

Permit Fact Sheet

General Information

Permit Number:	WI-0030660-10-0	
Permittee Name:	FONKS HOME CENTER, INC. - HICKORY HAVEN	
Address:	15941 Durand Ave	
City/State/Zip:	Union Grove WI 53182	
Discharge Location:	4915 Schoen Road, Union Grove, WI 53182	
Receiving Water:	Unnamed tributary to the Des Plaines River, located in the Des Plaines River Watershed in the Des Plaines River Basin., one mile south of highway 11, 1,500 feet east of the treatment plant.	
StreamFlow (Q _{7,10}):	No flow data available for Unnamed Tributary. Limits calculated using Q _{7,10} of 0cfs.	
Stream Classification:	Limited Aquatic Life at discharge point for 1 mile to confluence with another unnamed tributary to Des Plaines River, which is designated as Limited Forage Fish for 1.5 miles to the confluence with the Des Plaines River. The stream is classified as Warm Water Sport Fish at the Des Plaines River.	
Discharge Type:	Existing, Continuous	
Design Flow	Annual Average	0.031 MGD
Significant Industrial Loading?	None.	
Operator at Proper Grade?	Yes, Basic - A1, B, C, P & SS OIC - Greg Richter Cert #33675 Advanced - A1, B, C, P, L & D OIT - A2, A3 & SS	
Approved Pretreatment Program?	N/A	

Facility Description

Fonks Hickory Haven has a 0.031 MGD design flow wastewater treatment plant which serves a 125-site, single home community located near Union Grove in Racine County on Schoen Road. Wastewater treatment includes grit removal, two aeration tanks in parallel with polyaluminum chloride (PAC) addition to the splitter box before aeration for chemical phosphorus removal, waste and return activated sludge piping, two biosolids storage tanks, a final clarifier, and post aeration. Return activated sludge is pumped from the bottom of the clarifier back to the head of the aeration basins. Waste activated sludge is pumped four times per week to biosolids storage. Effluent is discharged to an unnamed tributary that is located about 1,500 feet east of the WWTF and biosolids are hauled by a contract hauler to a separate, permitted, facility for disposal.

Substantial Compliance Determination

Enforcement During Last Permit: No formal enforcement was taken during the last permit term.

After a desk top review of all discharge monitoring reports, CMARs, land application reports, compliance schedule items and a facility inspection on December 21, 2023 conducted by DNR Wastewater Engineer, Jacob Van Susteren-Wedesky, this facility has been found to be in substantial compliance with their current permit, WI-0030660-09-0.

Sample Point Designation		
Sample Point Number	Discharge Flow, Units, and Averaging Period	Sample Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)
701	No flow data available.	INFLUENT: 24 Hour time-proportional composite influent samples shall be collected from the influent end of the septic/grit removal tank at the head of the plant.
001	0.017 MGD (2022 Data)	EFFLUENT: Flow measurement and 24 hour flow-proportional composite samples shall be collected from the front chamber of the effluent aeration basin. Grab samples shall be collected after reaeration.
003	2.09 dry U.S. Tons (WPDES Application submitted 9/26/23 by permittee)	Sludge is hauled by contracted party. Samples shall be collected prior to sludge hauling and test results shall be reported on Form 3400-49 'Waste Characteristics Report'. Hauled sludge shall be submitted on Form 3400-52 'Other Methods of Disposal or Distribution Report' following each year that the sludge is hauled to another facility.

1 Influent – Monitoring Requirements

Sample Point Number: 701- INFLUENT

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

Changes from Previous Permit:

No changes.

Explanation of Limits and Monitoring Requirements

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

2 Surface Water - Monitoring and Limitations

Sample Point Number: 001- EFFLUENT

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
BOD5, Total	Weekly Avg	30 mg/L	3/Week	24-Hr Flow Prop Comp	
BOD5, Total	Monthly Avg	20 mg/L	3/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Weekly Avg	30 mg/L	3/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Monthly Avg	20 mg/L	3/Week	24-Hr Flow Prop Comp	
pH Field	Daily Min	6.0 su	5/Week	Grab	
pH Field	Daily Max	9.0 su	5/Week	Grab	
Dissolved Oxygen	Daily Min	4.0 mg/L	5/Week	Grab	
Nitrogen, Ammonia (NH3-N) Total		mg/L	2/week	24-Hr Flow Prop Comp	
Phosphorus, Total	Monthly Avg	0.6 mg/L	3/Week	24-Hr Flow Prop Comp	This is an interim MDV effective immediately. See the MDV/Phosphorus sections and phosphorus schedules.
Phosphorus, Total		lbs/month	Monthly	Calculated	Report the total monthly phosphorus discharged in lbs/month on the last day of the month on the DMR. See Standard Requirements for 'Appropriate Formulas' to calculate the Total Monthly Discharge in lbs/month.
Phosphorus, Total		lbs/yr	Annual	Calculated	Report the sum of the total monthly discharges (for the months that the MDV is in effect) for the calendar year on the Annual report form.

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Arsenic, Total Recoverable		ug/L	Once	24-Hr Comp	Monitoring once in 2027 with an LOD of 8.0 µg/L or lower.
Nitrogen, Total Kjeldahl		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Annual in rotating quarters. See Nitrogen Series Monitoring section.
Nitrogen, Nitrite + Nitrate Total		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Annual in rotating quarters. See Nitrogen Series Monitoring section.
Nitrogen, Total		mg/L	See Listed Qtr(s)	Calculated	Annual in rotating quarters. See Nitrogen Series Monitoring section. Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen.
Chronic WET		TUc	See Listed Qtr(s)	24-Hr Flow Prop Comp	Chronic WET testing is required twice in the permit term. See WET testing section for more information.

Changes from Previous Permit

Changes highlighted in the table above.

Flow Rate- Sample frequency type changed to daily from continuous for eDMR reporting purposes.

Nitrogen, Ammonia- Sample frequency changed from monthly to 2/week.

Phosphorus MDV - Monitoring frequency has been increased from 2/week to 3/week. 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 immediately upon permit reissuance. 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 \$64.75 per pound of phosphorus discharged during the previous year in excess of the target value of 0.2 mg/L.

Arsenic- Monitoring was added to the permit once time in 2027 with a LOD must be 8.0 µg/L or lower.

Total Nitrogen Monitoring (TKN, N02+N03 and Total N)- Annual monitoring in rotating quarters throughout the permit term was added to the permit.

Acute WET- Acute WET testing was removed from the permit after an evaluation was done using the WET checklist.

Explanation of Limits and Monitoring Requirements

Categorical Limits

Total BOD5, Total Suspended Solids and pH- Categorical limits are included in the permit as outlined in ch. NR 210, Wis. Adm. Code. The effluent limitations for BOD5, Total Suspended Solids, and pH are carried over into this permit and are not subject to change at this time because the receiving water characteristics have not changed.

Water Quality Based Limits

Refer to the WQBEL memo for the detailed calculations, prepared by Nicole Kruger dated January 19, 2024 used for this reissuance.

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 fairness and consistency in permits issued across the state. Guidance and requirements in administrative code were considered when determining the appropriate monitoring frequencies for pollutants that have final effluent limits in effect during this permit term.

The department has determined at this time that an increase in monitoring frequency for phosphorus and ammonia is appropriate and correspond with other facilities of this size and recommendations provided in guidance.

Ammonia- Current acute and chronic ammonia toxicity criteria for the protection of aquatic life are included in Tables 2C and 4B of ch. NR 105, Wis. Adm. Code. Subchapter IV of ch. NR 106 establishes the procedure for calculating water quality based effluent limitations (WQBELs) for ammonia. Evaluation determined that there is no reasonable potential to exceed any calculated ammonia limits, however monitoring year-round is included for permit reissuance purposes.

Dissolved Oxygen- Categorical limits for Dissolved Oxygen in a Limited Aquatic Life (marginal surface waters) are found in NR 104.02(3)(b) and 210.05(3) Wis. Adm. Code.

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 an average monthly limit and 0.075 mg/L as a six-month average limit 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 February 6, 2017 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 is recommended pursuant to s. 283.16(6)(a), Wis. Stats., for a second permit under MDV approval.

