotes:

1. No changes from the current permit.
2. The variable daily maximum ammonia nitrogen limit table corresponding to effluent pH values. These limits apply year-round.

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
6.0 ≤ pH ≤ 6.1	70	7.0 < pH ≤ 7.1	42	8.0 < pH ≤ 8.1	8.9
6.1 < pH ≤ 6.2	69	7.1 < pH ≤ 7.2	38	8.1 < pH ≤ 8.2	7.4
6.2 < pH ≤ 6.3	67	7.2 < pH ≤ 7.3	34	8.2 < pH ≤ 8.3	6.0
6.3 < pH ≤ 6.4	65	7.3 < pH ≤ 7.4	30	8.3 < pH ≤ 8.4	5.0
6.4 < pH ≤ 6.5	63	7.4 < pH ≤ 7.5	26	8.4 < pH ≤ 8.5	4.1
6.5 < pH ≤ 6.6	61	7.5 < pH ≤ 7.6	22	8.5 < pH ≤ 8.6	3.4
6.6 < pH ≤ 6.7	58	7.6 < pH ≤ 7.7	19	8.6 < pH ≤ 8.7	2.8
6.7 < pH ≤ 6.8	54	7.7 < pH ≤ 7.8	16	8.7 < pH ≤ 8.8	2.3
6.8 < pH ≤ 6.9	51	7.8 < pH ≤ 7.9	13	8.8 < pH ≤ 8.9	2.0
6.9 < pH ≤ 7.0	47	7.9 < pH ≤ 8.0	11	8.9 < pH ≤ 9.0	1.7

3. Monitoring only.
4. Under the phosphorus MDV, the highest attainable condition (HAC) limit is 1.0 mg/L. The final WQBELs remain at 0.225 mg/L as a monthly average and 0.075 mg/L as a six-month average, as well as a respective mass limit.
5. 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).

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

Attachments (3) – Narrative, Thermal Table, & Map

PREPARED BY:



Date: 03/28/2024

Benjamin Hartenbower, PE,
Water Resources Engineer

E-cc:

Jenna Monahan, Wastewater Engineer – WCR/Eau Claire
Geisa Thielen, Regional Wastewater Supervisor – WCR/Eau Claire
Diane Figiel, Water Resources Engineer – WY/3
Chris Willger, Water Quality Biologist – WCR/Eau Claire
Nate Willis, Wastewater Engineer – WY/3

Attachment #1
**Water Quality-Based Effluent Limitations for
the Clark County Healthcare Center Wastewater Treatment Facility
WPDES Permit No. WI-0029700**

Prepared by: Benjamin P. Hartenbower

PART 1 – BACKGROUND INFORMATION

Facility Description:

The Clark County Health Care Center WWTF is a 4-pond stabilization pond system with a fill and draw method of operation. Discharge occurs spring (April-July) and fall (October-December) into the north fork of the Popple River. Disinfection of the effluent is not required based on the conditions of s. NR 210.06(3), Wis. Adm. Code. It should be noted that this may be re-evaluated in the future to ensure the conditions are being met. This re-evaluation could result in requiring disinfection of the effluent at that time. Attachment #3 is a map of the area showing the approximate location of Outfall 001.

Existing Permit Limitations

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

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Flow Rate Jan-March April-July August-September October-December	0 MGD 0 MGD					1
BOD ₅ April-June July October November December	60 lbs/day 24.4 lbs/day 16.9 lbs/day 33.8 lbs/day 26.6 lbs/day		45 mg/L 45 mg/L 45 mg/L 45 mg/L 45 mg/L	30 mg/L 30 mg/L 30 mg/L 30 mg/L 30 mg/L		1
TSS April-June July October November December	60 lbs/day 24.4 lbs/day 16.9 lbs/day 33.8 lbs/day 26.6 lbs/day		45 mg/L 45 mg/L 45 mg/L 45 mg/L 45 mg/L	30 mg/L 30 mg/L 30 mg/L 30 mg/L 30 mg/L		1
pH	9.0 s.u.	6.0 s.u.				2
Ammonia Nitrogen	Variable					
Chloride						3
Phosphorus Interim HAC Interim Limit Final WQBEL				3.3 mg/L 1.0 mg/L 0.225 mg/L	0.075 mg/L	4

Footnotes:

Attachment #1

1. These limitations are not being evaluated as part of this review. Because the water quality criteria (WQC), reference effluent flow rates, and receiving water characteristics have not changed, limitations for these water quality characteristics do not need to be re-evaluated at this time.
2. The variable daily maximum ammonia nitrogen limit table corresponding to effluent pH values. These limits apply year-round.

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
6.0 < pH ≤ 6.1	70	7.0 < pH ≤ 7.1	42	8.0 < pH ≤ 8.1	8.9
6.1 < pH ≤ 6.2	69	7.1 < pH ≤ 7.2	38	8.1 < pH ≤ 8.2	7.4
6.2 < pH ≤ 6.3	67	7.2 < pH ≤ 7.3	34	8.2 < pH ≤ 8.3	6.0
6.3 < pH ≤ 6.4	65	7.3 < pH ≤ 7.4	30	8.3 < pH ≤ 8.4	5.0
6.4 < pH ≤ 6.5	63	7.4 < pH ≤ 7.5	26	8.4 < pH ≤ 8.5	4.1
6.5 < pH ≤ 6.6	61	7.5 < pH ≤ 7.6	22	8.5 < pH ≤ 8.6	3.4
6.6 < pH ≤ 6.7	58	7.6 < pH ≤ 7.7	19	8.6 < pH ≤ 8.7	2.8
6.7 < pH ≤ 6.8	54	7.7 < pH ≤ 7.8	16	8.7 < pH ≤ 8.8	2.3
6.8 < pH ≤ 6.9	51	7.8 < pH ≤ 7.9	13	8.8 < pH ≤ 8.9	2.0
6.9 < pH ≤ 7.0	47	7.9 < pH ≤ 8.0	11	8.9 < pH ≤ 9.0	1.7

3. Monitoring only.
4. Under the phosphorus MDV, a highest attainable condition (HAC) limit of 1.0 mg/L was effective December 1, 2022.

