CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: August 16, 2024

TO: Holly Heldstab – WCR/Eau Claire

FROM: Benjamin Hartenbower – WCR/Eau Claire

SUBJECT: Water Quality-Based Effluent Limitations for the Blenker Sherry Sanitary District Wastewater Treatment Facility
WPDES Permit No. WI-0031950

This is in response to your request for an evaluation of the need for water quality-based effluent limitations (WQBELs) using chapters NR 102, 104, 105, 106, 207, 210, 212, and 217 of the Wisconsin Administrative Code (where applicable), for the discharge from the Blenker Sherry Sanitary District Wastewater Treatment Facility in Wood County. This municipal wastewater treatment facility (WWTF) discharges to Mill Creek, located in the Mill Creek Watershed in the Central Wisconsin River Basin. This discharge is included in the Wisconsin River TMDL as approved by EPA on April 26, 2019 with site-specific criteria approved by EPA on July 9, 2020. The evaluation of the permit recommendations is discussed in more detail in the attached report.

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

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Footnotes
BOD_5			45 mg/L	30 mg/L	1
TSS			45 mg/L	30 mg/L	1
pH	9.0 s.u.	6.0 s.u.			1
Ammonia Nitrogen	Variable		**59 mg/L**	**38 mg/L**	1,2,3
Bacteria Interim Limit Fecal Coliform Final Limit *E. Coli*				 400 #/100 mL geometric mean 126 #/100 mL geometric mean	4
Chloride					1,5
Phosphorus TMDL Limit				 0.176 lbs/day	6
TKN, Nitrate+Nitrite, and Total Nitrogen					7

Footnotes:

1. No changes from the current permit.
2. Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Codes, are included in bold.

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3. The variable daily maximum ammonia nitrogen limit table corresponding to effluent pH values. These limits apply year-round.

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

4. Bacteria limits apply during the disinfection season of May - September. The fecal coliform interim limit will apply until the end of the compliance schedule when E. coli limits take effect. Additional final limit: No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 count/100 mL.
5. Monitoring only.
6. The phosphorus mass limit is based on the Total Maximum Daily Load (TMDL) for the Wisconsin River Basin to address phosphorus water quality impairments within the TMDL area. The TMDL was approved by EPA on April 26, 2019 with site-specific criteria approved by EPA on July 9, 2020.
7. 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 (NO_3), nitrite (NO_2), and total kjeldahl nitrogen (TKN) (all expressed as N).

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

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

PREPARED BY: _____ Date: 08/16/2024

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Attachment #1

Water Quality-Based Effluent Limitations for
the Blenker Sherry Sanitary District Wastewater Treatment Facility
WPDES Permit No. WI-0031950

Prepared by: Benjamin P. Hartenbower

PART 1 – BACKGROUND INFORMATION

Facility Description:
The Blenker-Sherry Sanitary District (SD) Wastewater Treatment Facility treats domestic waste from the Towns of Blenker and Sherry. The annual average design flow of the facility is 0.028 million gallons per day (MGD. The treatment plant consists of a 30,000-gallon oxidation ditch with two aeration rotors and one secondary clarifier. Effluent passes through ultraviolet disinfection prior to discharge to Mill Creek. Sludge is stored on-site and then land applied on Department approved fields. Biological Phosphorus Removal was recently implemented to improve phosphorus treatment.

Attachment #3 is a map of the area showing the approximate location of Outfall 001.

Existing Permit Limitations
The current permit, expiring on September 30, 2024, includes the following effluent limitations and monitoring requirements.

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Footnotes
BOD_5			45 mg/L	30 mg/L	1
TSS			45 mg/L	30 mg/L	1
pH	9.0 s.u.	6.0 s.u.			1
Ammonia Nitrogen	Variable		**59 mg/L**	**38 mg/L**	2,3
Fecal Coliform May - September			**780 #/100 mL** **geometric mean**	400 #/100 mL geometric mean	3
Chloride					4
Phosphorus Interim TMDL Limit				4.80 mg/L 0.176 lbs/day	5

Footnotes:

1. These limitations are not being evaluated as part of this review. Because the water quality criteria (WQC), reference effluent flow rates, and receiving water characteristics have not changed, limitations for these water quality characteristics do not need to be re-evaluated at this time.

2. The variable daily maximum ammonia nitrogen limit table corresponding to effluent pH values. These limits apply year-round.

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

3. Additional limits to comply with the expression of limits requirements are included in bold.
4. Monthly monitoring in 2023.
5. A compliance schedule is in the current permit to meet the TMDL Limit by October 1, 2022.

