

Permit Fact Sheet

General Information

Permit Number	WI-0028169-11-0
Permittee Name and Address	Krakow Sanitary District P O Box 171, Krakow, WI 54137-0171
Permitted Facility Name and Address	Krakow Sanitary District WWTF W188 Hoff Street, Krakow, Wisconsin
Permit Term	October 01, 2026 to September 30, 2031
Discharge Location	North side of Pensaukee River, between Main Street and Center Street (Latitude N 44° 45' 47.3", Longitude W 88° 15' 30")
Receiving Water	Pensaukee River in the Pensaukee River Watershed of the Upper Green Bay Basin in Shawano County
Stream Flow (Q _{7,10})	0.21 cfs
Stream Classification	Warm Water Sport Fish, non-public water supply, recreational use.
Discharge Type	Existing and Continuous
Annual Average Design Flow (MGD)	0.81 MGD
Industrial or Commercial Contributors	None
Plant Classification	Basic - A1 - Suspended Growth Processes; B - Solids Separation; C - Biological Solids/Sludges; P - Total Phosphorus; D - Disinfection; SS - Sanitary Sewage Collection System
Approved Pretreatment Program?	N/A

Facility Description

Krakow Sanitary District Wastewater Treatment Facility accepts wastewater from their district boundary and from Green Valley SD. Treatment consists of a package activated sludge plant with fine bubble aeration, chemical addition for phosphorus removal, aerobic digestion, followed by ultraviolet disinfection seasonally. Effluent is discharged on a continuous basis via Outfall 007 to the north bank of the Pensaukee River. Biosolids are land applied to Department approved agricultural sites.

Substantial Compliance Determination

After a desk top review of all discharge monitoring reports, CMARs, land app reports, compliance schedule items, and a site visit on June 24, 2026, this facility has been found to be in substantial compliance with their current permit.

Compliance determination made by Brooke Klingbeil, Compliance Staff on July 10, 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)
707	0.051 MGD (October 2019 – April 2025)	INFLUENT: Flow is measured via an ultrasound sensor over a Parshall flume in the influent channel after the inline grinder. 24-Hr Flow Proportional Composite samples shall be collected just after the flow measurement.
007	N/A – effluent flow monitoring not required in the previous permit term.	EFFLUENT: 24-Hr Flow Proportional Composite samples are to be collected after clarification and prior to UV disinfection. Grab samples are to be collected after UV disinfection.
008	6 U.S Tons (2024 Permit Application)	LIQUID SLUDGE: Class B, aerobically digested. Representative samples of the aerobically digested liquid sludge shall be collected from the pipe between the aerobic digester and sludge storage tank.

Permit Requirements

1 Influent – Monitoring Requirements

1.1 Sample Point Number: 707- Influent

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
BOD5, Total		mg/L	3/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total		mg/L	3/Week	24-Hr Flow Prop Comp	

Changes from Previous Permit:

Influent limitations and monitoring requirements were evaluated for this permit term and the following changes were made from the previous permit. BOD and TSS sampling frequency was updated to match the effluent.

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: 007- Effluent

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
BOD5, Total	Weekly Avg	38 mg/L	3/Week	24-Hr Flow Prop Comp	January
BOD5, Total	Weekly Avg	40 mg/L	3/Week	24-Hr Flow Prop Comp	February
BOD5, Total	Weekly Avg	45 mg/L	3/Week	24-Hr Flow Prop Comp	March-May, November
BOD5, Total	Weekly Avg	18 mg/L	3/Week	24-Hr Flow Prop Comp	June
BOD5, Total	Weekly Avg	15 mg/L	3/Week	24-Hr Flow Prop Comp	July, September
BOD5, Total	Weekly Avg	12 mg/L	3/Week	24-Hr Flow Prop Comp	August
BOD5, Total	Weekly Avg	26 mg/L	3/Week	24-Hr Flow Prop Comp	October
BOD5, Total	Weekly Avg	41 mg/L	3/Week	24-Hr Flow Prop Comp	December
BOD5, Total	Monthly Avg	30 mg/L	3/Week	24-Hr Flow Prop Comp	November – May
BOD5, Total	Monthly Avg	18 mg/L	3/Week	24-Hr Flow Prop Comp	June
BOD5, Total	Monthly Avg	15 mg/L	3/Week	24-Hr Flow Prop Comp	July, September
BOD5, Total	Monthly Avg	12 mg/L	3/Week	24-Hr Flow Prop Comp	August
BOD5, Total	Monthly Avg	26 mg/L	3/Week	24-Hr Flow Prop Comp	October
BOD5, Total	Weekly Avg	26 lbs/day	3/Week	Calculated	January
BOD5, Total	Weekly Avg	27 lbs/day	3/Week	Calculated	February
BOD5, Total	Weekly Avg	12 lbs/day	3/Week	Calculated	June
BOD5, Total	Weekly Avg	10 lbs/day	3/Week	Calculated	July, September
BOD5, Total	Weekly Avg	8.1 lbs/day	3/Week	Calculated	August
BOD5, Total	Weekly Avg	17 lbs/day	3/Week	Calculated	October
BOD5, Total	Weekly Avg	28 lbs/day	3/Week	Calculated	December
Suspended Solids, Total	Weekly Avg	38 mg/L	3/Week	24-Hr Flow Prop Comp	January

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Suspended Solids, Total	Weekly Avg	40 mg/L	3/Week	24-Hr Flow Prop Comp	February
Suspended Solids, Total	Weekly Avg	45 mg/L	3/Week	24-Hr Flow Prop Comp	March-May, November
Suspended Solids, Total	Weekly Avg	18 mg/L	3/Week	24-Hr Flow Prop Comp	June
Suspended Solids, Total	Weekly Avg	15 mg/L	3/Week	24-Hr Flow Prop Comp	July, September
Suspended Solids, Total	Weekly Avg	12 mg/L	3/Week	24-Hr Flow Prop Comp	August
Suspended Solids, Total	Weekly Avg	26 mg/L	3/Week	24-Hr Flow Prop Comp	October
Suspended Solids, Total	Weekly Avg	41 mg/L	3/Week	24-Hr Flow Prop Comp	December
Suspended Solids, Total	Monthly Avg	30 mg/L	3/Week	24-Hr Flow Prop Comp	November – May
Suspended Solids, Total	Monthly Avg	18 mg/L	3/Week	24-Hr Flow Prop Comp	June
Suspended Solids, Total	Monthly Avg	15 mg/L	3/Week	24-Hr Flow Prop Comp	July, September
Suspended Solids, Total	Monthly Avg	12 mg/L	3/Week	24-Hr Flow Prop Comp	August
Suspended Solids, Total	Monthly Avg	26 mg/L	3/Week	24-Hr Flow Prop Comp	October
pH Field	Daily Max	9.0 su	5/Week	Grab	
pH Field	Daily Min	6.0 su	5/Week	Grab	
Dissolved Oxygen	Daily Min	6.0 mg/L	5/Week	Grab	
E. coli	Geometric Mean - Monthly	126 #/100 ml	Weekly	Grab	May-September
E. coli	% Exceedance	10 Percent	Monthly	Calculated	May-September. See the E. coli Percent Limit permit section. Enter the result in the DMR on the last day of the month.
Nitrogen, Ammonia Variable Limit		mg/L	3/Week	See Table	Look up the variable ammonia limit from the