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

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

Arsenic: The sample that was collected for the permit reissuance application had a limit of detection (LOD) of 40 µg/L which is greater than 1/5th of the most stringent calculated limit of 40 µg/L based on the human cancer criteria. Because

the LOD from the current permit application is greater than 1/5th of the most stringent calculated limit, reasonable potential can't be determined at this time. Monitoring once in 2027 was added to the reissued permit. The arsenic test shall be sensitive enough so that the LOD is below 8.0 µg/L and reasonable potential can be determined.

Total Nitrogen Monitoring (NO₂+NO₃, TKN and Total N): The Department has included effluent monitoring for Total Nitrogen in the permit through the authority under §§ 283.55(1)(e), Wis. Stats., which allows the department to require the permittee to submit information necessary to identify the type and quantity of any pollutants discharged from the point source, and through s. NR 200.065(1)(h), Wis. Adm. Code, which allows for this monitoring to be collected during the permit term. More information on the justification to include total nitrogen monitoring in wastewater permits can be found in the “Guidance for Total Nitrogen Monitoring in Wastewater Permits” dated October 1, 2019. Annual tests are scheduled in the following rotating quarters: **October – December 2024; January – March 2025; April – June 2026; July – September 2027; October – December 2028.**

Whole Effluent Toxicity: Whole effluent toxicity (WET) testing requirements and limits (if applicable) are determined in accordance with ss. NR 106.08 and NR 106.09 Wis. Adm. Code, as revised August 2016. (See the current version of the Whole Effluent Toxicity Program Guidance Document and checklist and WET information, guidance and test methods at <http://dnr.wi.gov/topic/wastewater/wet.html>). The two chronic WET tests shall be completed in the quarters listed in the permit.

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

3 Land Application - Monitoring and Limitations

Municipal Sludge Description						
Sample Point	Sludge Class (A or B)	Sludge Type (Liquid or Cake)	Pathogen Reduction Method	Vector Attraction Method	Reuse Option	Amount Reused/Disposed (Dry Tons/Year)
003	B	Liquid	N/A	N/A	Haul to another facility	2.09 dry 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? Unknown.						
Is a priority pollutant scan required? No.						

Sample Point Number: 003- Hauled 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	
PFOA + PFOS		ug/kg	Annual	Calculated	Report the sum of PFOA and PFOS. See PFAS Permit Sections for more information.

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

Changes highlighted in the table above.

PFAS – Annual monitoring is included in the permit pursuant s. NR 204.06(2)(b)9, Wis. Adm. Code.

Explanation of Limits and Monitoring Requirements

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

PFAS- The presence and fate of PFAS in municipal and industrial sludges is an emerging public health concern. EPA is currently developing a risk assessment to determine future land application rates and expects to release this risk assessment by the end of 2024. In the interim, the department has developed the “Interim Strategy for Land Application of Biosolids and Industrial Sludges Containing PFAS.”

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

4 Schedules

4.1.1 Phosphorus Payment per Pound to County

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

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

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.	03/01/2026
Annual Verification of Payment #3: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2027
Annual Verification of Payment #4: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2028
Annual Verification of Payment #5: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2029
Continued Coverage: If the permittee intends to seek a renewed variance, an application for the MDV (Multi Discharger Variance) shall be submitted as part of the application for permit reissuance in accordance with s. 283.16(4)(b), Wis. Stats.	
Annual Verification of Payment After Permit Expiration: In the event that this permit is not reissued prior to the expiration date, the permittee shall continue to submit Form 3200-151 to the Department indicating total amount remitted to the participating counties by March 1 each year.	

4.2 Phosphorus Schedule - Continued Optimization

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

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

Explanation of Schedules

County Payment

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

Continued Optimization

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

Special Reporting Requirements

None.

Other Comments:

None.

Attachments:

- Water Quality-Based Effluent Limitations Memo dated January 19, 2024 and prepared by Nicole Krueger
- Multi-Discharger Variance Application, dated September 20, 2023
- Multi-Discharger Variance Evaluation Checklist, dated March 1, 2024
- Multi-Discharger Variance Conditional Approval, dated March 1, 2024

Expiration Date:

June 30, 2029

Justification Of Any Waivers From Permit Application Requirements

No waivers were requested or granted from permit application requirements.

Prepared By: Melanie Burns, Wastewater Specialist

Date: March 26, 2024

Date Post Fact Check: April 12, 2024 (No changes)

Date Post Public Notice:

CORRESPONDENCE/MEMORANDUM

DATE: 01/19/2024

TO: Melanie Burns – SER

FROM: Nicole Krueger – SER *Nicole Krueger*

SUBJECT: Water Quality-Based Effluent Limitations for Fonks Home Center, Inc. – Hickory Haven
WPDES Permit No. WI-0030660-10

This is in response to your request for an evaluation of the need for water quality-based effluent limitations (WQBELs) using chapters NR 102, 104, 105, 106, 207, 210, 212, and 217 of the Wisconsin Administrative Code (where applicable), for the discharge from Fonks Home Center in Racine County. This municipal wastewater treatment facility (WWTF) discharges to the Unnamed Tributary to the Des Plaines River, located in the Des Plaines River Watershed in the Des Plaines River Basin. The evaluation of the permit recommendations is discussed in more detail in the attached report.

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

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Flow Rate						1
BOD ₅			30 mg/L	20 mg/L		2
TSS			30 mg/L	20 mg/L		2
pH	9.0 s.u.	6.0 s.u.				2
Dissolved Oxygen		4.0 mg/L				2
Ammonia Nitrogen						1,2
Phosphorus LCA Interim Limit HAC Interim Limit Final WQBEL				0.73 mg/L 0.6 mg/L 0.225 mg/L	0.075 mg/L 0.019 lbs/day	3
Arsenic						4
TKN, Nitrate+Nitrite, and Total Nitrogen						5
Chronic WET						6,7

Footnotes:

1. Monitoring only.
2. No changes from the current permit.
3. Under the phosphorus MDV, a level currently achievable (LCA) interim limit of 0.73 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.
4. Monitoring once for arsenic once with an LOD 8.0 µg/L or lower.
5. As recommended in the Department's October 1, 2019 Guidance for Total Nitrogen Monitoring in Wastewater Permits, annual total nitrogen monitoring is recommended for all minor municipal permittees. Total Nitrogen is the sum of nitrate (NO₃), nitrite (NO₂), and total kjeldahl nitrogen (TKN) (all expressed as N).

6. Chronic testing is recommended 2/permit term. The Instream Waste Concentration (IWC) to assess chronic test results is 100% to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), chronic testing shall be performed using a dilution series of 100%, 75%, 50%, 25% & 12.5% and the dilution water used in WET tests conducted on Outfall 001 shall be a grab sample collected from the unnamed tributary.
7. Sampling WET concurrently with any chemical-specific toxic substances is recommended. Tests should be done in rotating quarters, to collect seasonal information about this discharge and should continue after the permit expiration date (until the permit is reissued).

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

Attachments (2) – Narrative & Map

PREPARED BY: Nicole Krueger, Water Resources Engineer – SER

E-cc: Jacob Wedesky, Wastewater Engineer – SER
Bryan Hartsook, Regional Wastewater Supervisor – SER
Diane Figiel, Water Resources Engineer – WY/3
Nate Willis, Wastewater Engineer – WY/3

Attachment #1
**Water Quality-Based Effluent Limitations for
 Fonks Home Center, Inc. – Hickory Haven**

WPDES Permit No. WI-0030660-10

Prepared by: Nicole Krueger

PART 1 – BACKGROUND INFORMATION

Facility Description

Fonks Hickory Haven has a 0.031 MGD design flow wastewater treatment plant which serves a 125-site, single home community located near Union Grove in Racine County on Schoen Rd. Wastewater treatment includes grit removal, two aeration tanks, waste and return activated sludge piping, two anaerobic digesters, a final clarifier, and post aeration. Return activated sludge is pumped from the bottom of the clarifier back to the head of the aeration basins. Waste activated sludge is pumped four times per week to anaerobic digesters. Effluent is discharged to an unnamed tributary that is located about 1,500' east of the WWTF and digested sludge is hauled by a contracted hauler to a separate, permitted facility.

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

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

Existing Permit Limitations

The current permit, expiring on 03/31/2024, includes the following effluent limitations and monitoring requirements.