Receiving Water Information

- Name: Mill Creek
- Waterbody Identification Code (WBIC): 1398600
- Classification used in accordance with chs. NR 102 and 104, Wis. Adm. Code: Warm Water Sport Fish (WWSF) community, non-public water supply.
  Low flows used in accordance with chs. NR 106 and 217, Wis. Adm. Code: USGS for Station 05400685, in Mill Creek at Sherry, WI
  $7\text{-}Q_{10}$ = 0.40 cfs (cubic feet per second)
  $7\text{-}Q_2$ = 2.20 cfs
  Harmonic Mean Flow = 4.10 cfs using a drainage area of 41.6 mi^2.
  The Harmonic Mean has been estimated based on average flow and the $7\text{-}Q_{10}$ using an equation from U.S. EPA's *Technical Support Document for Water Quality-Based Toxics Control* (March 1991, EPA/505/2-90-001, pgs. 88-89).
- Hardness = 188 mg/L as $CaCO_3$. This value represents the geometric mean of 17 samples collected in Mill Creek from 08/07/2000 to 05/01/2018.
- % of low flow used to calculate limits in accordance with s. NR 106.06(4)(c)5., Wis. Adm. Code: 25%
- Source of background concentration data: Chloride data is from Mill Creek. Metals data from Big Eau Pleine River at Cherokee is used for this evaluation. The numerical values are shown in the tables below. If no data is available, the background concentration is assumed to be negligible and a value of zero is used in the computations. Background data for calculating effluent limitations for ammonia nitrogen are described later.
- Multiple dischargers: The Hewitt SD and Marshfield Wastewater Treatment Facilities also discharge to Mill Creek. However, the other dischargers do not impact this evaluation.
- Impaired water status: Mill Creek is impaired for low dissolved oxygen and total phosphorus and is part of the Wisconsin River TMDL.

Effluent Information:

- Design Flow Rates(s):
  Annual Average = 0.028 MGD (Million Gallons per Day)
  For reference, the actual average flow from November 2019 to June 2024 was 0.011 MGD.
- Hardness = 286 mg/L as $CaCO_3$. This value represents the geometric mean of 4 effluent samples collected from 03/28/2024 to 05/21/2024.
- Acute dilution factor used in accordance with s. NR 106.06 (3) (c), Wis. Adm. Code: Not applicable – this facility does not have an approved Zone of Initial Dilution (ZID).
- Water Source: Domestic wastewater with water supply from private wells.
- Additives: None
- Total Phosphorus Wasteload Allocation: 31 lbs/year = 0.085 lbs/day
- Effluent characterization: This facility is categorized as a minor municipality, so the permit application required effluent sample analyses for a limited number of common pollutants, as specified in s. NR 200.065, Table 1, Wis. Adm. Code, primarily metal substances plus Hardness. The permit-required monitoring for Ammonia Nitrogen, Chloride, and Phosphorus from November 2019 to June 2024 is used in this evaluation.

Chemical Specific Effluent Data at Outfall 001

	Chloride mg/L
1-day P_{99}	569
4-day P_{99}	447
30-day P_{99}	380
Mean	345
Std	79
Sample size	43
Range	21 - 561

Chemical Specific Effluent Data at Outfall 001

Sample Date	Copper µg/L
3/28/2024	4.8
3/31/2024	3
4/3/2024	3.7
4/6/2024	3.5
4/8/2024	14
4/9/2024	5.4
4/11/2024	5.2
4/25/2024	4.325
4/28/2024	4.68
5/1/2024	4.91
5/4/2024	3.325
1-day P_{99}	15.82
4-day P_{99}	9.69

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

The following table presents the average concentrations and loadings at Outfall 001 from November 2019 to June 2024 for all parameters with limits in the current permit to meet the requirements of s. NR 201.03(6):

Parameter Averages with Limits

	Average Measurement	Average Mass Discharged
BOD_5	5.6 mg/L*	
TSS	8.6 mg/L*	
pH	7.03 s.u.	
Ammonia Nitrogen	1.50 mg/L*	
Fecal Coliform	122#/100 mL	
Phosphorus	0.75 mg/L*	0.07 lbs/day

*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 P_{99}) 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-Q_{10}

Daily maximum effluent limitations for toxic substances are based on the acute toxicity criteria (ATC), listed in ch. NR 105, Wis. Adm. Code. Previously daily maximum limits for toxic substances were calculated as two times the ATC. However, changes to ch. NR 106, Wis. Code, (September 1, 2016) require the Department to calculate acute limitations using the same mass balance equation as used for other limits along with the 1-Q_{10} 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.

$$\text{Limitation} = \frac{(WQC)\,(Qs + (1-f)\,Qe) - (Qs - f\,Qe)\,(Cs)}{Qe}$$

Where:

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

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

Qe = 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

Cs = 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-Q_{10} method of limit calculation produces the most stringent daily maximum limitations and should be used while making reasonable potential determinations. This is not the case for the Blenker Sherry Sanitary District Wastewater Treatment Facility and the limits are set based on two times the acute toxicity criteria.

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 = 0.32 cfs, (1-Q_{10} (estimated as 80% of 7-Q_{10})), as specified in s. NR 106.06(3)(bm), Wis. Adm. Code.