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
					‘Variable Ammonia Limitation’ table in the permit and report the variable limit in the Ammonia Variable Limit column on the eDMR.
Nitrogen, Ammonia (NH3-N) Total	Daily Max - Variable	mg/L	3/Week	24-Hr Flow Prop Comp	January-September. Report the daily maximum Ammonia result in the Nitrogen, Ammonia (NH3-N) Total column of the eDMR. See Ammonia Limitation Permit Section.
Nitrogen, Ammonia (NH3-N) Total	Daily Max	9.8 mg/L	3/Week	24-Hr Flow Prop Comp	October-December.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	9.8 mg/L	3/Week	24-Hr Flow Prop Comp	November – May
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	7.1 mg/L	3/Week	24-Hr Flow Prop Comp	June
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	4.8 mg/L	3/Week	24-Hr Flow Prop Comp	July
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	4.3 mg/L	3/Week	24-Hr Flow Prop Comp	August
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	5.8 mg/L	3/Week	24-Hr Flow Prop Comp	September
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	8.3 mg/L	3/Week	24-Hr Flow Prop Comp	October
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	9.8 mg/L	3/Week	24-Hr Flow Prop Comp	November – May
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	7.1 mg/L	3/Week	24-Hr Flow Prop Comp	June
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	4.8 mg/L	3/Week	24-Hr Flow Prop Comp	July
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	4.3 mg/L	3/Week	24-Hr Flow Prop Comp	August
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	5.8 mg/L	3/Week	24-Hr Flow Prop Comp	September
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	8.3 mg/L	3/Week	24-Hr Flow Prop Comp	October

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Phosphorus, Total	Monthly Avg	0.6 mg/L	3/Week	24-Hr Flow Prop Comp	This is an interim MDV limit effective on 10/1/2028. See the MDV/Phosphorus permit 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 months that the MDV is in effect) for the calendar year on the Annual report form.
Chloride		mg/L	Monthly	24-Hr Flow Prop Comp	Monitoring only in 2029.
Nitrogen, Total Kjeldahl		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Annual in rotating quarters
Nitrogen, Nitrite + Nitrate Total		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Annual in rotating quarters
Nitrogen, Total		mg/L	See Listed Qtr(s)	Calculated	Annual in rotating quarters. See Nitrogen Series Monitoring section below. Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen.
Temperature Maximum		deg F	Monthly	Grab	Monitoring only in 2029.
Acute WET		TUa	See Listed Qtr(s)	24-Hr Flow Prop Comp	Three tests required during the duration of the permit. See "WET" Section.
Chronic WET	Monthly Avg	1.4 TUc	See Listed Qtr(s)	24-Hr Flow Prop Comp	Annually in rotating quarters. See "WET"

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
					section.

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.

- **BOD, TSS, NH3-N, pH, DO, TP**– Monitoring frequency updated.
- **Nitrogen, Ammonia** – The Single Daily Max limitations for January-September has been replaced with Variable limits.
- **E. coli**- Fecal coliform monitoring and limits have been replaced with Escherichia coli (E. coli) monitoring and limits.
- **Phosphorus MDV**- The permittee has applied for a multi-discharger variance (MDV) for phosphorus for this permit term and the application has been approved by the Department. An MDV interim limit of 0.6 mg/L has been added that goes into effect per a compliance schedule. The permittee is required to report the total amount of phosphorus discharged in lbs/month and lbs/year. By March 1 of each year the permittee shall make a payment(s) to participating county(s) of \$68.40 per pound of phosphorus discharged during the previous year in excess of the target value of 0.2 mg/L.
- **Total Nitrogen Monitoring (TKN, NO2+NO3 and Total N)**- Annual monitoring is required in specific quarters as outlined in the permit.
- **Temperature** – Monitoring in 2029 added to the permit.
- **Chronic WET** – Limit Added.

Explanation of Limits and Monitoring Requirements

Detailed discussions of limits and monitoring requirements can be found in the attached water quality-based effluent limits (WQBEL) memo dated **July 2, 2025**.

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. BOD, TSS, Ammonia, and Phosphorus's monitoring frequency has been updated to match the standard frequency for municipal facilities of this size and flow as outlined in guidance. pH and Dissolved oxygen were updated to match the minimum requirements.

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 whenever practicable.

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 are 0.225 mg/L as a monthly average and 0.075 mg/L and 0.051 lbs/day as 6-month averages and were to become effective as scheduled unless a variance was granted. For this permit term, the permittee has applied for the Multi-Discharger Variance (MDV) for phosphorus as provided for in s. 283.16, Wis. Stats., and approved by USEPA on September 3, 2025 for a 10-year duration. 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 interim effluent limit for total phosphorus is 0.6 mg/L as an average monthly limit. The limit was derived using DMR data from October 2022 to August 2024.

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.

The “price per pound” value is \$50.00 adjusted for CPI annually 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 nonpoint source phosphorus control strategies at the watershed level.

Temperature - Limitations are not included during this permit term. Monthly monitoring is required in this permit to provide updated temperature data which will determine if limits are needed in future permit reissuances.

Whole Effluent Toxicity (WET) Testing - Per requirements specified in s. NR 106.08, Wis. Adm. Code, a chronic WET limit is required. The chronic WET limit shall be expressed as 1.4 TUC 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.

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 in the effluent 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.

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)
008	B	Liquid	Fecal Coliform	Incorporation	Land Application	6 U.S. Tons
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						
If yes, special monitoring and recycling conditions will be included in the permit to track any potential problems in landapplying sludge from this facility						
Is a priority pollutant scan required? No, flow <5 MGD						
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: 008- 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	
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	
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	Once in 2027
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	Once in 2027
PFOA + PFOS		ug/kg	Annual	Calculated	Report the sum of PFOA and PFOS. See PFAS

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
					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.

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.

PFAS –Monitoring is required annually pursuant to s. NR 204.06(2)(b)9., Wis. Adm. Code.

PCB – Sample year updated.

Explanation of Limits and Monitoring Requirements

Requirements for disposal, including land application of municipal sludge, are determined in accordance with ch. NR 204, Wis. Adm. Code. Ceiling and high-quality limits for metals in sludge are specified in s. NR 204.07(5). Requirements for pathogens are specified in s. NR 204.07(6) and in s. NR 204.07 (7) for vector attraction requirements. Limitations for PCBs are addressed in s. NR 204.07(3)(k). Radium requirements are addressed in s. NR 204.07(3)(n).

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 Phosphorus Schedule - Optimization and Compliance Planning

The permittee is required to optimize performance and undertake compliance planning to control phosphorus discharges per the following schedule.

Required Action	Due Date
Optimization and Compliance Alternatives: The permittee shall implement a phosphorus discharge optimization plan to control phosphorus discharges to the greatest extent practicable. Submit a progress report that summarizes the approach to phosphorus removal at the facility, the resulting concentration and mass loading for the last 12-month period, and any changes that were or are needed to optimize removal of phosphorus by the due date. The permittee shall also evaluate alternative phosphorus compliance options such as water quality	09/30/2027

trading and adaptive management. The progress report submitted on the date due shall also detail any outreach activities undertaken to evaluate these options, any communications with credit generators, brokers/clearinghouse, and any potential water quality trading or adaptive management projects that may lead to compliance with phosphorus WQBELs. Financial alternatives evaluation: If the permittee intends to seek a renewed variance at the end of this permit term, the permittee may complete a financial evaluation to support ongoing variance eligibility. The report must evaluate financial mechanisms that have the potential to make compliance with phosphorus WQBELs economically feasible. Include an assessment of the feasibility and financial outcomes of the following opportunities: variable rate structures, grants through USDA or other sources, and DNR's Clean Water Fund Program. The assessment of the DNR's Clean Water Fund program should take into account subsidized interest rate loans, principal forgiveness, and other options as outlined in EPA's March 2024 Financial Capabilities Assessment Guidance, Appendix C.	
Progress Report #2: Submit a progress report per the above for the prior calendar year.	09/30/2028
Progress Report #3: Submit a progress report per the above for the prior calendar year.	09/30/2029
Progress Report #4: Submit a progress report per the above for the prior calendar year.	09/30/2030
Final MDV Optimization and Compliance Alternatives Report: Submit a progress report per the above for the prior calendar year. If water quality trading or adaptive management will be used to comply with phosphorus limitations during the next permit term, submit a draft water quality trading plan, adaptive management plan, or executed clearinghouse credit purchase agreement. The financial alternatives evaluation as described above must be submitted by the date due if the facility chooses to seek renewal of the variance.	03/31/2031

Explanation of 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 applicable effluent limits. This compliance schedule requires the permittee to prepare an optimization plan with a schedule for implementation and submit it for Department approval. The schedule also includes a compliance planning element focused on economically feasible solutions to low-level phosphorus effluent limits such as water quality trading or adaptive management. The permittee shall take the steps called for in the optimization plan and submit annual progress reports on optimizing the removal of phosphorus and establishing a water quality trade or adaptive management project. Should the permittee intend to reapply for a subsequent term of variance coverage, a financial alternatives analysis will need to be completed. Report elements are listed in the schedule, and more information can be found in [EPA's March 2024 Financial Capabilities Assessment Guidance, Appendix C](#).