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Flow Rate						1
BOD ₅			30 mg/L	20 mg/L		2,3
TSS			30 mg/L	20 mg/L		2,3
pH	9.0 s.u.	6.0 s.u.				3
Dissolved Oxygen		4.0 mg/L				2,3
Ammonia Nitrogen						1
Phosphorus MDV Interim				0.73 mg/L		
Acute WET						4
Chronic WET						4

Footnotes:

1. Monitoring only.
2. These limits are based on the Limited Aquatic Life (LAL) community of the immediate receiving water as described in s. NR 104.02(3)(b), Wis. Adm. Code.

Attachment #1

3. These limitations are not being evaluated as part of this review. Because the water quality criteria (WQC), reference effluent flow rates, and receiving water characteristics have not changed, limitations for these water quality characteristics do not need to be re-evaluated at this time.
4. Acute and chronic WET testing is required 2/permit term. The IWC for chronic WET was 100%.

Receiving Water Information

- Name: Unnamed tributary to the Des Plaines River
- Waterbody Identification Code (WBIC): 740145
- Classification used in accordance with chs. NR 102 and 104, Wis. Adm. Code: The immediate receiving water is classified as Limited Aquatic Life (LAL) from the outfall to approximately 1 mile downstream to another unnamed tributary (WBIC 740140). Here, the classification changes to Limited Forage Fish (LFF) to confluence with the Des Plaines River (approximately 2.5 miles downstream of Outfall 001). Here, the classification changes to Warmwater Sport Fish (WWSF).
- Low flows used in accordance with chs. NR 106 and 217, Wis. Adm. Code: The following 7-Q₁₀ and 7-Q₂ values are estimates due to the noncontinuous nature of the stream, where Outfall 001 is located.
 - 7-Q₁₀ = 0 cfs (cubic feet per second)
 - 7-Q₂ = 0 cfs
 - Des Plaines River (2.5 miles downstream)
 - 7-Q₁₀ = 0.05 cfs
 - 7-Q₂ = 0.14 cfs
- Hardness = 225 mg/L as CaCO₃. Effluent hardness is used in place of receiving water because there is no receiving water flow upstream of the discharge.
- % of low flow used to calculate limits in accordance with s. NR 106.06(4)(c)5., Wis. Adm. Code: Not applicable where the receiving water low flows are zero.
- Source of background concentration data: Background concentrations are not included because they don't impact the calculated WQBEL when the receiving water low flows are equal to zero.
- Multiple dischargers: None.
- Impaired water status: The Des Plaines River 2.5 downstream of Outfall 001 is 303(d) impaired for total phosphorus.

Effluent Information

- Design flow rate(s):
 - Annual average = 0.031 MGD (Million Gallons per Day)
 - For reference, the actual average flow from 04/01/2019 – 10/31/2023 was 0.020 MGD.
- Hardness = 225 mg/L as CaCO₃. This value represents the geometric mean of data from 07/31/2023 – 08/10/2023 from the permit reissuance application.
- Acute dilution factor used in accordance with s. NR 106.06(3)(c), Wis. Adm. Code: Not applicable – this facility does not have an approved Zone of Initial Dilution (ZID).
- Water source: Domestic wastewater with water supply from wells
- Additives: Polyaluminum hydrochloride (PAC) is added for 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 ammonia, chloride, hardness and phosphorus.
- Effluent data for substances for which a single sample was analyzed is shown in the tables in Part 2 below, in the column titled “MEAN EFFL. CONC.”. Otherwise, substances with multiple effluent data are shown in the tables below or in their respective parts in this evaluation.

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Effluent Chloride Data

Sample Date	Chloride mg/L	Sample Date	Chloride mg/L	Sample Date	Chloride mg/L
05/18/2011	50	07/18/2018	51.0	07/31/2023	77.5
05/21/2011	47	07/23/2018	39.2	08/03/2023	87.7
05/24/2011	46	07/30/2018	44.7	08/07/2023	81.4
05/27/2011	43	08/01/2018	46.2	08/10/2023	91.1
1-day P ₉₉ = 118					
4-day P ₉₉ = 85.0					

Effluent Copper Data

Sample Date	Copper µg/L	Sample Date	Copper µg/L	Sample Date	Copper µg/L
07/31/2023	<4	08/14/2023	5	08/28/2023	3
08/03/2023	<4	08/17/2023	<4	08/31/2023	2
08/07/2023	<4	08/21/2023	<4	09/04/2023	2
08/10/2023	4	08/24/2023	2		
Average = 1.6 µg/L					

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

The following table presents the average concentrations and loadings at Outfall 001 from 04/01/2019 – 10/31/2023 for all parameters with limits in the current permit to meet the requirements of s. NR 201.03(6), Wis. Adm. Code:

Parameter Averages with Limits

	Average Measurement
BOD ₅	4.2 mg/L*
TSS	3.6 mg/L*
pH field	7.5 s.u.
Phosphorus	0.32 mg/L
Dissolved oxygen	9.8 mg/L

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

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

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

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

Acute Limits based on 1-Q₁₀

Daily maximum effluent limitations for toxic substances are based on the acute toxicity criteria (ATC), listed in ch. NR 105, Wis. Adm. Code. Previously daily maximum limits for toxic substances were

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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 the case for Fonks.

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 cfs

SUBSTANCE	REF. HARD.* mg/L	ATC	MEAN BACK-GRD.	MAX. EFFL. LIMIT**	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	1-day P ₉₉	1-day MAX. CONC.
Arsenic		340		340	68.0	<40		
Cadmium	225	73.2		73.2	14.6	<40		
Chromium	225	3503		3503	701	<6		
Copper	225	33.4		33.4	6.7	1.6		
Lead	225	234		234	46.8	27.2		
Nickel	225	932		932	186	<6		
Zinc	225	245		245	48.9	<60		
Chloride (mg/L)		757		757			118	91.1

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

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

Weekly Average Limits based on Chronic Toxicity Criteria (CTC)

RECEIVING WATER FLOW = 0 cfs

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		152	30.4	<40	
Cadmium	175	3.82		3.82	0.76	<40	
Chromium	225	257		257	51.3	<6	
Copper	225	20.7		20.7	4.14	1.6	
Lead	225	61.3		61.3	12.3	27.2	
Nickel	225	146		146	29.2	<6	
Zinc	225	245		245	48.9	<60	
Chloride (mg/L)		395		395			85.0

* 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 cfs

SUBSTANCE	HTC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.
Cadmium	880		880	176	<40
Chromium (+3)	8400000		8400000	1680000	<6
Lead	2240		2240	448	27.2
Nickel	110000		110000	22000	<6

Monthly Average Limits based on Human Cancer Criteria (HCC)

RECEIVING WATER FLOW = 0 cfs

SUBSTANCE	HCC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.
Arsenic	40		40	8.0	<40

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

Conclusions and Recommendations

Based on a comparison of the effluent data and calculated effluent limitations, effluent limitations are required for lead.

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Lead – The single sample result from the permit application was 27.2 µg/L which is greater than 1/5th of the calculated limit based on CTC. Lead results from the previous two permit reissuance applications were considered in this evaluation, with all results summarized below:

Sample Date	Lead µg/L
06/08/2011	0.19
07/18/2018	<10
07/31/2023	27.2
Average	9.1

Based on all available lead samples, the average is less than 1/5th of all calculated limits. **Therefore, no limits or monitoring is recommended in the reissued permit.**

Arsenic – The sample that was collected for the permit reissuance application had a limit of detection (LOD) of 40 µg/L which is greater than 1/5th of the most stringent calculated limit of 40 µg/L based on the human cancer criteria. Because the LOD from the current permit application is greater than 1/5th of the most stringent calculated limit, reasonable potential can't be determined at this time. **Monitoring once is recommended in the reissued permit. The arsenic test shall be sensitive enough so that the LOD is below 8.0 µg/L and reasonable potential can be determined.**

Mercury – The permit application did not require monitoring for mercury because Fonks Home 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 07/26/2021 – 01/11/2023 was 0.09 mg/kg, with a maximum reported concentration of 0.21 mg/kg. Therefore, no mercury monitoring is recommended at Outfall 001.

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

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

The State of Wisconsin promulgated revised water quality standards for ammonia nitrogen in ch. NR 105, Wis. Adm. Code, effective March 1, 2004 which includes criteria based on both acute and chronic toxicity to aquatic life. Given the fact that Fonks Home does not currently have ammonia nitrogen limits, the need for limits is evaluated at this time.

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 = 0.633 and B = 90.0 for Limited Aquatic Life, and
 pH (s.u.) = that characteristic of the effluent.