SUBSTANCE	REF. HARD.* mg/L	ATC	MEAN BACK-GRD.	MAX. EFFL. LIMIT**	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	1-day P_{99}	1-day MAX. CONC.
Arsenic		340		680	136	<1.1		
Cadmium	286	34.4	0.025	68.9	13.8	<0.12		
Chromium (+3)	286	4267	0.337	8534	1707	<1.2		
Copper	286	41.9	1.3	83.7			15.8	14.0
Lead	286	295	0.283	591	118	0.3		
Nickel	268	1080		2161	432	3.7		
Zinc	286	302	2.0	604	121	35.00		
Chloride		757	250.0	1514			569	561

* 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.

* * The 2 × ATC method of limit calculation yields a more restrictive limit than consideration of ambient concentrations and 1-Q_{10} flow rates per the changes to s. NR 106.07(3), Wis. Adm. Code, effective 09/01/2016.

Weekly Average Limits based on Chronic Toxicity Criteria (CTC)

RECEIVING WATER FLOW = 0.10 cfs (¼ of the 7-Q_{10}), as specified in s. NR 106.06(4)(c), Wis. Adm. Code.

SUBSTANCE	REF. HARD.* mg/L	CTC	MEAN BACK-GRD.	MAX. EFFL. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	4-day P_{99}
Arsenic		152		504	101	<1.1	
Cadmium	175	3.8	0.025	12.6	2.5	<0.12	
Chromium (+3)	188	222	0.337	733	147	<1.2	
Copper	188	17.8	1.3	55.9			9.7
Lead	188	52	0.283	170	34	0.3	
Nickel	188	89		295	59	3.7	
Zinc	188	209	2.0	688	138	35.0	
Chloride		395	250.0	730			447

* 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 = 1.0 cfs (¼ of the Harmonic Mean), as specified in s. NR 106.06(4), Wis. Adm. Code.

SUBSTANCE	HTC	MEAN BACK-GRD.	MAX. EFFL. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	30-day P_{99}
Cadmium	370.0	0.025	9113.9	1822.8	<0.12	
Chromium (+3)	3818000	0.337	94051938	18810388	<1.2	
Lead	140	0.283	3442	688	0.3	
Nickel	43000		1059255	211851	3.7	

Monthly Average Limits based on Human Cancer Criteria (HCC)

RECEIVING WATER FLOW = 1.0 cfs (¼ of the Harmonic Mean), as specified in s. NR 106.06(4), Wis. Adm. Code.

SUBSTANCE	HCC	MEAN BACK-GRD.	MAX. EFFL. LIMIT**	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	30-day P_{99}
Arsenic	13.3		327.6	65.5	<1.1	

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

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

Chloride – Considering available effluent data from the current permit term (August 2023 to December 2023), the 4-day P_{99} concentration is 447 mg/L, and the 1-day P_{99} concentration is 569 mg/L, with a maximum concentration of 561 mg/L. These values are below the calculated daily maximum and weekly average limits, therefore chloride limits are not required. **Monthly monitoring for at least one year is recommended in the reissued permit.**

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

Mercury – The permit application did not require monitoring for mercury because the Blenker Sherry Sanitary District Wastewater Treatment Facility is categorized as a minor facility as defined in s. NR 200.02(8), Wis. Adm. Code. In accordance with s. NR 106.145(3)(a)3., Wis. Adm. Code, a minor municipal discharger shall monitor, and report results of influent and effluent mercury monitoring once every three months if, there are two or more exceedances in the last five years of the high-quality sludge mercury concentration of 17 mg/kg specified in s. NR 204.07(5). A review of the past five years of sludge characteristics data reveals that all the sample results are within expected analytical ranges and well below the 17 mg/kg level. The average concentration in the sludge from 2020 to 2023 was 0.90 mg/kg, with a maximum reported concentration of 1.80 mg/kg. **Therefore, no mercury monitoring is recommended at Outfall 001.**

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

The State of Wisconsin promulgated revised water quality standards for ammonia nitrogen in ch. NR 105, Wis. Adm. Code, effective March 1, 2004 which includes criteria based on both acute and chronic toxicity to aquatic life. The current permit has weekly average and monthly average limits. These limits are re-evaluated at this time due to the following changes:

- Subchapter IV of ch. NR 106, Wis. Adm. Code allows limits based on available dilution instead of limits set to twice the acute criteria.
- Section NR 106.07(3), Wis. Adm. Code requires weekly and monthly average limits for municipal treatment plants.
- The maximum expected effluent pH has changed

Daily Maximum Limits based on Acute Toxicity Criteria (ATC):
Daily maximum limitations are based on acute toxicity criteria in ch. NR 105, Wis. Adm. Code, which are a function of the effluent pH and the receiving water classification. The acute toxicity criterion (ATC) for ammonia is calculated using the following equation.