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	03/01/2027

value) times (\$68.40 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 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.	03/01/2028
Annual Verification of Payment #3: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2029
Annual Verification of Payment #4: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2030
Annual Verification of Payment #5: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2031
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 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 nonpoint 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 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 \$68.40 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 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	09/30/2027

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.	
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Explanation of Schedule

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

Attachments

Water Quality Based Effluent Limits dated July 2, 2025

Multi Discharger Variance (MDV) Conditional Approval Checklist dated July 1, 2024

MDV Evaluation Checklist dated July 1, 2024

Justification Of Any Waivers From Permit Application Requirements

No waivers requested or granted as part of this permit reissuance

Prepared By: Marissa Fleege Wastewater Specialist

Date: 7/24/2026

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: July 2, 2025

TO: Sarah Adkins – NER/Oshkosh Service Center

FROM: Michael Polkinghorn – NOR/Rhineland Service Center *Michael Polkinghorn*

SUBJECT: Water Quality-Based Effluent Limitations for the Krakow Sanitary District Wastewater Treatment Facility
WPDES Permit No. WI-0028169-11-0

This is in response to your request for an evaluation of the need for water quality-based effluent limitations (WQBELs) using chapters NR 102, 104, 105, 106, 207, 210, 212, and 217 of the Wisconsin Administrative Code (where applicable) for the discharge from the Krakow Sanitary District Wastewater Treatment Facility in Shawano County. This municipal wastewater treatment facility (WWTF) discharges to the Pensaukee River, located in the Pensaukee River Watershed in the Upper Green Bay 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 007:

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
BOD ₅						
January			38 mg/L 26 lbs/day	30 mg/L		1, 2, 3
February			40 mg/L 27 lbs/day	30 mg/L		
March – May			45 mg/L	30 mg/L		
June			18 mg/L 12 lbs/day	18 mg/L		
July			15 mg/L 10 lbs/day	15 mg/L		
August			12 mg/L 8.1 lbs/day	12 mg/L		
September			15 mg/L 10 lbs/day	15 mg/L		
October			26 mg/L 17 lbs/day	26 mg/L		
November			45 mg/L	30 mg/L		
December			41 mg/L 28 lbs/day	30 mg/L		
TSS						
January			38 mg/L	30 mg/L		1, 2, 3
February			40 mg/L	30 mg/L		
March – May			45 mg/L	30 mg/L		
June			18 mg/L	18 mg/L		
July			15 mg/L	15 mg/L		
August			12 mg/L	12 mg/L		
September			15 mg/L	15 mg/L		
October			26 mg/L	26 mg/L		
November			45 mg/L	30 mg/L		

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
December			41 mg/L	30 mg/L		
pH	9.0 s.u.	6.0 s.u.				1, 2
Dissolved Oxygen		6.0 mg/L				1, 2
<i>E. coli</i> May – September				126 #/100 mL geometric mean		4
Ammonia Nitrogen						3
Single Limit						
January – September	2.7 mg/L		2.7 mg/L	2.7 mg/L		
October	9.8 mg/L		8.3 mg/L	8.3 mg/L		
November – December	9.8 mg/L		9.8 mg/L	9.8 mg/L		
Variable Limit						
January – May	Variable		9.8 mg/L	9.8 mg/L		
June	Variable		7.1 mg/L	7.1 mg/L		
July	Variable		4.8 mg/L	4.8 mg/L		
August	Variable		4.3 mg/L	4.3 mg/L		
September	Variable		5.8 mg/L	5.8 mg/L		
October	9.8 mg/L		8.3 mg/L	8.3 mg/L		
November – December	9.8 mg/L		9.8 mg/L	9.8 mg/L		
Phosphorus						5
LCA Interim Limit				1.0 mg/L		
HAC Interim Limit				0.6 mg/L		
Final WQBEL				0.225 mg/L	0.075 mg/L 0.051 lbs/day	
Chloride						1
TKN, Nitrate+Nitrite, and Total Nitrogen						6
Temperature						7
Acute WET						8
Chronic WET				1.4 TUc		9

Footnotes:

1. No changes from the current permit.
2. These limits are based on the Warm Water Sport Fish (WWSF) community of the immediate receiving water as described in s. NR 210.05(1), Wis. Adm. Code. Mass BOD₅ limits, TSS limits, and DO limit are based on the prevention of a significant lowering of water quality as described in s. NR 207.05(4)(a)1, Wis. Adm. Code.
3. Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Codes, are included in bold. The Krakow SD WWTF shall notify the Department if the single limit or the variable limits based on effluent pH are preferred. Presented below is a table of daily maximum limitations corresponding to various effluent pH values and may be used in place of the single limit of 2.3 mg/L during January – September.

Daily Maximum Ammonia Nitrogen Limits

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
6.0 ≤ pH ≤ 6.1	108	7.0 < pH ≤ 7.1	66	8.0 < pH ≤ 8.1	14

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

4. Additional final limit: No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 count/100 mL.
5. Under the phosphorus MDV, a level currently achievable (LCA) interim limit of 1.0 mg/L should be effective upon permit reissuance. A compliance schedule may be included in the permit until the highest attainable condition (HAC) limit of 0.6 mg/L can be met. 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.
6. As recommended in the Department's October 1, 2019 Guidance for Total Nitrogen Monitoring in Wastewater Permits, annual total nitrogen monitoring is recommended for all minor municipal permittees. Sections 283.37(5) and 283.55(1)(e), Wis. Stats, and ss. NR 200.065(1)(g) and NR 200.065(1)(h), Wis. Adm. Codes, provide the authority to request this monitoring during the permit term. Total nitrogen is the sum of nitrate (NO₃), nitrite (NO₂), and total Kjeldahl nitrogen (TKN) (all expressed as N).
7. Monthly temperature monitoring for 1 year is recommended to have updated temperature data to determine the need for limits at the next permit reissuance.
8. Three acute whole effluent toxicity (WET) tests are recommended during the reissued permit term. 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. Sampling WET concurrently with any chemical-specific toxic substances is recommended. Acute tests should be done in rotating quarters, to collect seasonal information about this discharge. If a satisfactory phosphorus chemical SOP is established and implemented at the facility prior to permit reissuance, then acute WET testing is not recommended in the reissued permit.
9. Annual chronic WET tests are recommended during the reissued permit term. According to the requirements specified in s. NR 106.08, Wis. Adm. Code, a chronic WET limit is required. The Instream Waste Concentration (IWC) to assess chronic test results is 70%. 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%. The primary control water used in chronic WET tests conducted on Outfall 007 shall be a grab sample collected from the Pensaukee River upstream of the confluence with Outfall 007. Sampling WET concurrently with any chemical-specific toxic substances is recommended. Chronic testing should continue after the permit expiration date (until the permit is reissued).

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

Attachments (3) – Narrative, discharge area map, & thermal table.