The effluent pH data was examined as part of this evaluation. A total of 1196 sample results were reported from 04/02/2019 – 10/31/2023. The maximum reported value was 8.7 s.u. (Standard pH Units). The effluent pH was 8.1 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 8.3 s.u. The mean plus the standard deviation multiplied by a factor of 2.33, an estimate of the upper ninety ninth percentile for a normally distributed dataset, is 8.3 s.u. Therefore, a value of 8.1 s.u. is believed to represent the maximum reasonably expected pH, and therefore most appropriate for determining daily maximum limitations for ammonia nitrogen. Substituting a value of 8.1 s.u. into the equation above yields an ATC = 10.7 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 the 1-Q₁₀ receiving water low flow if it is determined that the previous method of acute ammonia limit calculation (2×ATC) is not sufficiently protective of the fish and aquatic life. The more restrictive calculated limits shall apply.

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

Daily Maximum Ammonia Nitrogen Determination

	Ammonia Nitrogen Limit mg/L
2×ATC	21.4
1-Q ₁₀	10.7

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

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

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

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

Immediate Receiving water – unnamed tributary (LAL classification)

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

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

Where:

- pH = the pH (s.u.) of the receiving water,
- E = 1.0,
- C = $8.09 \times 10^{(0.028 \times (25 - T))}$
- T = the temperature of the receiving (°C)

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

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

Weekly and Monthly Ammonia Nitrogen Limits – LAL

		Spring	Summer	Winter
		April & May	June – Sept.	Oct. - March
Effluent Flow	Qe (MGD)	0.031	0.031	0.031
Background Information	7-Q ₁₀ (cfs)	0	0	0
	7-Q ₂ (cfs)	0	0	0
	Ammonia (mg/L)	0.04	0.05	0.105
	Average Temperature (°C)	12	19	4
	Maximum Temperature (°C)	14	21	10
	pH (s.u.)	8.06	8.08	7.99
	% of Flow used	50	100	25
	Reference Weekly Flow (cfs)	0	0	0
	Reference Monthly Flow (cfs)	0	0	0
Criteria mg/L	4-day Chronic	37	24	54
	30-day Chronic	15	10	22
Effluent Limits mg/L	Weekly Average	37	24	54
	Monthly Average	15	10	22

1 mile downstream from Outfall 001 – unnamed tributary (LFF classification)

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

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

Where:

- pH = the pH (s.u.) of the receiving water,
- E = 1.0,

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C = the minimum of 3.09 or $3.73 \times 10^{(0.028 \times (25 - T))}$ – (Early Life Stages Present), or
 C = $3.73 \times 10^{(0.028 \times (25 - T))}$ – (Early Life Stages Absent), and
 T = the temperature (°C) of the receiving water – (Early Life Stages Present), or
 T = the maximum of the actual temperature (°C) and 7 - (Early Life Stages Absent)

Weekly and Monthly Ammonia Nitrogen Limits – LFF

		Spring	Summer	Winter
		May	June – Sept.	Oct. - April
Effluent Flow	Qe (MGD)	0.031	0.031	0.031
Background Information	7-Q ₁₀ (cfs)	0	0	0
	7-Q ₂ (cfs)	0	0	0
	Ammonia (mg/L)	0.04	0.05	0.105
	Average Temperature (°C)	12	19	4
	Maximum Temperature (°C)	14	21	10
	pH (s.u.)	8.06	8.08	7.99
	% of Flow used	50	100	25
	Reference Weekly Flow (cfs)	0	0	0
	Reference Monthly Flow (cfs)	0	0	0
Criteria mg/L	4-day Chronic			
	Early Life Stages Present	7.1	6.9	
	Early Life Stages Absent			25
	30-day Chronic			
	Early Life Stages Present	2.8	2.7	
Early Life Stages Absent			10	
Effluent Limitations mg/L	Weekly Average			
	Early Life Stages Present	7.1	6.9	
	Early Life Stages Absent			25
	Monthly Average			
	Early Life Stages Present	2.8	2.7	
Early Life Stages Absent			10	

2.5 miles downstream – Des Plaines River (WWSF)

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

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

Where:

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

E = 0.854,

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

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

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

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

The 4-day criterion is equal to the 30-day criterion multiplied by 2.5. The 4-day criteria are used in a mass-balance equation with the 7-Q₁₀ (4-Q₃, if available) to derive weekly average limitations. And the 30-day criteria are used with the 30-Q₅ (estimated as 85% of the 7-Q₂ if the 30-Q₅ is not available) to

derive monthly average limitations. The stream flow value is further adjusted to temperature; 100% of the flow is used if the Temperature ≥ 16 °C, 25% of the flow is used if the Temperature < 11 °C, and 50% of the flow is used if the Temperature ≥ 11 °C but < 16 °C.

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

Weekly and Monthly Ammonia Nitrogen Limits – WWSF

		Spring	Summer	Winter
		April & May	June – Sept.	Oct. - March
Effluent Flow	Qe (MGD)	0.031	0.031	0.031
Background Information	7-Q ₁₀ (cfs)	0.05	0.05	0.05
	7-Q ₂ (cfs)	0.14	0.14	0.14
	Ammonia (mg/L)	0.04	0.05	0.105
	Average Temperature (°C)	12	19	4
	Maximum Temperature (°C)	14	21	10
	pH (s.u.)	8.06	8.08	7.99
	% of Flow used	50	100	25
	Reference Weekly Flow (cfs)	0.025	0.050	0.013
	Reference Monthly Flow (cfs)	0.060	0.119	0.030
Criteria mg/L	4-day Chronic			
	Early Life Stages Present	5.6	3.7	
	Early Life Stages Absent			8.3
	30-day Chronic			
	Early Life Stages Present	2.2	1.5	
Early Life Stages Absent			3.3	
Effluent Limitations mg/L	Weekly Average			
	Early Life Stages Present	8.5	7.4	
	Early Life Stages Absent			10
	Monthly Average			
	Early Life Stages Present	4.9	5.0	
Early Life Stages Absent			5.3	

Ammonia Decay

The Department must establish limits to protect downstream uses, according to s. NR 106.32(1)(b), Wis. Adm. Code. Ammonia decay may be considered when determining limits at the outfall to protect the downstream classification, according to s. NR 106.32(4)(c), Wis. Adm. Code. Where the calculated limits are more restrictive based on downstream uses, ammonia decay can be considered to determine if these more restrictive limits are needed or if the ammonia will decay before it reaches the point of the classification change.

Ammonia decay rates are dependent on temperature with in-stream nitrification essentially non-existent in the winter. In-stream decay is expected so a first order decay model should be used. Based on the

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available literature, a decay rate of 0.25 day⁻¹ at 20°C has been suggested as a default rate. A temperature correction factor of q = 1.08 is (k_t = k₂₀ q^(T-20)). The ammonia nitrogen decay equation is provided below.

$$N_{Limit} = \left(\frac{N_{down}}{EXP(-k_t T)} \right)$$

- Where: N_{Limit} = Ammonia limit needed to protect downstream use (mg/L)
- N_{down} = Ammonia limit calculated based on downstream classification and flow (mg/L)
- k_t = Ammonia decay rate at background stream temperature (day⁻¹)
- T = Travel time from outfall to downstream use (day)

The velocity of receiving water is assumed to be 5 miles per day and the distance from the point of discharge to the classification change is approximately 2.5 miles for a travel time of 0.5 days. This equation shows that at the location where the classification change, 89 – 97% of the ammonia is remaining during April. After decay, the limits are increased as shown in the following table.

Ammonia Nitrogen Decay Limits Comparison

Months Applicable	LAL		LFF		WWSF		After decay	
	Weekly Average mg/L	Monthly Average mg/L	Weekly Average mg/L	Monthly Average mg/L	Weekly Average mg/L	Monthly Average mg/L	Weekly Average mg/L	Monthly Average mg/L
April	35	14	25	10	8.5	4.9	9.2	5.4
May	35	14	7.1	2.8	8.5	4.9	9.2	5.4
June – Sept.	24	10	6.9	2.7	7.4	5.0	8.3	5.6
Oct. – March	45	18	25	10	10	5.3	11	5.5

Effluent Data

The following table evaluates the statistics based upon ammonia data reported from 10/28/2009 - 10/31/2023, with those results being compared to the calculated limits to determine the need to include ammonia limits in Fonks’ permit. That need is determined by calculating 99th upper percentile (or P₉₉) values for ammonia and comparing the daily maximum values to the daily maximum limit.