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

Where:

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

The effluent pH data was examined as part of this evaluation. A total of 1703 sample results were reported from November 2019 to June 2024. The maximum reported value was 7.90 s.u. (Standard pH Units). The effluent pH was 7.79 s.u. or less 99% of the time. The 1-day P_{99}, calculated in accordance with s. NR 106.05(5), Wis. Adm. Code, is 7.41 s.u. The mean plus the standard deviation multiplied by a factor of 2.33, an estimate of the upper ninety ninth percentile for a normally distributed dataset, is 7.40 s.u. Therefore, a value of 7.79 s.u. is believed to represent the maximum reasonably expected pH, and therefore most appropriate for determining daily maximum limitations for ammonia nitrogen. Substituting a value of 7.79 s.u. into the equation above yields an ATC = 12.36 mg/L.

Daily Maximum Ammonia Nitrogen Effluent Limitations Calculation Method
In accordance with s. NR 106.32(2), Wis. Adm. Code daily maximum ammonia limitations are calculated using the 1-Q_{10} 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-Q_{10} (estimated as 80 % of 7-Q_{10}) and the 2×ATC approach are shown below.

Daily Maximum Ammonia Nitrogen Determination

	Ammonia Nitrogen Limit mg/L
2×ATC	24.71
1-Q_{10}	103.10

The 2×ATC method yields the most stringent limits for the Blenker Sherry Sanitary District Wastewater Treatment Facility.

The current permit has variable daily maximum effluent limits based on effluent pH. Presented below is a table of daily maximum limitations corresponding to various effluent pH values.

Daily Maximum Ammonia Nitrogen Limits – WWSF

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

Weekly and Monthly Average Limits based on Chronic Toxicity Criteria (CTC)
The ammonia limit calculation also warrants evaluation of weekly and monthly average limits based on chronic toxicity criteria for ammonia, since those limits relate to the assimilative capacity of the receiving water.

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

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

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

Where:

pH = the pH (s.u.) of the <u>receiving water</u>,
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 (ºC) of the receiving water – (Early Life Stages Present), or
T = the maximum of the actual temperature (ºC) 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-Q_{10} (4-Q3, if available) to derive weekly average limitations. And the 30-day criteria are used with the 30-Q_5 (estimated as 85% of the 7-Q_2 if the 30-Q_5 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 ºC, 25% of the flow is used if the Temperature < 11 ºC, and 50% of the flow is used if the Temperature ≥ 11 ºC but < 16 ºC.

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 ºC, during the winter and spring months. Based on a review of the DNR Fisheries database, burbot, an early spawning species, are not believed to be present in Mill Creek. So "ELS Absent" criteria apply from October through March, and "ELS Present" criteria will apply from April through September for a WWSF classification.

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

Weekly and Monthly Ammonia Nitrogen Limits – WWSF

		April & May	June-September	October-March
Effluent Flow	Qe (MGD)	0.028	0.028	0.028
Background Information	7-Q_{10} (cfs)	0.40	0.40	0.40
	7-Q_2 (cfs)	2.2	2.2	2.2
	Ammonia (mg/L)	0.07	0.07	0.14
	Temperature (°C)	14.4	20.6	10.0
	pH (s.u.)	7.65	7.71	7.41
	% of Flow used	50	100	25
	Reference Weekly Flow (cfs)	0.20	0.40	0.10
	Reference Monthly Flow (cfs)	0.94	1.9	0.47
Criteria mg/L	4-day Chronic			
	Early Life Stages Present	9.45	5.96	11.75
	Early Life Stages Absent	9.49	5.96	15.72
	30-day Chronic			
	Early Life Stages Present	3.78	2.38	4.70
	Early Life Stages Absent	3.80	2.38	6.29
Effluent Limitations mg/L	Weekly Average			
	Early Life Stages Present	53	60	
	Early Life Stages Absent			52
	Monthly Average			
	Early Life Stages Present	84	102	
	Early Life Stages Absent			73

Effluent Data

The following table evaluates the statistics based upon ammonia data reported from November 2019 to June 2024, with those results being compared to the calculated limits to determine the need to include ammonia limits in the Blenker Sherry Sanitary District Wastewater Treatment Facility permit for the respective month ranges.

Ammonia Nitrogen Effluent Data

Ammonia Nitrogen mg/L	April & May	June-September	October-March
1-day P_{99}	15.79	2.10	24.60
4-day P_{99}	8.27	1.01	13.16
30-day P_{99}	3.67	0.43	5.58
Mean*	1.67	0.15	2.24
Std	4.47	0.76	7.55
Sample size	42	74	126
Range	<0.13 - 16	<0.13 - 2.96	<0.13 - 25

*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.

The permit currently has daily, weekly, and monthly ammonia limits. Where there are existing ammonia nitrogen limits in the permit, the limits must be retained regardless of reasonable potential, consistent with s. NR 106.33(1)(b), Wis. Adm. Code:

> (b) If a permittee is subject to an ammonia limitation in an existing permit, the limitation shall be included in any reissued permit. Ammonia limitations shall be included in the permit if the permitted facility will be providing treatment for ammonia discharges.