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**Water Quality-Based Effluent Limitations for
Krakow Sanitary District Wastewater Treatment Facility**

WPDES Permit No. WI-0028169-11-0

Prepared by: Michael A. Polkinghorn

PART 1 – BACKGROUND INFORMATION

Facility Description

Krakow Sanitary District Wastewater Treatment Facility (Krakow SD WWTF) treats the wastewater generated within its district boundaries as well as the wastewater generated by Green Valley SD. Treatment consists of a package activated sludge plant with fine bubble aeration, chemical addition for phosphorus removal, aerobic digestion, followed by ultraviolet disinfection seasonally during May – September. Municipal biosolids are land applied to agricultural land. The facility was last upgraded in 2005. Effluent is discharged on a continuous basis via Outfall 007 to the north bank of the Pensaukee River, between Main and Center Streets.

Attachment #2 is a discharge area map of Outfall 007.

Existing Permit Limitations

The current permit, expiring on 09/30/2024, includes the following effluent limitations and monitoring requirements.

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
BOD ₅						
January			38 mg/L 26 lbs/day	30 mg/L		
February			40 mg/L 27 lbs/day	30 mg/L		
March – May			45 mg/L	30 mg/L		
June			18 mg/L 12 lbs/day	18 mg/L		
July			15 mg/L 10 lbs/day	15 mg/L		1, 2, 3
August			12 mg/L 8.1 lbs/day	12 mg/L		
September			15 mg/L 10 lbs/day	15 mg/L		
October			26 mg/L 17 lbs/day	26 mg/L		
November			45 mg/L	30 mg/L		
December			41 mg/L	30 mg/L		
TSS						
January			38 mg/L	30 mg/L		1, 2, 3

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Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
February			40 mg/L	30 mg/L		
March – May			45 mg/L	30 mg/L		
June			18 mg/L	18 mg/L		
July			15 mg/L	15 mg/L		
August			12 mg/L	12 mg/L		
September			15 mg/L	15 mg/L		
October			26 mg/L	26 mg/L		
November			45 mg/L	30 mg/L		
December			41 mg/L	30 mg/L		
pH	9.0 s.u.	6.0 s.u.				1, 2
Dissolved Oxygen		6.0 mg/L				1, 2
Fecal Coliform May – September			656#/100 mL geometric mean	400#/100 mL geometric mean		3
Ammonia Nitrogen Year round	9.8 mg/L					
January – May			9.8 mg/L	9.8 mg/L		
June			7.1 mg/L	7.1 mg/L		
July			4.8 mg/L	4.8 mg/L		3
August			4.4 mg/L	4.4 mg/L		
September			5.8 mg/L	5.8 mg/L		
October			8.3 mg/L	8.3 mg/L		
November – December			9.8 mg/L	9.8 mg/L		
Phosphorus						
LCA Interim Limit				3.7 mg/L		
HAC Interim Limit				1.0 mg/L		4
Final				0.225 mg/L	0.075 mg/L 0.051 lbs/day	
Chloride						5
Acute WET						6
Chronic WET						6

Footnotes:

1. **These limitations are not being evaluated as part of this review except for BOD₅ limits during December.** Because the water quality criteria (WQC), reference effluent flow rates, and receiving water characteristics have not changed, limitations for these water quality characteristics do not need to be re-evaluated at this time.
2. These limits are based on the Warm Water Sport Fish (WWSF) community of the immediate receiving water as described in s. NR 210.05(1), Wis. Adm. Code. Mass BOD₅ limits, TSS limits, and DO limit are based on the prevention of a significant lowering of water quality as described in s. NR 207.05(4)(a)1, Wis. Adm. Code.
3. Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Codes, are included in bold.
4. The facility is delaying final compliance with the final phosphorus WQBELs via a phosphorus MDV. The level currently achievable (LCA) interim limit of 3.7 mg/L was effective in the

current permit until the highest attainable condition (HAC) limit of 1.0 mg/L became effective on 10/01/2022.

5. Monitoring only.
6. Two acute and three chronic whole effluent toxicity (WET) tests were required during the current permit term. The IWC for chronic WET was 73%.

Receiving Water Information

- Name: Pensaukee River
- Waterbody Identification Code (WBIC): 412900
- Classification used in accordance with chs. NR 102 and 104, Wis. Adm. Code: Warm Water Sport Fish (WWSF) community, non-public water supply and recreational use. 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 monthly 7-Q₁₀ and 7-Q₂ values are from USGS for Station DP18 at Highway 32 (Krakow WI, approx. 6.3 mi north of Pulaski WI), where Outfall 007 is located.

7-Q₁₀ (annual) = 0.21 cubic feet per second (cfs)

7-Q₂ (annual) = 0.53 cfs

Harmonic Mean Flow = 3.2 cfs using a drainage area of 48.8 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).

Monthly Low Flows

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7-Q ₁₀ (cfs)	0.69	0.75	1.28	6.17	1.80	0.59	0.36	0.26	0.26	0.87	1.48	0.80
7-Q ₂ (cfs)	2.07	2.08	4.60	12.4	4.72	1.87	0.96	0.89	1.28	2.63	4.20	2.87

The previous limit evaluation (July 2019) uses a 7-Q₁₀ low flow of 0.19 cfs and a 7-Q₂ low flow of 0.64 cfs. Because this flow cannot be recreated or background information provided on their origin, the annual 7-Q₁₀ and 7-Q₂ low flows listed above will be utilized in this evaluation. These were determined using the "Stream Natural Communities" layer in WPDES viewer. This change does not affect the weekly and monthly average limits for BOD₅, TSS, and ammonia nitrogen as they were calculated using the monthly low flows.

- Hardness = 356 mg/L as CaCO₃. This value represents the geometric mean of data (n = 5, September 2003 – June 2024) from chronic WET testing data.
- % of low flow used to calculate limits in accordance with s. NR 106.06(4)(c)5., Wis. Adm. Code: 25%. A mixing zone is not allowed for discharges of bioaccumulating compounds of concern (BCCs) in the Great Lakes system as described in s. NR 106.06(2)(br), Wis. Adm. Code.
- Source of background concentration data: Metals data from the Wolf River near Langlade WI is used for this evaluation because there is no data available for the Pensaukee River. The Wolf 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 and phosphorus are described later in this evaluation.
- Multiple dischargers: There are several other dischargers to the Pensaukee 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 Pensaukee River is on the Clean Water Act Section 303(d) list for a total phosphorus impairment (stream mi 0 – 60.4).

Effluent Information

- Design flow rate(s):
Annual average = 0.081 million gallons per day (MGD)
For reference, the actual average flow from October 2019 – April 2025 was 0.056 MGD.
- Hardness = 317 mg/L as CaCO₃. This value represents the geometric mean of four samples collected in March 2023 – April 2023. which were reported on the permit 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).
- Wastewater source: Domestic wastewater with no industrial contributors.
- Water supply: Private wells.
- Additives: Rare earth metal salts for chemical phosphorus removal.
- 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. Chloride monitoring was required during the current permit term.
- Effluent data for substances for which a single sample was analyzed is shown in the tables in Part 2, 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.

Copper Effluent Data

Sample Date	Conc. (µg/L)	Sample Date	Conc. (µg/L)	Sample Date	Conc. (µg/L)
03/21/2023	9.7	04/05/2023	6.5	04/27/2023	11
03/24/2023	8.3	04/10/2023	6.8	05/02/2023	13
03/28/2023	7.6	04/17/2023	8.0	05/06/2023	8.0
04/01/2023	6.7	04/21/2023	6.8		
1-day P ₉₉ = 14 µg/L					
4-day P ₉₉ = 11 µg/L					

Chloride Effluent Data

Sample Date	Conc. (mg/L)
02/23/2021	330
03/11/2021	330
04/13/2021	220
05/04/2021	300
06/08/2021	320
06/22/2021	350
07/06/2021	330
08/10/2021	270
09/21/2021	360
10/12/2021	380
10/19/2021	410

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Sample Date	Conc. (mg/L)
11/02/2021	400
11/23/2021	450
12/28/2021	380
1-day P ₉₉	505
4-day P ₉₉	420

The following table presents the average concentrations and loadings at Outfall 007 from October 2019 – April 2025 for all parameters with limits in the current permit to meet the requirements of s. NR 201.03(6), Wis. Adm. Code:

Parameters with Effluent Limits

	Average Measurement*	Average Mass Discharged
BOD ₅	6.7 mg/L	3.3 lbs/day
TSS	8.0 mg/L	
pH field	8.1 s.u.	
Dissolved Oxygen	7.6 mg/L	
Fecal Coliform	58 #/100 mL**	
Ammonia Nitrogen	0.22 mg/L	
Phosphorus	1.4 mg/L	

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

** The average measurement for bacteria is calculated as a geometric mean. Values reported below the LOD are replaced with a value of 1 for the calculation of the geometric mean.