Receiving Water Information

- Name: The North Fork Popple River
- Waterbody Identification Code (WBIC): 1754800
- Classification used in accordance with chs. NR 102 and 104, Wis. Adm. Code: Warm Water Sport Fish (WWSF) community, non-public water supply.
 Low flows used in accordance with chs. NR 106 and 217, Wis. Adm. Code: USGS for Station 05380895 at the Highway 29 bridge, east of Owen, in the North Fork Popple River
 $7-Q_{10} = 0.09$ cfs (cubic feet per second)
 $7-Q_2 = 0.54$ cfs
 Harmonic Mean Flow = 2.25 cfs using a drainage area of 55.6 mi².
 The Harmonic Mean has been estimated based on average flow and the 7-Q₁₀ using an equation from U.S. EPA's *Technical Support Document for Water Quality-Based Toxics Control* (March 1991, EPA/505/2-90-001, pgs. 88-89).
- Hardness = 94 mg/L as CaCO₃. This value represents the geometric mean of 14 samples collected in Popple River from 07/09/1992 to 12/08/1993.
- % of low flow used to calculate limits in accordance with s. NR 106.06(4)(c)5., Wis. Adm. Code: 25%
- Source of background concentration data: Chloride data is from the Popple River. Metals data from the Black River at Hemlock is used for this evaluation because there is no data available for the North Fork Popple River and the Black River is within the same ecological landscape so ambient water quality characteristics are expected to be similar. 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: None
- Impaired water status: The North Fork Popple River is listed as impaired for Total Phosphorus.

Effluent Information:

- Design Flow Rates(s):
Annual Average = 0.045 MGD (Million Gallons per Day)
The actual average flow from April 2019 to November 2023 during discharge occurrences was 0.159 MGD. Due to the fill and draw method of operation, this value will be used for limit calculations.
- Hardness = 94 mg/L as CaCO₃. This value represents the geometric mean of 4 effluent samples collected from 10/05/2022 to 10/21/2022.
- 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 private wells.
- Additives: Ferric Chloride
- 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 hardness. The permit-required monitoring for Ammonia, Chloride, and Phosphorus from January 2019 to November 2023 is used in this evaluation.

Chemical Specific Effluent Data at Outfall 001

Sample Date	Chloride mg/L	Sample Date	Copper µg/L
05/10/2000	115	10/05/2023	1.33
06/07/2000	153	10/14/2023	1.54
10/11/2000	139	10/18/2023	1.64
08/29/2018	110	10/21/2023	0.85
09/01/2018	110	10/26/2023	2.53
09/04/2018	95.2	10/31/2023	1.4
09/07/2018	98	11/04/2023	1.8
12/14/2021	283	11/08/2023	3.18
12/20/2021	67.2	11/04/2022	1.8
06/15/2022	118	11/13/2022	<0.718
06/21/2022	105	11/16/2022	<0.718
07/12/2022	138		
07/19/2022	128		
1-day P ₉₉	293	mean	1.5
4-day P ₉₉	199		

“<” 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.

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

The following table presents the average concentrations and loadings at Outfall 001 from April 2019 to November 2023 for all parameters with limits in the current permit to meet the requirements of s. NR 201.03(6):

Parameter Averages with Limits

	Average Measurement	Average Mass Discharged
BOD ₅	9 mg/L	10.6 lbs/day
TSS	16 mg/L	18.1 lbs/day
pH	7.67 s.u.	
Ammonia Nitrogen	0.84 mg/L*	
Phosphorus	1.53 mg/L	9.2 lbs/day

PART 2 – WATER QUALITY-BASED Effluent Limitations for Toxic Substances – EXCEPT AMMONIA NITROGEN

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

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

Acute Limits based on 1-Q₁₀

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

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

Where:

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

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

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

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

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

Attachment #1

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 the Clark County Healthcare Center Wastewater Treatment Facility.

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 = 0.07 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		339.8		439.52	87.9	1.54		
Cadmium	94	9.66	0.009	12.492	2.498	<0.025		
Chromium (+3)	94	1721.32	0.622	2226.3	445.3	<0.038		
Copper	94	14.71	1.265	18.7	3.7	1.5		
Lead	94	101.23	0.178	130.886	26.177	<0.050		
Nickel	94	447.22		578.468	115.694	<0.037		
Zinc	94	114.56	1.710	147.7	29.5	<26		
Chloride		757	16.000	974			293	283

** 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 = 0.02 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		152.2		166.2	33.2	1.54	
Cadmium	94	2.34	0.009	2.6	0.5	<0.025	
Chromium (+3)	94	125.48	0.622	136.9	27.4	<0.038	
Copper	94	9.81	1.265	10.6	2.1	1.5	
Lead	94	26.36	0.178	28.8	5.8	<0.050	
Nickel	94	49.49		54	10.8	<0.037	
Zinc	94	113.94	1.710	124.2	24.8	<26	
Chloride		395	16.000	430			199