Conclusions and Recommendations

In summary, **the current limits and monitoring for ammonia nitrogen are recommended to continue.**

Final Ammonia Nitrogen Limits

Daily Maximum mg/L	Weekly Average mg/L	Monthly Average mg/L
Variable	**59**	**38**

PART 4 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR BACTERIA

Section NR 102.04(5), Wis. Adm. Code, states that all surface waters shall be suitable for supporting recreational use and shall meet *E. coli* criteria during the recreation season. Section NR 102.04(5)(b), Wis. Adm. Code, allows the Department to make exceptions when it determines, in accordance with s. NR 210.06(3), Wis. Adm. Code, that wastewater disinfection is not required to meet *E. coli* limits and protect the recreational use. Section NR 210.06(3), Wis. Adm. Code, tasks the Department with determining the need for disinfection using a site-specific analysis based on potential risk to human or animal health. It sets out the factors that must be considered in determining the necessity to disinfect municipal wastewater or to change the length of the disinfection season.

1. The geometric mean of *E. coli* bacteria in effluent samples collected in any calendar month may not exceed 126 counts/100 mL.
2. No more than 10 percent of *E. coli*bacteria samples collected in any calendar month may exceed 410 counts/100 mL.

E. coli monitoring is recommended at the same frequency that fecal coliform monitoring is required in the current permit. Because the Blenker Sherry Sanitary District Wastewater Treatment Facility permit requires 2/week monitoring, the 410 counts/100 mL limit will effectively function as a daily maximum limit unless the facility performs additional monitoring. Any additional monitoring beyond what is required by the permit must also be reported on the DMR as required in the standard requirements section of the permit.

Interim Limit

At this time, there is no effluent E. coli data available to determine if these limits are currently met. The permit will include a compliance schedule to meet these limits. During the compliance schedule, an interim limit applies to prevent back-sliding from the current level of disinfection during the compliance schedule period. Therefore, the **current fecal coliform limit shall be included in the reissued permit as an interim limit of 400 counts/100 mL as a monthly geometric mean**. Any weekly geometric mean limit which was included in the current permit for expression of limits purposes does not need to be included in the permit as an interim limit.

PART 5 – PHOSPHORUS

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

Because the Blenker Sherry Sanitary District Wastewater Treatment Facility does not currently have an existing technology-based limit, the need for this limit in the reissued permit is evaluated. The data demonstrates that the annual monthly average phosphorus loading is less than 150 lbs/month, which is the threshold for municipalities in accordance to s. NR 217.04(1)(a)1, Wis. Adm. Code, and **therefore a technology-based limit is not required.**

Annual Average Mass Total Phosphorus Loading

Month	Monthly Avg. mg/L	Total Flow MG/month	Total Phosphorus lb./mo.
Jul 2023	0.93	0.36	2.78
Aug 2023	0.64	0.35	1.90
Sep 2023	1.03	0.38	3.26
Oct 2023	1.26	0.44	4.58
Nov 2023	1.24	0.41	4.28
Dec 2023	0.52	0.44	1.89
Jan 2024	0.26	0.43	0.94
Feb 2024	0.13	0.41	0.44
Mar 2024	0.31	0.45	1.15
Apr 2024	0.34	0.42	1.20
May 2024	0.52	0.43	1.85
Jun 2024	1.06	0.40	3.55
		Average =	**2.32**

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

TMDL Limits – Phosphorus
Total phosphorus (TP) effluent limits in lbs/day are calculated as recommended in the *TMDL Development and Implementation Guidance: Integrating the WPDES and Impaired Waters Programs* (May 2020). The wasteload allocations (WLA) that implement site-specific criteria for Lakes Petenwell, Castle Rock, and Wisconsin are found in Appendix K of the *Total Maximum Daily Loads for Total Phosphorus in the Wisconsin River Basin (WRB TMDL)* report dated April 26, 2019 and are expressed as maximum annual loads (lbs/year) and maximum daily loads (lbs/day). The WLA that implement statewide criteria found in Appendix J of the TMDL report are no longer applicable following approval of these site-specific criteria. The daily WLAs in the WRB TMDL equals the annual WLA divided by the number of days in the year. Therefore, the daily WLA is an annual average. Since the derivation of daily WLAs from annual WLAs does not take effluent variability or monitoring frequency into consideration, maximum daily WLAs from the WRB TMDL should not be used directly as permit effluent limits.

For the reasons explained in the April 30, 2012 paper entitled *Justification for Use of Monthly, Growing Season and Annual Average Periods for Expression of WPDES Permit Limits for Phosphorus Discharges in Wisconsin*, WDNR has determined that the phosphorus WQBELs set equal to WLAs would not be consistent with the assumptions and requirements of the TMDL.