Effluent Ammonia Data

	Ammonia Nitrogen mg/L
1-day P ₉₉	6.86
4-day P ₉₉	3.91
30-day P ₉₉	1.64
Mean*	0.64
Std	1.99
Sample size	57
Range	<0.3 – 10.4

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

Based on this comparison, there is no reasonable potential for the discharge to exceed any of the calculated ammonia nitrogen limits. **No limits are needed, however monitoring is recommended.**

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PART 4 – PHOSPHORUS

Technology-Based Effluent Limit

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

Because Fonks Home currently has a limit of 0.73 mg/L, this limit should be included in the reissued permit. This limit remains applicable unless a more stringent WQBEL is given. 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.

Phosphorus criteria in s. NR 102.06, Wis. Adm. Code, do not apply to limited aquatic life waters as described in s. NR 102.06(6)(d), Wis. Adm. Code. These waters were not included in the USGS/WDNR stream and river studies and, therefore, the Department lacked the technical basis to determine and propose applicable criteria. At some time in the future, the Department may adopt phosphorus criteria based on new studies focusing on limited aquatic life waters. The Guidance for Implementing Wisconsin’s Phosphorus Water Quality Standards for Point Source Discharges (2020) suggests that during the interim, WQBELs should be based on the criteria and flow conditions for the next stream segment downstream (or downstream lake or reservoir, if appropriate), because ss. 217.12 and 217.13, Wis. Adm. Code, state that the Department must set WQBELs to protect downstream waters. The discharge location of the wastewater from Fonks is classified as limited aquatic life downstream from the point of discharge downstream to the unnamed tributary one mile downstream of Outflal 001. The unnamed tributary is classified for LFF.

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 unnamed tributary.

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.

$$\text{Limitation} = [(WQC)(Qs + (1-f) Qe) - (Qs - f Qe) (Cs)] / Qe$$

Where:

WQC = 0.075 mg/L for the unnamed tributary

Qs = 100% of the 7-Q₂ of 0 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 = 0.031 MGD = 0.048 cfs

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

The effluent limit is set equal to criteria because the receiving water flow is equal to zero.

Effluent Data

The following table summarizes effluent total phosphorus monitoring data from 04/02/2019 – 10/31/2023.

Total Phosphorus Effluent Data

	Phosphorus mg/L
1-day P ₉₉	1.47
4-day P ₉₉	0.81
30-day P ₉₉	0.47
Mean	0.32
Std	0.30
Sample size	477
Range	0.06 – 2.55

Reasonable Potential Determination

The calculated WQBEL of 0.075 mg/L is less than the current interim limit of 0.73 mg/L, so the WQBEL must be included in the permit per s. NR 217.15(2), Wis. Adm. Code.

In accordance with s. NR 217.15(1), Wis. Adm. Code, there is reasonable potential for the discharge to cause or contribute to an exceedance of the water quality criteria. The data suggest that a compliance schedule will be necessary for the facility to meet the given phosphorus limits.

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

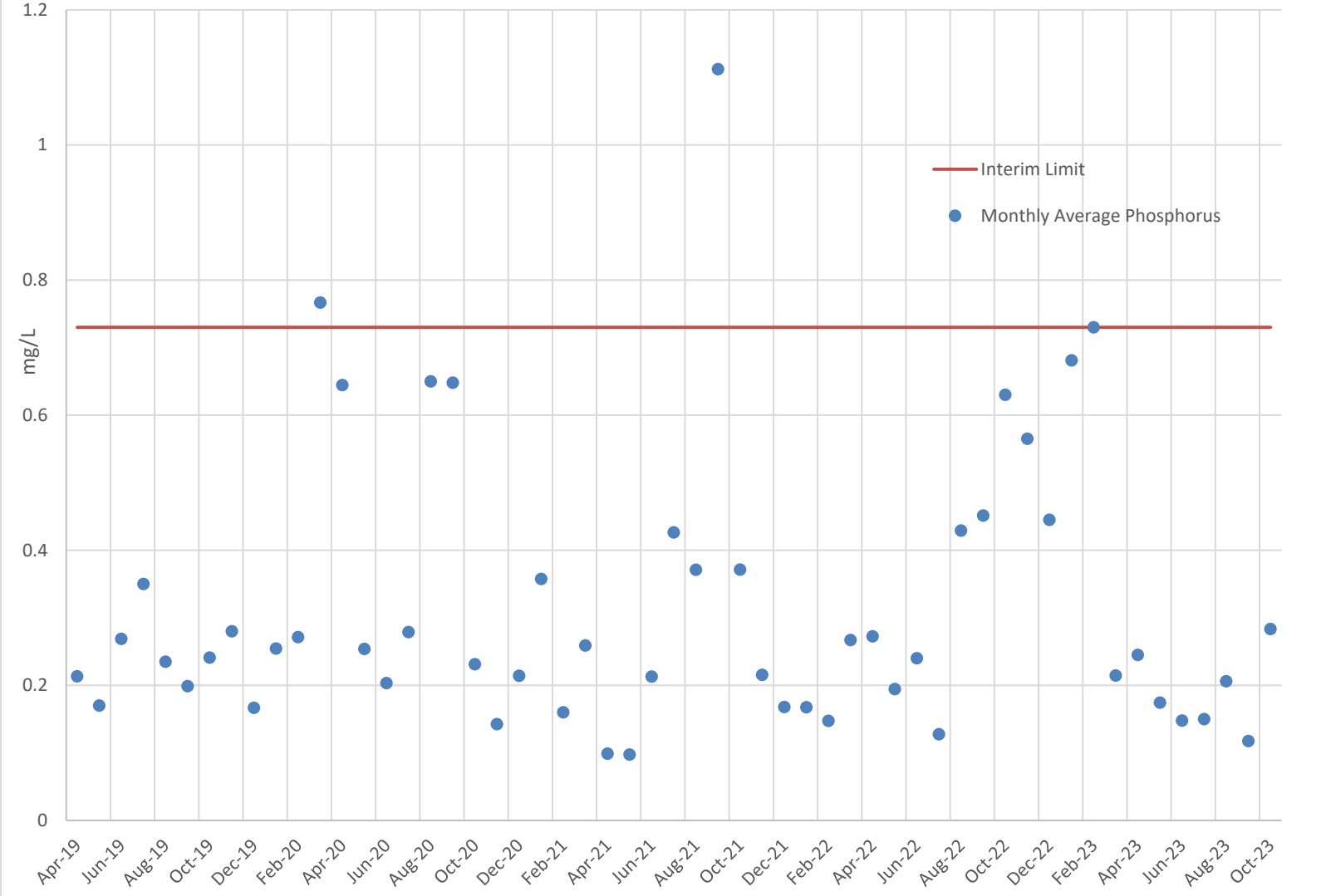
A mass limit is also required, pursuant to s. NR 217.14(1)(a), Wis. Adm. Code, because the discharge is to a surface water that is to or upstream of a phosphorus impaired water. **This final mass limit shall be 0.075 mg/L × 8.34 × 0.031 MGD = 0.019 lbs/day expressed as a six-month average.**

Multi-Discharge Variance Interim Limit

With the permit application, Fonks Home 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 previous interim limit of 0.73 mg/L should not be exceeded during the compliance schedule.

Below, is a graph of effluent phosphorus data for informational purposes.

Monthly Average Effluent Phosphorus Data



PART 5 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR THERMAL

Surface water quality standards for temperature took effect on October 1, 2010. These regulations are detailed in Chapters NR 102 (Subchapter II – Water Quality Standards for Temperature) and NR 106 (Subchapter V – Effluent Limitations for Temperature) of the Wisconsin Administrative Code. The daily maximum effluent temperature limitation shall be 86 °F for discharges to surface waters classified as Limited Aquatic Life according to s. NR 104.02(3)(b)1, Wis. Adm. Code, except for those classified as wastewater effluent channels and wetlands regulated under ch. NR 103 and described in s. NR 106.55(2), Wis. Adm. Code, which has a daily maximum effluent temperature limitation of 120 °F. The 86 °F limit applies because the hydrologic classification is listed as wetland in ch. NR 104, Wis. Adm. Code.