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 = 0.56 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	0.009	1217	243	<0.025
Chromium (+3)	3818000	0.622	12555819	2511164	<0.038
Lead	140	0.178	460	92	<0.050
Nickel	43000		141409	28282	<0.037

Monthly Average Limits based on Human Cancer Criteria (HCC)

RECEIVING WATER FLOW = 0.56 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		43.74	8.75	1.54

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

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

Chloride – Considering available effluent data from May 2000 to July 2022, the 4-day P₉₉ concentration is 199 mg/L and the 1-day P₉₉ concentration is 293 mg/L, with a maximum concentration of 283 mg/L. These effluent concentrations are below the calculated WQBELs for chloride, therefore no effluent limits are needed. To ensure that representative sample results are available at the next permit issuance, **monthly chloride monitoring is recommended.**

PFOS and PFOA – The need for PFOS and PFOA monitoring is evaluated in accordance with s. NR 106.98, Wis. Adm. Code. Based on the annual design flow and lack of nondomestic contributions, it is unlikely that the effluent will contain PFOS or PFOA. **Therefore, monitoring is not recommended.** If information becomes available that indicates PFOS or PFOA may be present in the effluent or source water, the monitoring requirements may change.

Mercury – The permit application did not require monitoring for mercury because the Clark County Healthcare Center Wastewater Treatment Facility is categorized as a minor facility as defined in s. NR 200.02(8), Wis. Adm. Code. In accordance with s. NR 106.145(3)(a)3., Wis. Adm. Code, a minor municipal discharger shall monitor, and report results of influent and effluent mercury monitoring once every three months if, there are two or more exceedances in the last five years of the high-quality sludge mercury concentration of 17 mg/kg specified in s. NR 204.07(5). 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 2021 was 0.08 mg/kg. **Therefore, no mercury monitoring is recommended at Outfall 001.**

**PART 3 – WATER QUALITY-BASED Effluent Limitations
for AMMONIA NITROGEN**

The State of Wisconsin promulgated revised water quality standards for ammonia nitrogen in ch. NR 105, Wis. Adm. Code, effective March 1, 2004 which includes criteria based on both acute and chronic toxicity to aquatic life. The current permit has daily maximum 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.
- 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.

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

Where:

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

The effluent pH data was examined as part of this evaluation. A total of 80 sample results were reported from April 2019 to November 2023. The maximum reported value was 8.90 s.u. (Standard pH Units). The 1-day P₉₉, calculated in accordance with s. NR 106.05(5), Wis. Adm. Code, is 8.96 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 8.88 s.u. Therefore, a value of 8.90 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 8.9 s.u. into the equation above yields an ATC = 1.56 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	3.11
1-Q ₁₀	1.99

The 1-Q₁₀ method yields the most stringent limits for the Clark County Healthcare Center Wastewater Treatment Facility.

The current permit has variable daily maximum effluent limits based on effluent pH. Presented below is a table of daily maximum limitations corresponding to various effluent pH values. 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	70	7.0 < pH ≤ 7.1	42	8.0 < pH ≤ 8.1	8.9
6.1 < pH ≤ 6.2	69	7.1 < pH ≤ 7.2	38	8.1 < pH ≤ 8.2	7.4
6.2 < pH ≤ 6.3	67	7.2 < pH ≤ 7.3	34	8.2 < pH ≤ 8.3	6.0
6.3 < pH ≤ 6.4	65	7.3 < pH ≤ 7.4	30	8.3 < pH ≤ 8.4	5.0
6.4 < pH ≤ 6.5	63	7.4 < pH ≤ 7.5	26	8.4 < pH ≤ 8.5	4.1
6.5 < pH ≤ 6.6	61	7.5 < pH ≤ 7.6	22	8.5 < pH ≤ 8.6	3.4
6.6 < pH ≤ 6.7	58	7.6 < pH ≤ 7.7	19	8.6 < pH ≤ 8.7	2.8
6.7 < pH ≤ 6.8	54	7.7 < pH ≤ 7.8	16	8.7 < pH ≤ 8.8	2.3
6.8 < pH ≤ 6.9	51	7.8 < pH ≤ 7.9	13	8.8 < pH ≤ 8.9	2.0
6.9 < pH ≤ 7.0	47	7.9 < pH ≤ 8.0	11	8.9 < pH ≤ 9.0	1.7

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

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

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

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

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

Where:

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

E = 0.854,

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

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

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

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

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

Section NR 106.32 (3), Wis. Adm. Code, provides a mechanism for less stringent weekly average and monthly average effluent limitations when early life stages (ELS) of critical organisms are absent from the receiving water. This applies only when the water temperature is less than 14.5 °C, during the winter and spring months. Based on a review of the DNR Fisheries database, burbot, an early spawning species, are not believed to be present in North Fork Popple River. So “ELS Absent” criteria apply from October through March, and “ELS Present” criteria will apply from April through September for a WWSF classification.