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

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

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

Acute Limits based on 1-Q₁₀

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

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

Where:

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

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

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

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

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

If the receiving water is effluent dominated under low stream flow conditions, the 1-Q₁₀ method of limit calculation produces the most stringent daily maximum limitations and should be used while making reasonable potential determinations. This is not the case for Krakow SD WWTF, and the limits are set based on the 2xATC method.

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 = 0.17 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	MAX. EFFL. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	1-day P ₉₉	1-day MAX. CONC.
Arsenic		340	679.6	135.9	<14		
Cadmium	317	38.7	77.3	15.5	<0.3		
Chromium	301	4,446	8,892	1,778	<1.3		
Copper	317	46.0	92.1			14	13
Lead	317	326	651.1	130.2	<3.5		
Nickel	268	1,080	2,161	432	3.8		
Zinc	317	330	659.5	131.9	16		
Chloride (mg/L)		757	1,514			505	450

* 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.

Weekly Average Limits based on Chronic Toxicity Criteria (CTC)

RECEIVING WATER FLOW = 0.053 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		216	43.2	<14	

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SUBSTANCE	REF. HARD.* mg/L	CTC	MEAN BACK- GRD.	WEEKLY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	4-day P ₉₉
Cadmium	175	3.82	0.08	5.39	1.1	<0.3	
Chromium	301	325.75	0.13	462	92.4	<1.3	
Copper	356	30.64	0.26	43.4			11
Lead	356	95.39	0.18	135.3	27.1	<3.5	
Nickel	268	120.18	0.63	170	34.1	3.8	
Zinc	333	344.68		489	97.8	16	
Chloride (mg/L)		395		560			420

* 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 = 0.80 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	0.08	2,742	548.3	<0.3
Chromium	3,818,000	0.13	28,295,941	5,659,188	<1.3
Lead	140	0.18	1,036	207.3	<3.5
Nickel	43,000	0.63	318,677	63,735	3.8

Monthly Average Limits based on Human Cancer Criteria (HCC)

RECEIVING WATER FLOW = 0.80 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		98.6	19.7	<14

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 not required for any toxic substances**. Limits and/or monitoring recommendations are made in the paragraphs below:

Chloride – Considering available effluent data from the current permit term (February 2021 – December 2021), the 1-day P₉₉ and 4-day P₉₉ concentrations are 505 and 420 mg/L respectively. These effluent

concentrations are below the calculated WQBELs for chloride; therefore, no effluent limits are needed. **Chloride monitoring is recommended to ensure that 11 sample results are available at the next permit issuance to meet the data requirements of s. NR 106.85, Wis. Adm. Code.**

Mercury – The permit application did not require monitoring for mercury because the Krakow SD WWTF 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 April 2019 – April 2024 was 0.18 mg/kg, with a maximum reported concentration of 1.13 mg/kg. **Therefore, mercury monitoring is not recommended during the reissued permit term.**

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

PART 3 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR BOD₅

The BOD₅ limits in the current permit are based on the WWSF community of the immediate receiving water as described in s. NR 210.05(1), Wis. Adm. Code, and are also based on the prevention of a significant lowering of water quality as described in s. NR 207.05(4)(a)1, Wis. Adm. Code. Upon initial review of the current limits, additional limits should have been implemented during the month of December. Therefore, those limits will be reevaluated at this time.

BOD₅

In establishing BOD₅ 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), Wis. Adm. Codes. The 26-lb method (13-lb method for cold water community streams) 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 calculation of the BOD₅ limits based on the full assimilative capacity (AC) and prevention of a significant lowering of water quality (SLOWQ) are explained in detail in the previous facility planning limit evaluation (June 2003). Because Krakow SD WWTF has not made the alternatives analysis determination as described in s. NR 207.04(1)(d), Wis. Adm. Code, limits to prevent a SLOWQ as described in s. NR 207.05(4)(a)1, Wis. Adm. Code, are included below:

Weekly Average BOD₅/TSS Limits (June 2003) – SLOWQ

Month	Conc. (mg/L)	Mass (lbs/day)
January	38	26
February	40	27
March	45	
April	45	
May	45	
June	18	12
July	17	10
August	19	7.4
September	15	10
October	20	17
November	35	31
December	41	28

Whenever the calculated BOD₅ WQBEL is less than 45 mg/L, a concentration and mass BOD₅ limit shall be implemented in the permit to protect the receiving water quality. December has a weekly average BOD₅ limit of 41 mg/L **so the weekly average mass limit of 28 lbs/day is recommended during the reissued permit term.**

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 year round. These limits are re-evaluated at this time due to the following changes:

- 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 WWSF community, and
pH (s.u.) = that characteristic of the effluent.

The effluent pH data was examined as part of this evaluation. A total of 533 sample results were reported from October 2019 – April 2024. The maximum reported value was 9.0 s.u. (Standard pH Units). The effluent pH was 9.0 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 9.0 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 9.0 s.u. Therefore, a value of 9.0 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 9.0 s.u. into the equation above yields an ATC = 1.32 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

Method	Ammonia Nitrogen Limit (mg/L)
2×ATC	2.7
1-Q ₁₀	3.0

The 2xATC method yields the most stringent limits for Krakow SD WWTF. 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 Community

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

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

The weekly and monthly average ammonia nitrogen limits calculation from the previous limit evaluation (July 2004) do not change because there have been no changes in the effluent and receiving water flow rates. These limits are included in the tables below and were calculated based on full AC and to prevent a SLOWQ as described in s. NR 207.05(4)(a)1, Wis. Adm. Code.

Weekly & Monthly Average Ammonia Nitrogen Limits (July 2004) – Full AC

		Jan.	Feb.	Mar.	April	May	June
Effluent Flow	Qe (MGD)	0.081	0.081	0.081	0.081	0.081	0.081
	7-Q ₁₀ (cfs)	0.69	0.75	1.28	6.17	1.80	0.59