Reasonable Potential

Based on the available discharge temperature data from 03/07/2011 – 04/30/2014 shown below, the maximum daily effluent temperature reported was 69 °F; therefore, no reasonable potential for exceeding the daily maximum limit exists, and **no limits or monitoring are recommended.**

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	49	50	-	86
FEB	47	47	-	86
MAR	54	55	-	86
APR	55	56	-	86
MAY	61	65	-	86
JUN	68	69	-	86
JUL	72	73	-	86
AUG	72	74	-	86
SEP	71	72	-	86
OCT	65	66	-	86
NOV	58	58	-	86
DEC	54	55	-	86

PART 6 – WHOLE EFFLUENT TOXICITY (WET)

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

- 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).

Attachment #1

The IWC of **100%** 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 = 0.031 MGD = 0.048 cfs
- f = fraction of the Q_e withdrawn from the receiving water = 0
- Q_s = ¼ of the 7-Q₁₀ = 0 cfs ÷ 4 = 0 cfs

- According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), a synthetic (standard) laboratory water may be used as the dilution water and primary control in acute WET tests, unless the use of different dilution water is approved by the Department prior to use. The primary control water must be specified in the WPDES permit.
- According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), receiving water must be used as the dilution water and primary control in chronic WET tests, unless the use of different dilution water is approved by the Department prior to use. The dilution water used in WET tests conducted on Outfall 001 shall be a grab sample collected from the receiving water location, upstream and out of the influence of the mixing zone and any other known discharge. The specific receiving water location must be specified in the WPDES permit.
- Shown below is a tabulation of all available WET data for Outfall 001. Efforts are made to ensure that decisions about WET monitoring and limits are made based on representative data, as specified in s. NR 106.08(3), Wis. Adm Code. Data which is not believed to be representative of the discharge was not included in reasonable potential calculations. The table below differentiates between tests used and not used when making WET determinations.

WET Data History

Date Test Initiated	Chronic Results IC ₂₅ %			
	<i>C. dubia</i>	Fathead Minnow	Pass or Fail?	Use in RP?
10/16/2018	>100	>100	Pass	Yes

- According to s. NR 106.08, Wis. Adm. Code, WET reasonable potential is determined by multiplying the highest toxicity value that has been measured in the effluent by a safety factor, to predict the likelihood (95% probability) of toxicity occurring in the effluent above the applicable WET limit. The safety factor used in the equation changes based on the number of toxicity detects in the dataset. The fewer detects present, the higher the safety factor, because there is more uncertainty surrounding the predicted value. **WET limits must be given, according to s. NR 106.08(6), Wis. Adm. Code, whenever the applicable Reasonable Potential equation results in a value greater than 1.0.**

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

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

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

Attachment #1

Therefore, no reasonable potential is shown for chronic WET limits using the procedures in s. NR 106.08(6) and representative data from 10/16/2018.

Expression of WET limits

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>.

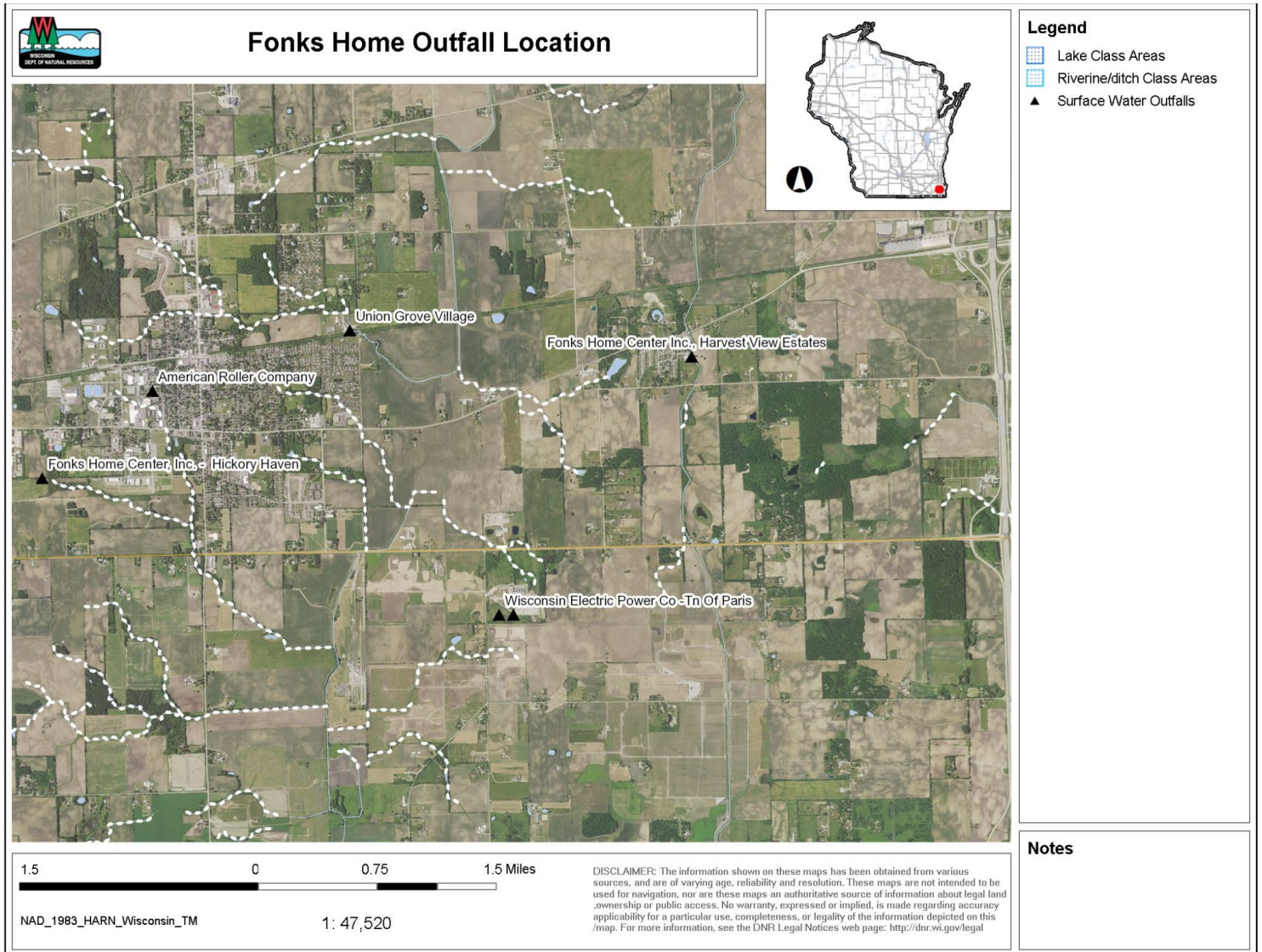
WET Checklist Summary

	Acute	Chronic
AMZ/IWC	Not Applicable. 0 Points	IWC = 100%. 15 Points
Historical Data	0 tests used to calculate RP. 5 Points	1 test used to calculate RP. No tests failed. 0 Points
Effluent Variability	Little variability, no violations or upsets, consistent WWTF operations. 0 Points	Same as Acute. 0 Points
Receiving Water Classification	Variance water with less than 4 miles to a warmwater spor fish community. 5 Points	Same as Acute. 5 Points
Chemical-Specific Data	Reasonable potential for limits for no substances based on ATC; Ammonia, copper, lead, and chloride detected. Additional Compounds of Concern: None. 3 Points	Reasonable potential for limits for no substances based on ATC; Ammonia, copper, lead, and chloride detected. Additional Compounds of Concern: None. 3 Points
Additives	0 Biocides and 1 Water Quality Conditioners added. Permittee has proper P chemical SOPs in place: Yes 1 Point	All additives used more than once per 4 days. 1 Point
Discharge Category	0 Industrial Contributors. 0 Points	Same as Acute. 0 Points
Wastewater Treatment	Secondary or better. 0 Points	Same as Acute. 0 Points

Attachment #1

	Acute	Chronic
Downstream Impacts	No impacts known 0 Points	Same as Acute. 0 Points
Total Checklist Points:	14 Points	24 Points
Recommended Monitoring Frequency (from Checklist):	No testing required	2/permit term
Limit Required?	No	No
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, 2/permit term chronic WET tests are recommended in the reissued permit. Tests should be done in rotating quarters to collect seasonal information about this discharge. WET testing should continue after the permit expiration date (until the permit is reissued).