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

Weekly and Monthly Ammonia Nitrogen Limits – WWSF

		April & May	June-September	October-December
Effluent Flow	Q _e (MGD)	0.159	0.159	0.159
Background Information	7-Q ₁₀ (cfs)	0.09	0.09	0.09
	7-Q ₂ (cfs)	0.54	0.54	0.54
	Ammonia (mg/L)	0.06	0.03	0.17
	Temperature (°C)	14.4	20.6	10.0
	pH (s.u.)	7.41	7.80	7.38
	% of Flow used	50	100	25
	Reference Weekly Flow (cfs)	0.045	0.090	0.023
	Reference Monthly Flow (cfs)	0.230	0.459	0.115
Criteria mg/L	4-day Chronic			
	Early Life Stages Present	11.77	5.40	12.05
	Early Life Stages Absent	11.83	5.40	16.12
	30-day Chronic			
	Early Life Stages Present	4.71	2.16	4.82
	Early Life Stages Absent	4.73	2.16	6.45
Effluent Limitations mg/L	Weekly Average			
	Early Life Stages Present			13.14
	Early Life Stages Absent	13.99	7.37	
	Monthly Average			
	Early Life Stages Present			6.99
	Early Life Stages Absent	9.10	6.14	

Effluent Data

The following table evaluates the statistics based upon ammonia data reported from April 2019 to November 2023, with those results being compared to the calculated limits to determine the need to include ammonia limits in the Clark County Healthcare Center Wastewater Treatment Facility permit for the respective month ranges.

Ammonia Nitrogen Effluent Data

Ammonia Nitrogen mg/L	April & May	June-September	October-December
1-day P ₉₉	6.58	N/A	5.01
4-day P ₉₉	3.60	N/A	2.77
30-day P ₉₉	1.81	N/A	1.27
Mean*	1.08	0.85	0.66
Std	1.44	1.35	1.11
Sample size	13	12	18
Range	<0.13 - 4.01	<0.13 - 3.73	0.06 - 4.61

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

Based on this comparison, daily limits are required.

Conclusions and Recommendations

In summary, the variable daily maximum ammonia nitrogen limit table corresponding to various effluent pH values is recommended to continue as the daily maximum. These limits apply year-round.

PART 4 – 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.

Disinfection of the effluent is not currently required based on the conditions of s. NR 210.06(3), Wis. Adm. Code. It should be noted that this may be re-evaluated in the future to ensure the conditions are being met. This re-evaluation could result in requiring disinfection of the effluent at that time.

***E. coli* monitoring is recommended May through September.**

PART 5 – PHOSPHORUS

Technology-Based Effluent Limit

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

Because the Clark County Healthcare Center Wastewater Treatment Facility 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 a technology-based limit is not required.

Annual Average Mass Total Phosphorus Loading

Month	Monthly Avg. mg/L	Total Flow MG/month	Total Phosphorus lb./mo.
Apr 2021	1.32	2.27	24.91
May 2021	0.86	3.78	27.04
Jun 2021	1.07	2.00	17.85
Oct 2021	1.94	1.58	25.46
Nov 2021	1.04	5.61	48.60
Dec 2021	0.65	4.56	24.51
Jun 2022	0.91	0.94	7.09
Jul 2022	2.59	1.54	33.25
May 2023	0.41	3.07	10.50
Jun 2023	1.33	5.53	61.06
Oct 2023	0.76	3.13	19.71
Nov 2023	0.42	5.84	20.20
Average =			26.68

Total P (lbs/month) = Monthly average (mg/L) × total flow (MG/month) × 8.34 (lbs/gallon)
 Where total flow is the sum of the actual (not design) flow (in MGD) for that month

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

Water Quality-Based Effluent Limits (WQBEL)

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

Section NR 102.06(3)(a), Wis. Adm. Code, specifically names river segments for which a phosphorus criterion of 0.100 mg/L applies. For other stream segments that are not specified in s. NR 102.06(3)(a), Wis. Adm. Code, s. NR 102.06(3)(b), Wis. Adm. Code, specifies a phosphorus criterion of 0.075 mg/L. The phosphorus criterion of 0.075 mg/L applies for the North Fork Popple River.

The conservation of mass equation is described in s. NR 217.13(2)(a), Wis. Adm. Code, for phosphorus WQBELs and includes variables of water quality criterion (WQC), receiving water flow rate (Qs), effluent flow rate (Qe), and upstream phosphorus concentrations (Cs) provided below.

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

Where:

WQC = 0.075 mg/L for the North Fork Popple River.

Qs = 100% of the 7-Q₂ of 0.54 cfs

Cs = background concentration of phosphorus in the receiving water pursuant to s. NR 217.13(2)(d), Wis. Adm. Code

Qe = effluent flow rate = 0.159 MGD = 0.245 cfs

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

Section NR 217.13(2)(d), Wis. Adm. Code, specifies that the background phosphorus concentration used in the limit calculation formula shall be calculated using the procedures specified in s. NR 102.07(1)(b) to (c), Wis. Adm. Code. The median shall be calculated with at least one year of data using samples collected once per month during the period of May through October. All representative data from the most recent 5 years shall be used, but data from the most recent 10 years may be used if representative of current conditions.

The following data were considered in estimating the background phosphorus concentration:

SWIMS ID	10010275	103141
Station Name	Monitoring station at Willow Rd (Fh Sta 1)	Monitoring station at Badger Rd
Waterbody	North Fork Popple River	North Fork Popple River
Sample Count	6	6
First Sample	05/15/2012	05/15/2012
Last Sample	10/16/2012	10/16/2012
Mean	0.261 mg/L	0.486 mg/L
Median	0.256 mg/L	0.434 mg/L

Substituting a background concentration above criteria into the limit calculation equation above would result in a calculated limit that is less than the applicable criterion of 0.075 mg/L. However, s. NR 217.13(7), Wis. Adm. Code, specifies that “if the water quality-based effluent limitation calculated pursuant to the procedures in this section is less than the phosphorus criterion specified in s. NR 102.06, Wis. Adm. Code, for the water body, the effluent limit shall be set equal to the criterion.”