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Background Information	7-Q ₂ (cfs)	2.07	2.08	4.6	12.4	4.72	1.87
	Ammonia (mg/L)	0.07	0.07	0.04	0.04	0.04	0.03
	Temperature (°C)	1	1	3	9	17	21
	pH (s.u.)	7.97	7.97	7.97	7.97	8.21	8.21
	% of Flow used	25	25	25	25	100	100
	Reference Weekly Flow (cfs)	0.17	0.19	0.32	1.54	1.80	0.59
	Reference Monthly Flow (cfs)	0.44	0.44	0.98	2.64	4.01	1.59
Criteria mg/L	4-day Chronic						
	Early Life Stages Present*						2.90
	Early Life Stages Absent	10.31	10.31	10.31	9.06	3.76	
	30-day Chronic						
	Early Life Stages Present*						1.16
Effluent Limitations mg/L	Early Life Stages Absent	4.12	4.12	4.12	3.63	1.5	
	Weekly Average						
	Early Life Stages Present*						16.44
	Early Life Stages Absent	24.41	25.63	36.54	120.13	57.18	
	Monthly Average						
Effluent Limitations mg/L	Early Life Stages Present*						15.22
	Early Life Stages Absent	18.36	18.42	35.98	79.01	48.36	
		July	Aug.	Sep.	Oct.	Nov.	Dec.
Effluent Flow	Q _e (MGD)	0.081	0.081	0.081	0.081	0.081	0.081
Background Information	7-Q ₁₀ (cfs)	0.36	0.26	0.26	0.87	1.48	0.8
	7-Q ₂ (cfs)	0.96	0.89	1.28	2.63	4.2	2.87
	Ammonia (mg/L)	0.03	0.03	0.03	0.03	0.03	0.07
	Temperature (°C)	23	22	16	10	4	2
	pH (s.u.)	8.21	8.21	8.21	8.21	7.97	7.97
	% of Flow used	100	100	50	25	25	25
	Reference Weekly Flow (cfs)	0.36	0.26	0.13	0.22	0.37	0.20
	Reference Monthly Flow (cfs)	0.82	0.76	0.54	0.56	0.89	0.61
Criteria mg/L	4-day Chronic						
	Early Life Stages Present*	2.55	2.72	4.13			
	Early Life Stages Absent				5.90	10.31	10.31
	30-day Chronic						
	Early Life Stages Present*	1.02	1.09	1.65			
Effluent Limitations mg/L	Early Life Stages Absent				2.36	4.12	4.12
	Weekly Average						
	Early Life Stages Present*	9.80	8.31	8.38			
	Early Life Stages Absent				16.1	40.66	26.65
	Monthly Average						
Effluent Limitations mg/L	Early Life Stages Present*	7.48	7.48	8.68			
	Early Life Stages Absent				12.76	33.28	23.86

Weekly Average Ammonia Nitrogen Limits (July 2004) – SLOWQ

Month	Ammonia Limits to Prevent SLOWQ (mg/L)
January	12

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February	13
March	17
April	32
May	21
June	7.1
July	4.8
August	4.3
September	5.8
October	8.3
November	18
December	13

Effluent Data

The following table evaluates the statistics based upon ammonia data reported from October 2019 – April 2024.

Ammonia Nitrogen Effluent Data

Statistics (mg/L)	January – March	May – July	August – September	October – December
1-day P ₉₉	1.9	6.2	1.6	0.53
4-day P ₉₉	1.2	4.5	1.0	0.29
30-day P ₉₉	0.49	2.0	0.41	0.15
Mean*	0.17	0.48	0.14	0.09
Std	0.52	2.3	0.44	0.11
Sample size	143	128	120	144
Range	<0.039 - 5.6	<0.039 - 23	<0.039 - 4.6	<0.039 - 0.84

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

Reasonable Potential

The need to include ammonia limits in the Krakow SD WWTF permit is determined by calculating 99th upper percentile (or P₉₉) values for ammonia nitrogen and comparing those to the calculated limits. **Based on this comparison, the daily maximum limit of 2.7 mg/L is recommended during January – September.** However, since the permit currently has weekly and monthly average limits year-round, **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.

The Krakow SD WWTF shall notify the Department if the single limit or the variable limits based on effluent pH are preferred.

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 daily maximum ammonia limits are necessary for Krakow SD WWTF, weekly and monthly average limits are also required under this code revision.

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.

The daily maximum limit of 2.7 mg/L is recommended during January – September. **Therefore, the weekly and monthly average limit of 2.7 mg/L is required during January – September during the reissued permit term.** If the variable limits based on effluent pH are preferred, **then the weekly and monthly average limits are set equal to the current weekly and monthly average limits during January – September during the reissued permit term.** The weekly and monthly average limits in August will be corrected to 4.3 mg/L.

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.

E. coli monitoring is recommended at the same frequency that fecal coliform monitoring is required in the current permit. Because Krakow SD WWTF'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

The Krakow SD WWTF has monitored effluent *E. coli* from May 2023 – September 2023 and a total of 21 results are available. A geometric mean of 126 counts/100 mL was never exceeded, with a maximum monthly geometric mean of 71 counts/100 mL. Effluent data has never exceeded 410 counts/100 mL, with a maximum reported value of 275 counts/100 mL. **Based on this effluent data it appears that the facility can meet new *E. coli* limits and a compliance schedule is not needed in the reissued permit.**

Attachment #1
PART 6 – 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.

Since Krakow SD WWTF has phosphorus limits in effect that are as stringent as 1.0 mg/L, the need for a TBEL will not be considered further. 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 Pensaukee 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 Pensaukee River.

Qs = 100% of the 7-Q₂ of 0.53 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 = 0.081 MGD = 0.13 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 as a median using the procedures specified in s. NR 102.07(1)(b) to (c), Wis. Code. 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 previous limit evaluation (July 2019) resulted in a WQBEL of 0.075 mg/L using a background concentration of 0.082 mg/L and the fact the Pensaukee River has a phosphorus impairment. Because the phosphorus impairment is still active, the effluent phosphorus limit is recommended to equal the water quality criterion of 0.075 mg/L 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 during October 2022 – April 2024 since the 1.0 mg/L monthly average interim limit became effective in the permit.

Total Phosphorus Effluent Data

Statistics	Conc. (mg/L)
1-day P ₉₉	1.4
4-day P ₉₉	0.81
30-day P ₉₉	0.49
Mean	0.35
Std	0.29
Sample size	245
Range	0.051 - 3

Reasonable Potential Determination

The discharge has reasonable potential to cause or contribute to an exceedance of the water quality criterion because the facility is currently under a phosphorus MDV to meet the phosphorus WQBELs in the future. Therefore, **the WQBELs are recommended to continue in the reissued permit.**

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

A mass limit is also required, pursuant to s. NR 217.14(1)(a), Wis. Adm. Code, because the Pensaukee River has a phosphorus impairment. **This final mass limit shall be $0.075 \text{ mg/L} \times 8.34 \times 0.081 \text{ MGD} = 0.051 \text{ lbs/day}$ expressed as a six-month average.**

Multi-Discharge Variance Interim Limit

With the permit application, the Krakow SD WWTF 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)(a), Wis. Stats., is 0.6 mg/L as a monthly average.** A compliance schedule may be appropriate to meet this interim limit but compliance with 0.6 mg/L shall be no later than the end of the reissued permit. **The current interim limit of 1.0 mg/L should not be exceeded during the compliance schedule.**

PART 7 – 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 October 2019 – April 2024.

The table below summarizes the maximum temperatures reported during monitoring from July 2011 – June 2012 along with the calculated limits. The full temperature limit calculations are included as attachment #3.

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	63	105
FEB	45	46	74	120
MAR	48	49	65	86
APR	50	51	90	120
MAY	56	56	79	115
JUN	62	62	87	98
JUL	64	65	92	98
AUG	66	68	90	91
SEP	66	66	80	85
OCT	62	62	71	104
NOV	56	57	68	120
DEC	51	51	63	99

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

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 the available effluent data, temperature limits are not recommended during the reissued permit term. Monthly temperature monitoring for 1 year is recommended to have updated temperature data to determine the need for limits at the next permit reissuance.**

PART 8 – 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 70%, 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:

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

Where:

Q_e = annual average flow = 0.081 MGD = 0.13 cfs

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

Q_s = $\frac{1}{4}$ of the 7-Q₁₀ = 0.21 cfs $\div$ 4 = 0.053 cfs

Attachment #1

- The previous limit evaluation (July 2019) calculated an IWC of 73% utilizing a 7-Q₁₀ low flow of 0.19 cfs. Because this flow cannot be recreated or background information provided on their origin, the annual 7-Q₁₀ low flow listed earlier will be utilized in this evaluation.
- 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 007 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 007. Efforts are made to ensure that decisions about WET monitoring and limits are made based on representative data, as specified in s. NR 106.08(3), Wis. Adm Code. Data which is not believed to be representative of the discharge was not included in reasonable potential calculations. The table below differentiates between tests used and not used when making WET determinations.