Mail Complete Application to:

Wisconsin Department of Natural Resources
 Permits Section-WQ/3
 PO Box 7921
 Madison, WI 53707-7921

**Phosphorus Multi-Discharger
 Variance Application for Municipal
 Facilities - s. 283.16, Wis. Stats.**

Form 3200-150 (R 03/17)

Notice: Pursuant to s. 283.16, Wis. Stats, an owner of an existing permitted wastewater treatment system may apply for a variance to a phosphorus water quality based effluent limits (WQBEL). Complete this form and submit to the Department of Natural Resources (DNR) to request coverage under the multi-discharger variance (MDV) for phosphorus. Personal information collected will be used for administrative purposes and may be provided to requestors to the extent required by Wisconsin's Open Records law [ss. 19.31-19.39, Wis. Stats.]

Facility and Permit Information				Facility Contact Information			
WPDES Permit No. WI- 0 0 3 0 6 6 0				Contact Name Randy Fonk			
Facility Name Fonk's Home Center-Hickory Haven				Title Richard & Janice Fonk			
Facility Street Address 4915 Schoen Road				Address 15941 Durand Ave			
City Union Grove		State WI	ZIP Code 53182	City Union Grove		State WI	ZIP Code 53182
Receiving Water Unnamed		County Racine		Phone No. (incl. area code) (262) 878-1350		Fax Number (262) 878-1806	
Source of Water Supply private wells		Average Discharge Flow Rate 0.0205		Email Address randy@fonkshomecenter.com			

Variance Request Schedule **Check all that apply:**

- This variance is being requested at the time of application for permit reissuance pursuant to s. 283.16(4)(b)1, Wis. Stat.
 - This variance is being requested within 60 days after the department reissues or modifies the permit to include a phosphorus WQBEL pursuant to s. 283.16(4)(b)2, Wis. Stat.
 - This variance is being requested from a current WPDES Permit pursuant to 283.16(4)(b)3, Wis. Stat.
- Date of Current Permit Issuance: 03/28/2019

Note: WPDES permit must be issued prior to April 2014.

- Has the MDV been included in previously issued WPDES Permits?
 Yes
 How many permits has the MDV been approved for? 1
 No

Variance Requirements

- Has this point source discharge been authorized by a WPDES permit prior to December 1, 2010? Yes
Note: If no, you are ineligible for the MDV in accordance with s. 283.16(4), Wis. Stat. STOP No
- Has this point source relocated its outfall location since December 1, 2010? Yes
 No
- Is the point source located in an eligible MDV county as specified in Appendix H of the MDV Implementation Guidance? Yes
Note: If no, you are ineligible for the MDV in accordance with s. 283.16(4), Wis. Stat. No

8. Does this limit require a major facility upgrade in order to achieve compliance? Yes
 No

Justify:

A major facility upgrade would be required to achieve compliance. Other alternatives have been evaluated, and no evidence demonstrated that compliance could be achieved without a major facility upgrade.

Note: If no, you are ineligible for the MDV in accordance with s. 283.16(4), Wis. Stat. STOP. A major facility upgrade means that a facility needs to install new equipment and a new process such as installing filtration or equivalent technology.

9. Phosphorus Water Quality-Based Effluent Limitation from which variance is sought:
 Concentration-based WQBEL pursuant to s. NR 217.13, Wis. Adm. Code
 TMDL mass-based WQBEL pursuant to s. NR 217.16, Wis. Adm. Code

Check all months for which variance is requested:

All months

- | | | | |
|---|---|---|---|
| <input checked="" type="checkbox"/> Jan | <input checked="" type="checkbox"/> Apr | <input checked="" type="checkbox"/> Jul | <input checked="" type="checkbox"/> Oct |
| <input checked="" type="checkbox"/> Feb | <input checked="" type="checkbox"/> May | <input checked="" type="checkbox"/> Aug | <input checked="" type="checkbox"/> Nov |
| <input checked="" type="checkbox"/> Mar | <input checked="" type="checkbox"/> Jun | <input checked="" type="checkbox"/> Sep | <input checked="" type="checkbox"/> Dec |

10. Do you believe these limits could be achieved during the term of the permit? Yes
 No

11. Current effluent quality

Note: Use 30-day P99 if 11 or more representative effluent samples are present. Only include effluent data for those outfall(s) a variance is being requested for.

Outfall Number(s)	Conc. (mg/L)	Number of Samples Results Used	Sample Time Period Used
1	1.44	~ 465	Jan, 2020 July, 2023

12. Are applicable phosphorus limits currently effective in the WPDES permit more restrictive than 1 mg/L? Yes
 No

Facility Information (provide attachments as necessary)

13. What are the average phosphorus levels within your influent TP concentration? 4.04 mg/L

14. Has the treatment process at the facility been optimized to maximize its phosphorus removal capabilities?

Yes

Completion date: _____

No, but in process of completing

No, not yet started

15. Has a facility planning or evaluation study for phosphorus been approved by the Department?

Yes

Approval date: _____

No, but in process of completing

No, not yet started

16. Briefly describe the technology that would need to be added to comply with phosphorus limits in your permit:
For a built alternative, the implementation of a tertiary filtration system would be required.

Attach any new or additional information that you would like to provide the Department regarding optimization measures and/or compliance alternatives planning efforts.

Projected Compliance Costs

17. What is the projected net present value cost for complying with the phosphorus WQBELs? \$ 940,000

Source of cost projection:

The net present value cost was obtained from the Phosphorous Economic Impact Analysis, specifically capital and O&M costs. It was assumed that chemical precipitation and filtration would be the preferred technologies to be implemented. 2014 values were indexed to construction costs. Discussion of how this value was validated is presented in the Compliance Alternatives Status Report for the Fonk's Home Center-Hickory Haven wastewater

Note: If a facility uses projected compliances costs provided in the Economic Impacts Analysis, they 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.

18. Has the feasibility of water quality trading or adaptive management been evaluated for the facility? Yes
 No

19. Is the facility eligible for adaptive management or water quality trading? Yes
 No

20. What is the needed offset to comply with AM/WQT? _____ 172 lbs/year
 Unknown at this time

21. Is adaptive management or water quality trading a viable compliance option? Yes
 No

Describe:

Adaptive management would not be a viable option due to the small facility size. If land is available for purchase water quality trading may be a technically-viable option, although costs are expected to pose an obtrusive burden on users at current effluent levels. Additional details are included in the Compliance Alternative Status Report.

Service Area Information- Provide the following information for each municipality included in the wastewater facility service area.

Municipality Name	County	Population Served	Customer Households Served	Median Household Income (MHI)
Hickory Haven	Racine	375	125	\$49,900.00

Non-Residential Customers:

Percent of wastewater flow attributed to commercial industrial, large institutional and any other special customer category:

0 %

Describe types of non-domestic wastewater contributions that constitute a significant phosphorus contribution or that significantly affect the capabilities of the treatment facility. Examples include: large food processors, dairies, or industries with unique wastewater.

No non-domestic wastewater contributions discharge into the treatment facility.

Affordability to Municipal Dischargers

22. What is the projected household user charge, expressed as a percent of MHI, once phosphorus compliance costs are factored in?

2 %

Attach supporting information on a separate attachment to this form. The applicant may also provide additional information on impacts to commercial, industrial, or other special customers or any other information regarding affordability.

23. What is the secondary indicator score for the county (counties) in which the service area is located in?

5

*Note: See Appendix A of the MDV Implementation Guidance for details.
If the service area is located in multiple counties, provide the weighted average value.*

Watershed Project. Select one of the following watershed project options:

Option A. County payment contribution

Option B. Binding, written agreement with the DNR to construct a project or implement a watershed plan.

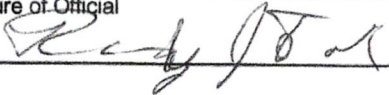
Submit Form 3200-148 with MDV application

Option C. Binding, written agreement with another entity that is approved by the DNR to construct a project or implement a watershed plan.

Submit Form 3200-148 with MDV application.

Certification

Based on the information provided, I believe that my permitted facility qualifies for coverage under the multi-discharger phosphorus variance based on the requirements of s. Wis. Stat. 283.16 (4), Wis. Stat. I understand that as a condition of the variance, the Department will impose interim limitations and require a watershed project or plan to be completed as part of the phosphorus reduction measures for phosphorus during the term of the variance in accordance with s. Wis. Stat. 283.16(6). I understand that these conditions will be included in the WPDES permit issued to this facility and I agree to comply with all applicable permit conditions for this variance. I hereby certify that the determination in Wis. Stat. 283.16(2)(a) applies to my permitted facility and that my permitted facility cannot otherwise comply with its phosphorus water quality based effluent limitations without a major facility upgrade. To the best of my knowledge, the information in this application is true, accurate, and complete.