Therefore, limits given to continuously discharging facilities covered by the WRB TMDL are given monthly average mass limits. If the equivalent effluent concentration is less than or equal to 0.3 mg/L, six-month average mass limits are also included. The following equation shows the calculation of equivalent effluent concentration:

$$\begin{aligned} \text{TP Equivalent Effluent Concentration} &= \text{Daily WLA} \div (\text{Flow Rate} * \text{Conversion Factor}) \\ &= 0.085 \text{ lbs/day} \div (0.028 \text{ MGD} * 8.34) \\ &= 0.36 \text{ mg/L} \end{aligned}$$

Since this value is greater than 0.3 mg/L, the WLA should be expressed as a monthly average mass limit for total phosphorus and no six-month average limit is required.

$$\begin{aligned} \text{TP Monthly Average Permit Limit} &= \text{Daily WLA} * \text{Monthly average multiplier} \\ &= 0.085 \text{ lbs/day} * 2.08 \\ &= 0.176 \text{ lbs/day} \end{aligned}$$

The multiplier used in the six-month average calculation was determined according to TMDL implementation guidance. A coefficient of variation was calculated, based on phosphorus mass monitoring data, to be 1.10. This is greater than the CV calculated for the previous evaluation and facility is able to meet the permit limits based on the WLA, so the previous CV of 0.99 is used. This value, along with monitoring frequency, is used to select the multiplier. The current permit specifies phosphorus monitoring as twice weekly; if a different monitoring frequency is used, the stated limits should be reevaluated.

The WRB TMDL establishes TP wasteload allocations to reduce the loading in the entire watershed including WLAs to meet water quality standards for tributaries to the Wisconsin River. Therefore, WLA-based WQBELs are protective of immediate receiving waters and TP WQBELs derived according to s. NR 217.13, Wis. Adm. Code are not required.

Since wasteload allocations are expressed as annual loads (lbs/yr), permits with TMDL-derived monthly average permit limits should require the permittee to calculate and report rolling 12-month sums of total monthly loads for TP. Rolling 12-month sums can be compared directly to the annual wasteload allocation. Six-month average limits apply in the periods May – October and November – April.

Effluent Data

The following table lists the statistics for effluent phosphorus levels from November 2019 to June 2024 for informational purposes. In the cases where reporting the mass discharge is not required in the current permit, the mass is calculated using the reported phosphorus concentration and the effluent flow rate for that day.

Attachment #1

Total Phosphorus Statistics

	Concentration (mg/L)	Mass Discharge (lbs/day)
1-day P_{99}	3.62	0.34
4-day P_{99}	1.99	0.19
30-day P_{99}	1.12	0.10
Mean	0.75	0.07
Std	0.74	0.07
Sample Size	485	485
Range	<0.04 - 4.56	0.00 - 0.75

Antidegradation & Antibacksliding
Because the mass-based effluent limitation for phosphorus is consistent with the wasteload allocation and assumptions of a US EPA approved TMDL that is designed to achieve water quality standards in ch. NR 102, Wis. Adm. Code, this TMDL based limitation may be included in a permit in lieu of the current phosphorus limit. Because the TP equivalent concentration is more restrictive than the interim phosphorus limit of 4.8 mg/L, removal of the monthly average limit will not increase the concentration, level, or loading of phosphorus to Mill Creek. Therefore, antidegradation would not be applicable. To be consistent with antibacksliding requirements, the current limit may be removed in accordance with s. NR 207.12(4)(b), Wis. Adm. Code.

Conclusions:
In summary, the following limits are recommended by this evaluation:

- Monthly average Total Phosphorus mass limit of 0.176 lbs/day

PART 6 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR THERMAL

Surface water quality standards for temperature took effect on October 1, 2010. These regulations are detailed in chs. NR 102 (Subchapter II – Water Quality Standards for Temperature) and NR 106 (Subchapter V – Effluent Limitations for Temperature) of the Wisconsin Administrative Code. Daily maximum and weekly average temperature criteria are available for the 12 different months of the year depending on the receiving water classification.

In accordance with s. NR 106.53(2)(b), Wis. Adm. Code, the highest daily maximum flow rate for a calendar month is used to determine the acute (daily maximum) effluent limitation. In accordance with s. NR 106.53(2)(c), Wis. Adm. Code, the highest 7-day rolling average flow rate for a calendar month is used to determine the sub-lethal (weekly average) effluent limitation. These values were based off actual flow reported from November 2019 to June 2024.

Monthly Temperature Effluent Data & Limits

Month	Representative Highest Monthly Effluent Temperature		Calculated Effluent Limit	
	Weekly Maximum (°F)	Daily Maximum (°F)	Weekly Average Effluent Limitation (°F)	Daily Maximum Effluent Limitation (°F)
JAN			NA	99
FEB			120	120
MAR			104	105
APR			75	120
MAY			85	97
JUN			95	96
JUL			NA	100
AUG			NA	120
SEP			110	96
OCT			99	120
NOV			90	120
DEC			108	120

Reasonable Potential

Section NR 106.59(2)(b) allows the use of temperature effluent data, on a case-by-case basis, from at least two other POTWs within a 100-mile radius that utilize similar wastewater treatment technology and have a similar ratio of domestic to industrial waste stream composition, or representative data of the POTW.