The impaired water listing of the North Fork Popple River also points towards the notion that effluent phosphorus limits equal to the water quality criterion are needed to prevent the discharge from contributing to further impairment of the receiving water. The Guidance for Implementing Wisconsin’s Phosphorus Water Quality Standards for Point Source Discharges (2020) suggests setting effluent limits equal to the criterion in the absence of an EPA approved total maximum daily load for discharges of phosphorus to phosphorus impaired waters.

Effluent Data

The following table summarizes effluent total phosphorus monitoring data from April 2019 to November 2023.

	Phosphorus mg/L
1-day P ₉₉	4.46
4-day P ₉₉	2.77
30-day P ₉₉	1.92
Mean	1.53
Std	0.85
Sample size	42
Range	0.2 - 4.05

Reasonable Potential Determination

Since the 30-day P₉₉ of reported effluent total phosphorus data is greater than the calculated WQBEL, the discharge has reasonable potential to cause or contribute to an exceedance of the water quality criterion. Therefore, a WQBEL is required.

Limit Expression

According to s. NR 217.14 (2), Wis. Adm. Code, because the calculated WQBEL is less than or equal to 0.3 mg/L, the effluent limit of 0.075 mg/L may be expressed as a six-month average. If a concentration limitation expressed as a six-month average is included in the permit, a monthly average concentration limitation of 0.225 mg/L, equal to three times the WQBEL calculated under s. NR 217.13, Wis. Adm. Code shall also be included in the permit. The six-month average should be averaged during the months of May – October and November – April.

Mass Limits

Because the discharge is to a surface water that is to or upstream of a phosphorus impaired water, a mass limit is also required, pursuant to s. NR 217.14(1)(a), Wis. Adm. Code. This final mass limit shall be $0.075 \text{ mg/L} \times 8.34 \times 0.159 \text{ MGD} = 0.099 \text{ lbs/day}$ expressed as a six-month average.

Multi-discharger Variance

With the permit application, Clark County Healthcare Center has re-applied for the phosphorus multi-discharger variance (MDV). Conditions of the phosphorus MDV require the facility to comply with an interim phosphorus limit in lieu of meeting the final WQBEL. The recommended interim limit during the 2nd permit under MDV approval, pursuant to s. 283.16 (6) (am), Wis. Stats., is **1.0 mg/L as a monthly average**.

**PART 6 – 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 April 2019 to November 2023.

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				
FEB				
MAR				
APR			55	81
MAY			65	83
JUN			77	85
JUL			82	86
AUG				
SEP				
OCT			62	82
NOV			49	79
DEC			50	77

Since this facility provides hydraulic detention times of approximately 120 days, elevated effluent temperatures are unlikely and discharge temperatures are expected to be similar to ambient conditions. The facility uses a fill and draw method of operation with effluent discharges occurring only during the months of April-July and October-December. **Therefore, temperature limits and monitoring are not recommended.**

PART 7 – WHOLE EFFLUENT TOXICITY (WET)