WET Data History

Date Test Initiated	Acute Results LC ₅₀ %				Chronic Results IC ₂₅ %				Footnotes or Comments
	<i>C. dubia</i>	Fathead minnow	Pass or Fail?	Used in RP?	<i>C. dubia</i>	Fathead Minnow	Pass or Fail?	Use in RP?	
09/16/2003					>100	>100	Pass	No	1
04/12/2007					>100	>100	Pass	Yes	
01/14/2020					>100	>100	Pass	Yes	
03/10/2021	>100	>100	Pass	Yes					
02/28/2023					>100	>100	Pass	Yes	
11/15/2023	>100	>100	Pass	Yes					
06/11/2024					>100	74.2	Pass	Yes	

Footnotes:

1. *Data Not Representative.* Significant changes were made to WET test methods in 2004 and these changes were assumed to be fully implemented by certified labs by no later than June 2005. It may be appropriate to exclude data collected before July 1, 2005, unless 1) it shows repeated toxicity that was never resolved or 2) older data is all that is available, and no significant changes have occurred which obviously make it unrepresentative.
- According to s. NR 106.08, Wis. Adm. Code, WET reasonable potential is determined by multiplying the highest toxicity value that has been measured in the effluent by a safety factor, to predict the likelihood (95% probability) of toxicity occurring in the effluent above the applicable WET limit. The safety factor used in the equation changes based on the number of toxicity detects in the dataset. The fewer detects present, the higher the safety factor, because there is more uncertainty surrounding the

Attachment #1

predicted value. WET limits must be given, according to s. NR 106.08(6), Wis. Adm. Code, whenever the applicable Reasonable Potential equation results in a value greater than 1.0.

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

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 LC_{50} , IC_{25} or $IC_{50} \geq 100\%$).

Acute Reasonable Potential = $0 < 1.0$, **reasonable potential is not shown, and a limit is not required.**

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

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
100/74.2 = 1.35	6.2 Based on 1 detect	70%

$$[(TU_c \text{ effluent}) (B)(IWC)] = 5.9 > 1.0$$

Therefore, reasonable potential is shown for a chronic WET limit using the procedures in s. NR 106.08(6), Wis. Adm. Code, and representative data from April 2007 – June 2024.

Expression of WET limits

Chronic WET limit = $[100/IWC] TU_c = 1.4 TU_c$ 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	$IWC = 70\%$. 15 Points
Historical Data	Two tests used to calculate RP. No tests failed. 0 Points	Four tests used to calculate RP. No tests failed. 0 Points

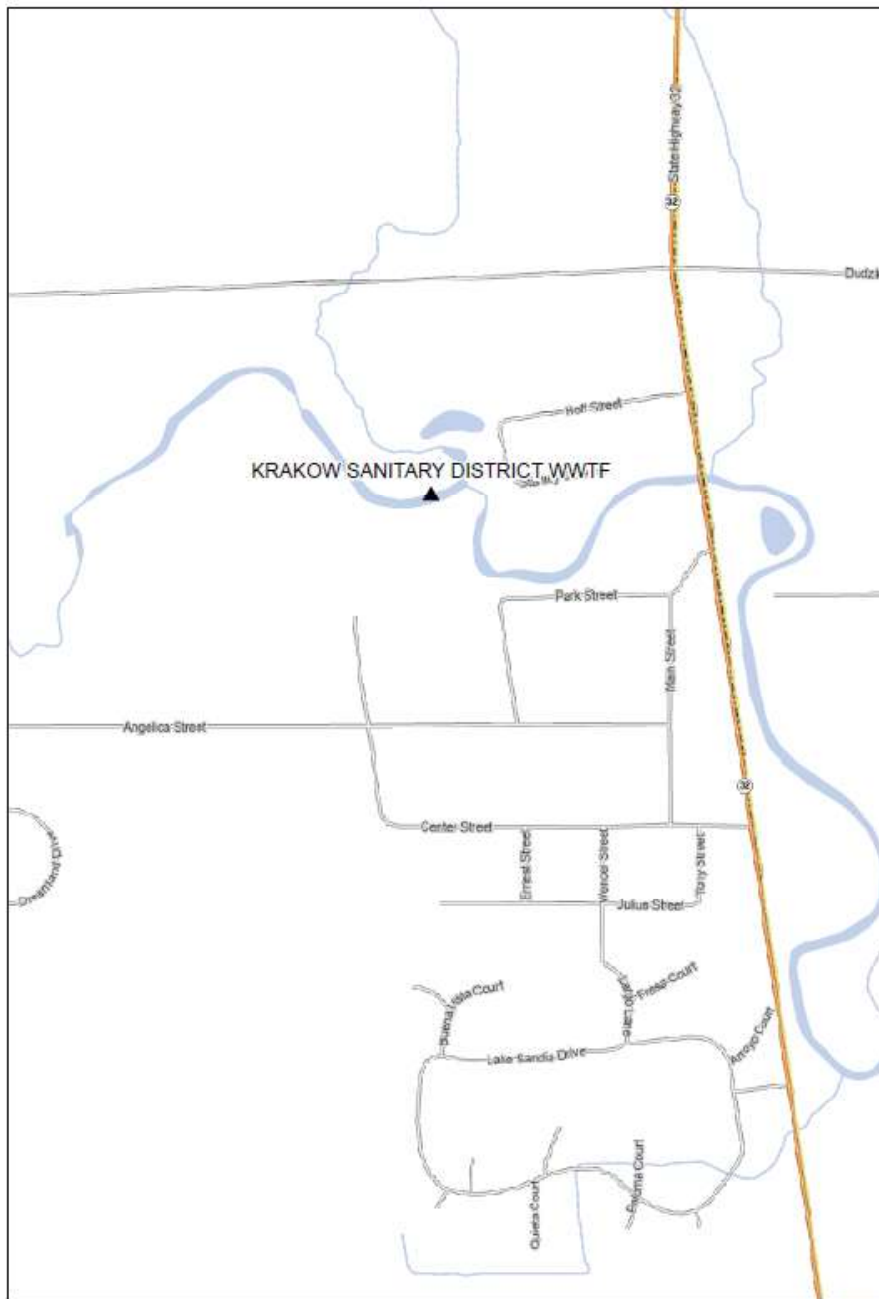
	Acute	Chronic
Effluent Variability	Multiple phosphorus limit exceedances but occurred before chemical feed system was installed. Otherwise little variability, no violations or upsets, consistent WWTF operations. 0 Points	Same as acute. 0 Points
Receiving Water Classification	WWSF community. 5 Points	Same as acute. 5 Points
Chemical-Specific Data	Reasonable potential for ammonia nitrogen limits based on ATC; Copper, chloride, nickel, and zinc detected. Additional Compounds of Concern: No. 8 Points	No reasonable potential for limits based on CTC; Ammonia nitrogen limit carried over from the current permit. Copper, chloride, nickel, and zinc detected. detected. Additional Compounds of Concern: No. 3 Points
Additives	No biocides and 1 water quality conditioner 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	No industrial contributors. 0 Points	Same as acute. 0 Points
Wastewater Treatment	Secondary or better. 0 Points	Same as acute. 0 Points
Downstream Impacts	No impacts known. 0 Points	Same as acute. 0 Points
Total Checklist Points:	29 Points	39 Points
Recommended Monitoring Frequency (from Checklist):	Three acute tests recommended.	Annual chronic tests recommended.
Limit Required?	No.	Limit = 1.4 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 acute and annual chronic WET tests are recommended in the reissued permit.** Sampling WET concurrently with any chemical-specific toxic substances is recommended. Acute tests should be done in rotating quarters, to collect seasonal information about this discharge. Chronic testing should continue after the permit expiration date (until the permit is reissued). **If a satisfactory phosphorus chemical SOP is established and implemented at the facility prior to permit reissuance, then acute WET testing is not recommended in the reissued permit.**
- 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 1.4 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.