A review of effluent temperature data collected from the Cashton WWTF, the Elroy WWTF, and the Elk Mound WWTF indicate it is unlikely that effluent temperatures from the Blenker Sherry Sanitary District Wastewater Treatment Facility which operates an activated sludge system and consists primarily of domestic sewage would exceed an effluent temperature of 75°F. **Therefore, no thermal limits or monitoring are required.**

PART 7 – WHOLE EFFLUENT TOXICITY (WET)

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

- 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 IC_{25} (Inhibition Concentration) greater than the instream waste concentration (IWC), according to s. NR 106.09(3)(b), Wis. Adm Code. The IWC is an estimate of the proportion of effluent to total volume of water (receiving water + effluent). The IWC of 30% 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:

$$IWC\ (as\ \%) = Qe \div \{(1 - f)\ Qe + Qs\} \times 100$$

Where:

Qe = annual average flow = 0.028 MGD = 0.043 cfs
f = fraction of the Qe withdrawn from the receiving water = 0
Qs = ¼ of the $7\text{-}Q_{10}$ = 0.40 cfs ÷ 4 = 0.10 cfs

-
- According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual*, 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.

- 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.

Attachment #1

WET Data History

Date Test Initiated	Acute Results LC_{50} %				Chronic Results IC_{25} %					Footnotes or Comments
	C. dubia	Fathead minnow	Pass or Fail?	Used in RP?	*C. dubia*	Fathead Minnow	Algae (IC_{50})	Pass or Fail?	Use in RP?	
10/21/2003	>100	>100	Pass	No	34	>100		Pass	No	1
08/15/2006	>100	>100	Pass	Yes						
03/17/2010	>100	>100	Pass	Yes						
05/01/2018	>100	>100	Pass	Yes	>100	>100		Pass	Yes	

Footnotes:

1. *Data Not Representative.* Significant changes were made to WET test methods in 2004 and these changes were assumed to be fully implemented by certified labs by no later than June 2005.

- 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.

Acute Reasonable Potential = [(TUa effluent)(B)]
Chronic Reasonable Potential = [(TUc 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 LC_{50} IC_{25} or $IC_{50} \geq 100\%$).

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

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

Attachment #1

WET Checklist Summary

	Acute	Chronic
AMZ/IWC	Not Applicable. **0 Points**	IWC = 30% **0 Points**
Historical Data	Three tests used to calculate RP. No tests failed. Data not available in past 5 years. **5 Points**	One tests used to calculate RP. No tests failed. Data not available in past 5 years. **5 Points**
Effluent Variability	Little variability, no violations or upsets, consistent WWTF operations. **0 Points**	Same as Acute. **0 Points**
Receiving Water Classification	Warm Water Sport Fish (WWSF) (5 pts) **5 Points**	Same as Acute. **5 Points**
Chemical-Specific Data	No reasonable potential for limits based on ATC. Ammonia nitrogen limit carried over from the current permit. Copper, Lead, Nickel, Zinc, and Chloride detected. (3 pts) Additional Compounds of Concern: none **3 Points**	No reasonable potential for limits based on CTC. Ammonia nitrogen limit carried over from the current permit. Copper, Lead, Nickel, Zinc, and Chloride detected. (3 pts) Additional Compounds of Concern: none **3 Points**
Additives	No additives in use. P chemicals not in use. **0 Points**	No additives in use. **0 Points**
Discharge Category	No Industrial Contributors **0 Points**	Same as Acute. **0 Points**
Wastewater Treatment	Secondary or Better **0 Points**	Same as Acute. **0 Points**
Downstream Impacts	No impacts known. **0 Points**	Same as Acute. **0 Points**
Total Checklist Points:	**13 Points**	**13 Points**
Recommended Monitoring Frequency (from Checklist):	No acute monitoring required	No chronic monitoring required.
Limit Required?	No	No
TRE Recommended? (from Checklist)	No	No