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

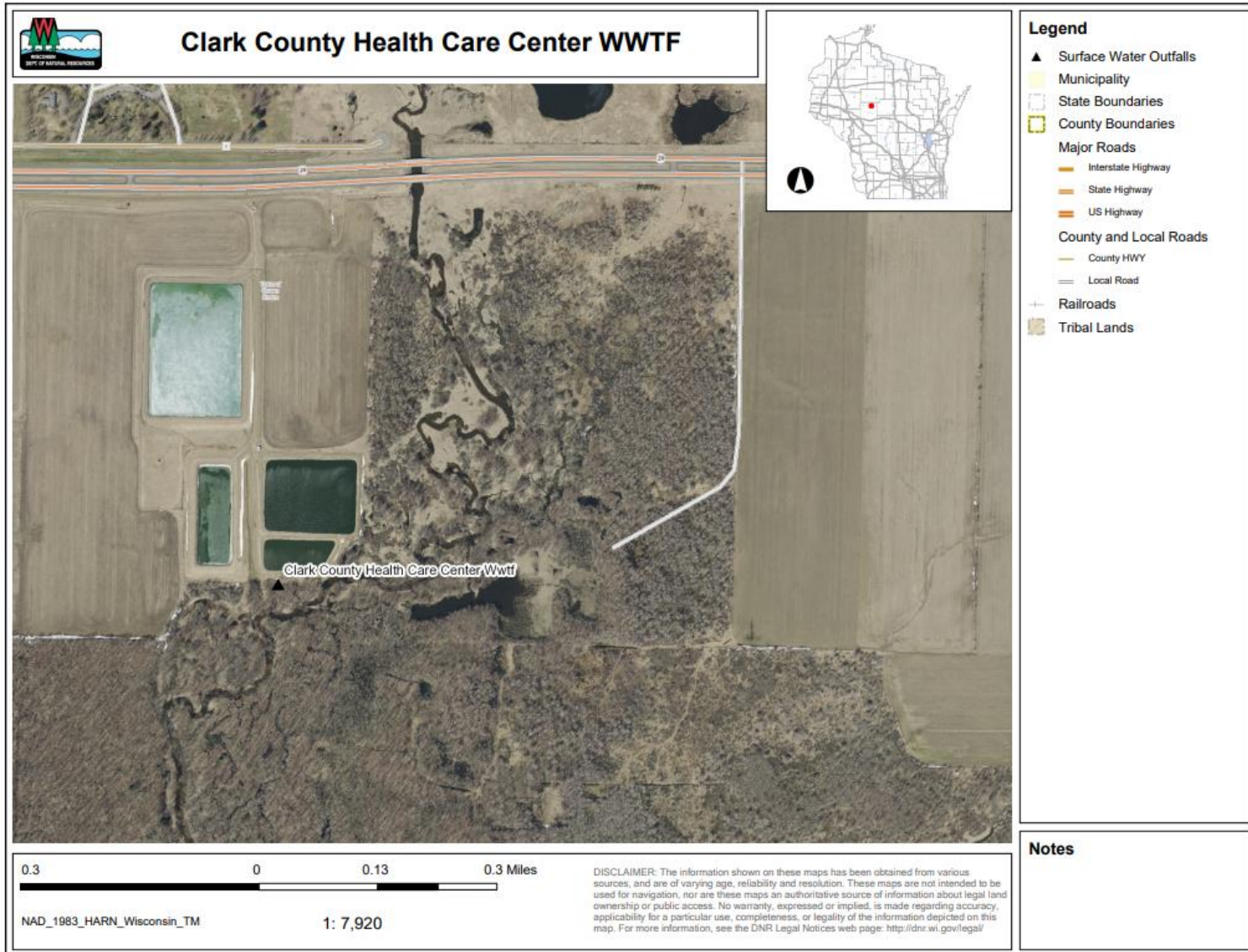
Guidance in Chapter 1.11 of the WET Guidance Document (WET Testing of Minor Municipal Discharges) was consulted. This is a minor municipal discharge (< 1.0 MGD) comprised solely of domestic wastewater, with no history of WET failures and no toxic compounds detected at levels of concern. No WET testing is recommended at this time because of the low risk in effluent toxicity.

Temperature limits for receiving waters with unidirectional flow

(calculation using default ambient temperature data)

Facility:	Clark County Healthcare Center WWTF	7-Q₁₀:	0.09 cfs	Temp Dates		Flow Dates	
Outfall(s):	001	Dilution:	25%	Start:	N/A		04/11/19
Date Prepared:	02/22/2024	f:	0	End:	N/A		11/30/23
Design Flow (Q_e):	0.159 MGD	Stream type:	Small warm water sport or forage fish community				
Storm Sewer Dist.	0 ft	Q_s:Q_e ratio:	0.1 :1				
		Calculation Needed?	YES				

Month	Water Quality Criteria			Receiving Water Flow Rate (Q _s) (cfs)	Representative Highest Effluent Flow Rate (Q _e)		f	Representative Highest Monthly Effluent Temperature		Calculated Effluent Limit	
	T _a (default) (°F)	Sub-Lethal WQC (°F)	Acute WQC (°F)		7-day Rolling Average (Q _{esl}) (MGD)	Daily Maximum Flow Rate (Q _{ea}) (MGD)		Weekly Average (°F)	Daily Maximum (°F)	Weekly Average Effluent Limitation (°F)	Daily Maximum Effluent Limitation (°F)
JAN	33	49	76	0.02							
FEB	34	50	76	0.02							
MAR	38	52	77	0.02							
APR	48	55	79	0.02	0.280	0.290	0			55	81
MAY	58	65	82	0.02	0.286	0.292	0			65	83
JUN	66	76	84	0.02	0.259	0.276	0			77	85
JUL	69	81	85	0.02	0.207	0.254	0			82	86
AUG	67	81	84	0.02							
SEP	60	73	82	0.02							
OCT	50	61	80	0.02	0.261	0.273	0			62	82
NOV	40	49	77	0.02	0.281	0.299	0			49	79
DEC	35	49	76	0.02	0.311	0.400	0			50	77



State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
101 S. Webster Street
Box 7921
Madison WI 53707-7921

Tony Evers, Governor
Adam N. Payne, Secretary
Telephone 608-266-2621
FAX 608-267-3579
TTY Access via relay - 711



1/24/2024

Dominic Haupt
W4266 County Highway X
Owen, WI 54460

Subject: Conditional approval of a multi-discharger phosphorus variance
Receiving Stream: North Fork of Popple River in Clark County
Permittee: Clark County Health Care Center WWTF, WPDES WI-0029700

Dear Mr. Haupt:

In accordance with s. 283.16 of the Wisconsin Statutes, you have requested coverage under Wisconsin's multi-discharger phosphorus variance for the Clark County Healthcare Center in an application dated 10/11/2023. Wisconsin's multi-discharger phosphorus variance was approved by EPA on February 6, 2017. Coverage under the multi-discharger phosphorus variance may only be granted to an existing source that demonstrates a major facility upgrade is necessary to achieve phosphorus compliance and the upgrade will result in economic hardship as defined in the federally approved variance. The water quality criterion for which you are seeking a variance is contained in s. NR 102.06, Wis. Adm. Code.