Print or type name of person submitting request (Individual must be an Authorized Representative) <i>Randy J Fonk</i>	Title <i>Mgr</i>
Signature of Official 	Date Signed <i>9/20/23</i>

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

Fonk's Home Center - Hickory Haven

WPDES Permit Number WI- 0 0 3 0 6 6 0	County Racine
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1. Did the point source apply for the MDV at the appropriate time?	<input checked="" type="radio"/> Yes <input type="radio"/> No. <i>STOP- facility not eligible at this time.</i>	See Questions 1-3.
2. This operation is (check one):	<input type="radio"/> New or relocated outfall. <i>STOP- facility not eligible.</i> <input checked="" type="radio"/> Existing outfall	See Questions 5-6.
3. Is the point source is located in an MDV eligible area?	<input checked="" type="radio"/> Yes <input type="radio"/> No. <i>STOP- facility not eligible.</i>	<i>Apply County information to Appendix H. Additional information provided in Q7 on municipal form & Q7-8 on industrial form.</i>
4. The secondary indicator score for the county (counties) the discharge is located is:	_____ 5	<i>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.</i>
5. Is a major facility upgrade required to comply with phosphorus limits?	<input checked="" type="radio"/> Yes <input type="radio"/> No. <i>STOP- facility not eligible.</i>	See Q8 on municipal form/Q9 on industrial form.
6. List the months where phosphorus limits cannot be achieved during the permit term:	<input checked="" type="checkbox"/> All <input checked="" type="checkbox"/> Jan <input checked="" type="checkbox"/> Apr <input checked="" type="checkbox"/> Jul <input checked="" type="checkbox"/> Oct <input checked="" type="checkbox"/> Feb <input checked="" type="checkbox"/> May <input checked="" type="checkbox"/> Aug <input checked="" type="checkbox"/> Nov <input checked="" type="checkbox"/> Mar <input checked="" type="checkbox"/> Jun <input checked="" type="checkbox"/> Sep <input checked="" type="checkbox"/> Dec	<i>Consider checking with limit calculator. If this does not match information in application, the application should be updated prior to approval.</i>

7. What is the current effluent level achievable?

Outfall Number(s) 001	Conc. (mg/L) 0.45	Method for calculation: <input checked="" type="radio"/> 30-day P99 <input type="radio"/> Other, specify: _____	Does this concur with application? <input type="radio"/> Yes <input checked="" type="radio"/> No, why not: Application used limited / older data	<i>DNR staff should verify the effluent concentration value(s) provided. See Q11 on municipal form & Q12 on industrial form.</i>
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8. What is the appropriate interim limitation(s) for the permit term?
 0.5 mg/L as a monthly average, pursuant to s. 283.16(7), Wis. Stats.
 Target value = 0.2 mg/L

Provide Rationale:

Effluent total phosphorus data from the past three years (2/1/2021 - 1/31/2024, n= 312) yield a 30-day p99 value of 0.45 mg/L. A rounded value of 0.5 mg/L is consistent with highest attainable condition. Two months in 2022 exceeded this monthly average value, and a schedule may be warranted depending on the cause of reduced treatment. The WQBEL memo may recommend an interim limit that differs from that shown above.

Note: See description in Section 2.02 of the MDV implementation guidance. Interim limitations should reflect the "highest attainable condition" for the permittee in question pursuant to s. 283.16(7), Wis. Stat.

<p>9. <i>For Industries Only-</i> Where does the phosphorus in the effluent come from? (check all that apply)</p>	<p><input type="checkbox"/> Process <input type="checkbox"/> Additive Usage <input type="checkbox"/> Water supply</p> <p><i>Can intake credits be given or can the facility use an alternative water supply?</i></p> <p><input type="radio"/> Not feasible <input type="radio"/> Possibly, but further analysis needed <input type="radio"/> Not evaluated at this time</p>	<p><i>See Q14-15 & 19 on industrial form. If the answer is "possibly" or "not evaluated", the schedule section of the MDV permit should contain a requirement to perform this analysis.</i></p>
<p>10. Has this facility optimized?</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> In progress <input type="radio"/> No</p>	<p><i>See Q14 on municipal form & Q16 & 20 on industrial form. Facility must optimize and operate at an optimize treatment level (s. 283.16(6)(a), Wis. Stat.) If no will need compliance schedule.</i></p>
<p>11. Has a facility plan/compliance alternative plan been completed for the facility?</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> In progress <input type="radio"/> No</p>	<p><i>See Q15 on municipal form & Q17 on industrial form.</i></p>
<p>12. What is the projected cost for complying with phosphorus?</p> <p style="text-align: right;">Source:</p>	<p>\$ <u>1,004,000.00</u></p> <p>2019 Final Compliance Alternatives Plan</p>	<p><i>Facility must submit site-specific compliance costs. If cost projections are used from EIA, the permittee must certify that these costs are reasonable for the facility in question. See "projected compliance costs" in Section 2.02 of the MDV Implementation Guidance for details.</i></p>

Comments on planning efforts:

A March 2019 final compliance alternatives plan, prepared by Applied Technologies, Inc., evaluated alternatives for phosphorus compliance. Trading opportunities were evaluated and deemed too limited due to a small upstream drainage area. Adaptive management was ruled out due to the lack of capacity for the small facility to lead a watershed effort. The economic demonstration was based on costs associated with construction of tertiary filtration consistent with the 2015 economic impact analysis. During the prior permit term, the facility installed phosphorus treatment and optimized to fairly low phosphorus effluent concentrations, though tertiary filtration is still required to achieve the 0.075 mg/L total phosphorus WQBEL.

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

Comments on economic demonstration:

Capital costs in the 2019 FCAP were estimated at \$1,004,000 with O&M costs at \$41,500. Overall, these costs are lower and therefore more conservative than those presented in the 2015 economic impact assessment. Annual payments would amount to \$61,522 under a 20-year CWFP loan at a 2.1% interest rate. With O&M, annual costs would be \$103,022. The user based is 100% residential. Divided amongst 125 user households, per-user rate increases would be \$824.18 as an annual average. Current sewer rates are \$615, and projected future user rates would amount to \$1,439.18. This value is 1.55% of the Town of Dover's \$93,095 median household income. In Racine County with a secondary indicator score of 5, a 1% MHI sewer user rate meets 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

http://central/water/WQWT_PROJECTS\WY_CW_Phosphorus\MDV.

Section 6. Determination

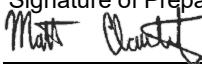
Based on the available information, the MDV application is:

- Approved
- Request for more information
- Denied

Save

Additional Justification (if needed):

Certification

Preparer Name		Title	
Matt Clacherty		Water Resources Management Specialist	
Signature of Preparer	<input type="button" value="Sign"/> <input type="button" value="Clear"/>	Date	
		3/1/2024	

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



3/1/2024

Randy Fonk
15941 Durand Ave.
Union Grove, WI 53182

Subject: Conditional approval of a multi-discharger phosphorus variance
Receiving Stream: East Branch Root River Canal in Racine County
Permittee: FONKS HOME CENTER, INC. - HICKORY HAVEN, WPDES WI-0030660

Dear Mr. Fonk:

In accordance with s. 283.16 of the Wisconsin Statutes, you have requested coverage under Wisconsin's multi-discharger phosphorus variance for Fonks Home Center – Hickory Haven in an application dated 9/20/2023. Wisconsin's multi-discharger phosphorus variance was approved by EPA on February 6, 2017. Coverage under the multi-discharger phosphorus variance may only be granted to an existing source that demonstrates a major facility upgrade is necessary to achieve phosphorus compliance and the upgrade will result in economic hardship as defined in the federally approved variance. The water quality criterion for which you are seeking a variance is contained in s. NR 102.06, Wis. Adm. Code.

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

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

Sincerely,

Matt Claucherty, MDV Point Source Coordinator
Bureau of Water Quality

e-cc:

Melanie Burns, WDNR
Jacob Van Susteren-Wedesky, WDNR
Tim Elkins, EPA Region 5
Micah Bennett, EPA Region 5