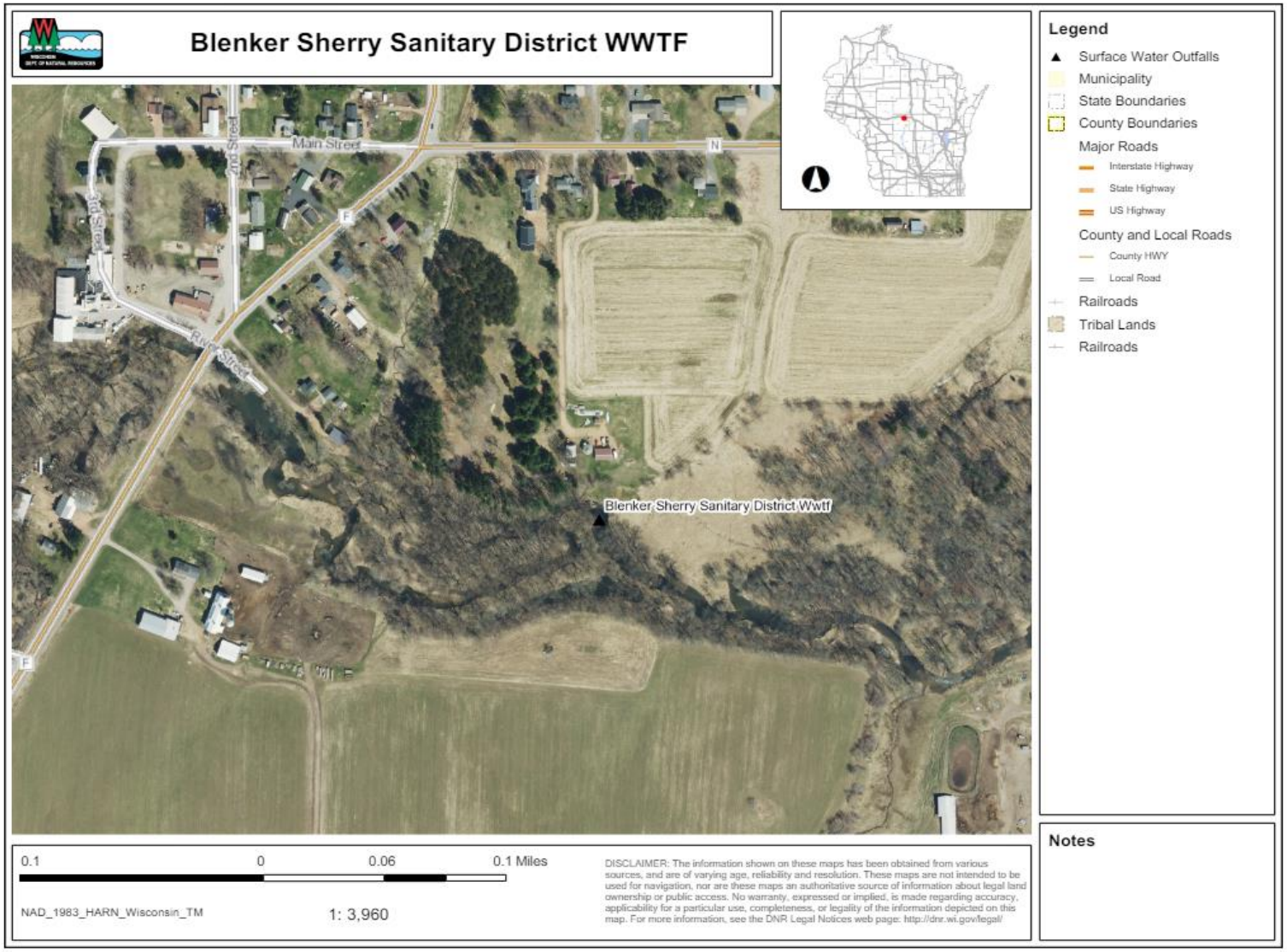
- No WET testing is required because information related to the discharge indicates the potential for effluent toxicity is believed to be low.

Attachment #2

Temperature limits for receiving waters with unidirectional flow

(calculation using default ambient temperature data)

Facility:	Blenker Sherry Sanitary District WWTF		**7-Q_{10}:**	0.40	cfs	**Temp Dates**	**Flow Dates**
Outfall(s):	001		**Dilution:**	25%	**Start:**	N/A	11/01/19
Date Prepared:	07/29/2024		**f:**	0	**End:**	N/A	06/30/24
Design Flow (Qe):	0.028	MGD	**Stream type:**	Small warm water sport or forage fish community			
Storm Sewer Dist.	0	ft	**Qs:Qe ratio:**	2.3 :1			
			Calculation Needed?	YES			

Month	Water Quality Criteria			Receiving Water Flow Rate (Qs)	Representative Highest Effluent Flow Rate (Qe)		f	Representative Highest Monthly Effluent Temperature		Calculated Effluent Limit	
	Ta (default)	Sub-Lethal WQC	Acute WQC		7-day Rolling Average (Qesl)	Daily Maximum Flow Rate (Qea)		Weekly Average	Daily Maximum	Weekly Average Effluent Limitation	Daily Maximum Effluent Limitation
	(°F)	(°F)	(°F)	(cfs)	(MGD)	(MGD)		(°F)	(°F)	(°F)	(°F)
JAN	33	49	76	0.10	0.014	0.119	0			NA	99
FEB	34	50	76	0.10	0.015	0.027	0			120	120
MAR	38	52	77	0.10	0.017	0.091	0			104	105
APR	48	55	79	0.10	0.022	0.046	0			75	120
MAY	58	65	82	0.10	0.022	0.102	0			85	97
JUN	66	76	84	0.10	0.035	0.098	0			95	96
JUL	69	81	85	0.10	0.013	0.068	0			NA	100
AUG	67	81	84	0.10	0.014	0.024	0			NA	120
SEP	60	73	82	0.10	0.022	0.099	0			110	96
OCT	50	61	80	0.10	0.019	0.031	0			99	120
NOV	40	49	77	0.10	0.014	0.032	0			90	120
DEC	35	49	76	0.10	0.015	0.032	0			108	120

Attachment #3