After review of the application materials, the Department is tentatively approving coverage under the phosphorus multi discharger variance because the applicant has demonstrated that a major facility upgrade would be required to comply with the phosphorus water quality based effluent limitation, and the applicant meets the economic hardship eligibility criteria delineated in the federally approved variance. In addition, the permitted facility has agreed to comply with the interim limitations that will be included in the WPDES permit, and has agreed to reduce the amount of phosphorus entering surface waters by making payments to the counties pursuant to s. 283.16(6)(b)1., Wis. Stats.

Public comment on this decision will be solicited at the time of permit reissuance after which a final decision will be made. The Department appreciates your attention and interest in Wisconsin's multi-discharger phosphorus variance. Should you have further questions regarding this matter, please contact me at (608) 400 – 5596.

Sincerely,

Matt Claucherty, MDV Point Source Coordinator
Bureau of Water Quality

e-cc Jenna Monahan, WDNR
Holly Heldstab, WDNR
Tim Elkins, EPA Region 5
Micah Bennett, EPA Region 5

Notice: This checklist is meant to be a tool to help Department of Natural Resources (DNR) staff review municipal and industrial multi-discharger variance (MDV) applications (Forms 3200-149 and 3200-150). Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law (ss. 19.31-19.39, Wis. Stats.).

Permittee Name
 Clark County Health Care Center

WPDES Permit Number
WI- 0 | 0 | 2 | 9 | 7 | 0 | 0

County
 Clark

1. Did the point source apply for the MDV at the appropriate time?	<input checked="" type="radio"/> Yes <input type="radio"/> No. <i>STOP- facility not eligible at this time.</i>	See Questions 1-3.
2. This operation is (check one):	<input type="radio"/> New or relocated outfall. <i>STOP- facility not eligible.</i> <input checked="" type="radio"/> Existing outfall	See Questions 5-6.
3. Is the point source is located in an MDV eligible area?	<input checked="" type="radio"/> Yes <input type="radio"/> No. <i>STOP- facility not eligible.</i>	Apply County information to Appendix H. Additional information provided in Q7 on municipal form & Q7-8 on industrial form.
4. The secondary indicator score for the county (counties) the discharge is located is:	<u>3</u>	See Appendices A-F. If the score is less than 2, stop; the facility is not eligible. See Q23 on municipal form & Q28 on industrial form.
5. Is a major facility upgrade required to comply with phosphorus limits?	<input checked="" type="radio"/> Yes <input type="radio"/> No. <i>STOP- facility not eligible.</i>	See Q8 on municipal form/Q9 on industrial form.
6. List the months where phosphorus limits cannot be achieved during the permit term:	<input checked="" type="checkbox"/> All <input checked="" type="checkbox"/> Jan <input checked="" type="checkbox"/> Apr <input checked="" type="checkbox"/> Jul <input checked="" type="checkbox"/> Oct <input checked="" type="checkbox"/> Feb <input checked="" type="checkbox"/> May <input checked="" type="checkbox"/> Aug <input checked="" type="checkbox"/> Nov <input checked="" type="checkbox"/> Mar <input checked="" type="checkbox"/> Jun <input checked="" type="checkbox"/> Sep <input checked="" type="checkbox"/> Dec	Consider checking with limit calculator. If this does not match information in application, the application should be updated prior to approval.

7. What is the current effluent level achievable?

Outfall Number(s) 001	Conc. (mg/L) 1.44	Method for calculation: <input checked="" type="radio"/> 30-day P99 <input type="radio"/> Other, specify: _____	Does this concur with application? <input type="radio"/> Yes <input checked="" type="radio"/> No, why not: Application used older data subset	DNR staff should verify the effluent concentration value(s) provided. See Q11 on municipal form & Q12 on industrial form.
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8. What is the appropriate interim limitation(s) for the permit term?
 0.6 mg/L as a monthly average, pursuant to s. 283.16(6)(a)2., Wis. Stats.
 Target Value = 0.2 mg/l
 A schedule may be required to resolve treatment issues before the 0.6 mg/L interim limit becomes effective
 Provide Rationale:
 The past three years' total phosphorus effluent data (12/2020 - 11/2023, n=25) yields a 30-day P99 value of 1.44 mg/L. This represents a longer-term level currently achievable. Results in late 2023 indicate better treatment may be possible. An alternative interim limit may be assigned if the provisions of s. 283.16(6)(am), Wis. Stats. are met.
Note: See description in Section 2.02 of the MDV implementation guidance. Interim limitations should reflect the "highest attainable condition" for the permittee in question pursuant to s. 283.16(7), Wis. Stat.

<p>9. <i>For Industries Only</i>- Where does the phosphorus in the effluent come from? (check all that apply)</p>	<p><input type="checkbox"/> Process <input type="checkbox"/> Additive Usage <input type="checkbox"/> Water supply</p> <p><i>Can intake credits be given or can the facility use an alternative water supply?</i></p> <p><input type="radio"/> Not feasible <input type="radio"/> Possibly, but further analysis needed <input type="radio"/> Not evaluated at this time</p>	<p><i>See Q14-15 & 19 on industrial form. If the answer is "possibly" or "not evaluated", the schedule section of the MDV permit should contain a requirement to perform this analysis.</i></p>
<p>10. Has this facility optimized?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> In progress <input type="radio"/> No</p>	<p><i>See Q14 on municipal form & Q16 & 20 on industrial form. Facility must optimize and operate at an optimize treatment level (s. 283.16(6)(a), Wis. Stat.) If no will need compliance schedule.</i></p>
<p>11. Has a facility plan/compliance alternative plan been completed for the facility?</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> In progress <input type="radio"/> No</p>	<p><i>See Q15 on municipal form & Q17 on industrial form.</i></p>
<p>12. What is the projected cost for complying with phosphorus?</p> <p style="text-align: right;">Source:</p>	<p>\$ <u>2,800,000.00</u></p> <p>MDV Application</p>	<p><i>Facility must submit site-specific compliance costs. If cost projections are used from EIA, the permittee must certify that these costs are reasonable for the facility in question. See "projected compliance costs" in Section 2.02 of the MDV Implementation Guidance for details.</i></p>