**WISCONSIN
DEPARTMENT OF
NATURAL RESOURCES**

Krakov SD WWTF Outfall 007 Discharge Area



Legend:

- ▲ Surface Water Outfalls
- Rivers and Streams
- - - Intermittent Streams
- Open Water

Notes:

WPDES viewer, WDNR

Service Layer Credits:
Basic Basemap (Cached)



Map: 0 900 1,800 Feet
0 270 540 Meters

This map is a product generated by a DNR web mapping application.

This map is for informational purposes only and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. The user is solely responsible for verifying the accuracy of information before using for any purpose. By using this product for any purpose user agreed to be bound by all disclaimers found here: <http://dnr.wisconsin.gov/legal>

Date Printed: 6/11/2025 10:43 AM



Temperature Limits for Receiving Waters with Unidirectional Flow

(calculation using default ambient temperature data)

Facility:	Krakow SD WWTF	7-Q₁₀:	0.21 cfs	Temp Dates	Flow Dates
Outfall(s):	007	Dilution:	25%	Start:	July 2011
Date Prepared:	6/9/2025	f:	0	End:	June 2012
Design Flow (Q_e):	0.081 MGD	Stream type: Small warm water sport or forage fish co			
Storm Sewer Dist.	0 ft	Qs:Q_e ratio:	0.4 :1		
			Calculation Needed?	YES	

Month	Water Quality Criteria			Receiving Water Flow Rate (Qs) (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)	(MGD)		Weekly Average (°F)	Daily Maximum (°F)	Weekly Average Effluent Limitation (°F)	Daily Maximum Effluent Limitation (°F)
JAN	33	49	76	0.69	0.124	0.166	0	0	47	48	63	105
FEB	34	50	76	0.75	0.079	0.087	0	0	45	46	74	120
MAR	38	52	77	1.28	0.225	0.897	0	0	48	49	65	86
APR	48	55	79	6.17	0.201	0.218	0	0	50	51	90	120
MAY	58	65	82	1.80	0.141	0.213	0	0	56	56	79	115
JUN	66	76	84	0.59	0.090	0.127	0	0	62	62	87	98
JUL	69	81	85	0.36	0.061	0.072	0	0	64	65	92	98
AUG	67	81	84	0.26	0.066	0.106	0	0	66	68	90	91
SEP	60	73	82	0.26	0.081	0.350	0	0	66	66	80	85
OCT	50	61	80	0.87	0.151	0.173	0	0	62	62	71	104
NOV	40	49	77	1.48	0.113	0.151	0	0	56	57	68	120
DEC	35	49	76	0.80	0.134	0.235	0	0	51	51	63	99



7/1/2024

Dan Cota
P O Box 171
Krakow, WI 54137

Subject: Conditional approval of a multi-discharger phosphorus variance
Receiving Stream: Pensaukee River in Shawano County
Permittee: Krakow Sanitary District, WPDES WI-0028169

Dear Mr. Cota:

In accordance with s. 283.16 of the Wisconsin Statutes, you have requested coverage under Wisconsin's multi-discharger phosphorus variance for Krakow Sanitary District Wastewater Treatment Facility in an application dated 6/3/2024. 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 or by email at matthew.claucherty@wisconsin.gov

Sincerely,

Matt Claucherty, MDV Point Source Coordinator
Bureau of Water Quality

e-cc Dale Wagner, Krakow Sanitary District
Laurel Last, WDNR
Sarah Adkins, 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				
Krakow Sanitary District No. 1				
WPDES Permit Number			County	
WI- 0 0 2 8 1 6 9			Shawano	
1. Did the point source apply for the MDV at the appropriate time?	☒ Yes ☐ No. <i>STOP- facility not eligible at this time.</i>			See Questions 1-3.
2. This operation is (check one):	☐ New or relocated outfall. <i>STOP- facility not eligible.</i> ☒ Existing outfall			See Questions 5-6.
3. Is the point source is located in an MDV eligible area?	☒ Yes ☐ 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>6</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?	☒ Yes ☐ 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:	☒ All ☒ Jan ☒ Apr ☒ Jul ☒ Oct ☒ Feb ☒ May ☒ Aug ☒ Nov ☒ Mar ☒ Jun ☒ Sep ☒ 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)	Conc. (mg/L)	Method for calculation:	Does this concur with application?	DNR staff should verify the effluent concentration value(s) provided. See Q11 on municipal form & Q12 on industrial form.
001	2.3	☒ 30-day P99 ☐ Other, specify: 	☐ Yes ☒ No, why not: Application used more recent data	
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				
Provide Rationale: Phosphorus effluent data over the past three years (4/1/2021 - 3/30/2024, n=222) yields a 30-day P99 value of 2.3 mg/L. This time period includes operations prior to installation of chemical phosphorus removal. Following the chemical treatment upgrade, Krakow has generally discharged near 0.6 mg/L as a monthly average. A schedule is unlikely to be required for meeting the 0.6 mg/L interim limit.				
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.				

9. <i>For Industries Only</i> - Where does the phosphorus in the effluent come from? (check all that apply)	☐ Process ☐ Additive Usage ☐ Water supply <i>Can intake credits be given or can the facility use an alternative water supply?</i> ☐ Not feasible ☐ Possibly, but further analysis needed ☐ Not evaluated at this time	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.
10. Has this facility optimized?	☐ Yes ☒ In progress ☐ No	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.
11. Has a facility plan/compliance alternative plan been completed for the facility?	☒ Yes ☐ In progress ☐ No	See Q15 on municipal form & Q17 on industrial form.
12. What is the projected cost for complying with phosphorus? Source:	\$ <u>3,250,000.00</u> 2018 Final Compliance Alternatives Plan	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.

Comments on planning efforts:

Options for meeting the low-level phosphorus WQBEL were evaluated in the Preliminary and Final Compliance Alternatives Plan prepared by Cedar Corporation in 2018. These included Tertiary Filtration with Chemical Phos Removal, Ballasted Clarification, Biological Nutrient Recovery, Reactive Sand Filters, and Membrane Ultrafiltration. Costs were calculated for each. The least expensive reliable alternative evaluated was two-pass Reactive Sand Filters so this was used for the economic evaluation. As of 2024, Krakow continues to evaluate water quality trading through discussions with the Shawano County Conservation Department but has not identified any water quality trading partners.

13. Are adaptive management and water quality trading viable?	☐ Yes ☒ Perhaps. Additional analysis required. ☐ No	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.
14. Has the point source met the appropriate primary screener?	☒ Yes ☐ No. <i>STOP- facility not eligible.</i>	See Q4 of this form in addition to the "eligibility" guidance in Section 2.01 of the MDV Implementation Guidance.

Comments on economic demonstration:

Costs for an upgrade consisting of Two-pass Reactive Sand Filters were provided. These are \$3,030,700 (capital) and \$22,500 (O&M). These costs are consistent with the statewide EIA value of \$2.1 M (capital, 2015 dollars) or \$3.1M when adjusted for inflation. Assuming a CWF 20-year loan at 1.76% interest, annual costs would be \$181,680. With O&M, total annual costs come to \$204,180. These costs divided amongst 223 users result in a per-user cost increase of \$876 annually. Current rates are \$600 per year on average, and future rates would be \$1,476 per year annually. This value is 1.88% of Krakow's user-weighted median household income. In Shawano County with a secondary indicator score of 6, sewer rates at 1% of MHI meet the primary screener. The applicant meets the primary 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

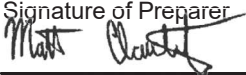
See "Payment Calculator" document at

[\\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

Additional Justification (if needed):

Certification		
Preparer Name		Title
Matt Claucherty		Water Resources Management Specialist
Signature of Preparer		Date
		7/1/2024