Comments on planning efforts:

A 2017 Final Compliance Alternatives Plan, prepared by Davy Engineering, evaluated options for complying with the stringent WQBEL for phosphorus. It was recognized that the lagoon system currently in place could not meet the final limit. Alternative treatment approaches such as land treatment (spray irrigation, seepage cell) or treatment/reuse were evaluated and deemed infeasible. Adaptive management and water quality trading were also evaluated. The Health Care Center has adopted chemical addition to the final lagoon, and has a number of source reduction measures that have been implemented during the past permit term. A new mechanical WWTP was evaluated and deemed feasible, at the projected cost of 4.2 million. Joint treatment with the nearby Owen WWTP was also deemed feasible, and was the lowest cost alternative for complying with the WQBEL. A site specific cost estimate was prepared for this option, and was used in the economic demonstration.

<p>13. Are adaptive management and water quality trading viable?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> Perhaps. Additional analysis required. <input type="radio"/> No</p>	<p><i>See Q18-21 on municipal form & Q22-25 on industrial form. If additional analyses required, the applicant may need to complete this analysis during the MDV permit term.</i></p>
<p>14. Has the point source met the appropriate primary screener?</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No. <i>STOP- facility not eligible.</i></p>	<p><i>See Q4 of this form in addition to the "eligibility" guidance in Section 2.01 of the MDV Implementation Guidance.</i></p>

Comments on economic demonstration:

The lowest cost compliance option, as outlined in the Final Compliance Alternatives Plan, is joint treatment with Owen. The 20-year net present worth provided for this option was \$3,110,644 and used an interest rate of 4.375% on financing capital costs. 4.375% is considered to be a somewhat higher financing cost but is likely applicable due to the lack of low interest municipal loan availability. The economic demonstration for this facility is most appropriately covered under the municipal category, since the facility processes domestic waste and an impact to individual users can be determined. The service area for this facility includes 340 residents, per the MDV application. All wastewater contribution to the facility is domestic. The MHI of Clark County is \$42,578. The cost borne by residents, as a whole, comes to an annual total of \$155,532.20 annually, or \$154,844.50 using the more conservative interest rate of 3.4%. Distributed amongst 340 residents, annual rates would be \$455.42, or 1.1% of MHI. Given Clark County's secondary indicator score of 3, requiring sewer rates to increase beyond 1% of MHI, this facility meets the appropriate economic screener.

15. What watershed option was selected?

- County project option. *Complete Section 5.*
- Binding, written agreement with the DNR to construct a project or implement a watershed plan. *Complete Section 4.*
- Binding, written agreement with another person that is approved by the DNR to construct a project or implement a watershed plan. *Complete Section 4.*

Section 4. Watershed Plan Review

16. MDV Plan Number:

Note: This is for tracking purposes. Contact Statewide Phosphorus Implementation Coordinator for the plan number.

17. Did the point source complete Form 3200-148?

- Yes
- No

18. Is the project area in the same HUC 8 watershed as the point of discharge?

- Yes
- No. *STOP- Watershed plan must be updated.*

19. What is the annual offset required?

See Section 2.03 of the MDV implementation guidance. If this value is different from the offset target provided in form 3200-148, the watershed plan should be amended.

20. Does the plan ensure that the annual load is offset annually?

- Yes
- No. *STOP- Watershed plan must be updated.*

21. Are projects occurring on land owned/operated by a CAFO or within a permitted MS4 boundary?

- Yes. *Work with appropriate DNR staff to ensure projects are not working towards other permit compliance.*
- No.

22. Are other funding sources being used as part of the MDV watershed project?

- Yes. *Work with appropriate DNR staff to ensure that funding sources can be appropriately used in the plan area.*
- No.

23. Do you have any concerns about the watershed project?

Note: Coordinate with other DNR staff as appropriate.

- Yes. *STOP- Watershed plan must be updated.*
- No.

Comments:

Section 5. Payment to the County(ies)

24. At this time, the appropriate per pound payment is:

\$ 64.75

See "Payment Calculator" document at

[\\central\water\WQWT PROJECTS\WY CW Phosphorus\MDV.](#)

Section 6. Determination

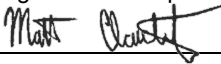
Based on the available information, the MDV application is:

- Approved
- Request for more information
- Denied

Save

Additional Justification (if needed):

Note that the MDV application indicated #1 and #3 under variance request schedule. #3 is not valid, #1 is correct.

Certification	
Preparer Name	Title
Matt Claucherty	Water Resources Management Specialist
Signature of Preparer	Date
 <input type="button" value="Sign"/> <input type="button" value="Clear"/>	1/23/2024

A copy of this completed checklist should be saved in SWAMP, and a notification of the decision should be sent to the Phosphorus Implementation Coordinator.

[Submit to Coordinator...](#)