Permit Fact Sheet

General Information

Permit Number:	WI-0065269-03-0
Permittee Name:	Goodman Veneer and Lumber
Address:	200 'C' Avenue PO Box 130
City/State/Zip:	Goodman WI 54125
Discharge Location:	SW ¼, NW ¼, Section 3, T36N, R17E
Receiving Water:	Chemical Creek
StreamFlow ($Q_{7,10}$):	0.44 cfs
Stream Classification:	Cold water community, Class 1 Trout Steam, non-public water supply
Discharge Type:	Existing, Intermittent

Facility Description

This facility produces hardwood lumber and veneer. The company sprays stockpiled hardwood logs to prevent splitting and staining prior to processing. Logs are sprayed from April to October, each year. No discharge occurs November to May. The source of the spray water is the mill pond. Spray water which is not absorbed by the logs or surrounding ground, or evaporated, runs off the spray decks, flows through a small treatment basin which includes a screen and boom, then a weir into a 6 foot concrete pipe from which there is an underground conduit to Chemical Creek. The length of the subsurface pipe from the open pit is about 0.4 miles before surfacing to form an open channel creek bed of Chemical Creek. The estimated maximum volume of spray water is about 0.66 MGD. Wastewaters from other processes inside the mill are discharged to the Goodman Wastewater Treatment Plant. Discharge from Outfall 001 only occurred during the 2019 season during the current permit term.

Substantial Compliance Determination

After a desk top review of all discharge monitoring reports, compliance schedule items, and a site visit on 8/29/2023, this facility has been found to be in substantial compliance with their current permit.

Compliance determination entered by David Haas on 10/4/2023.

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)**
001	0.25 MGD (max annual average over last permit term)	Effluent: 3-Hr composite samples of the log spray wastewater shall be obtained prior to discharge to Chemical Creek. Flow is estimated based on level of pond.

1 Surface Water - Monitoring and Limitations

Sample Point Number: 001- LOG SPRAY WATER

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Estimated	Discharge prohibited November through March. Permittee shall report zero on days with no discharge.
BOD5, Total	Weekly Avg	10 mg/L	Weekly	3-Grab Comp	April
BOD5, Total	Weekly Avg	6.8 mg/L	Weekly	3-Grab Comp	May through September
BOD5, Total	Weekly Avg	5.0 mg/L	Weekly	3-Grab Comp	October
BOD5, Total	Weekly Avg	14 lbs/day	Weekly	Calculated	May through September
Suspended Solids, Total	Monthly Avg	16 mg/L	Weekly	3-Grab Comp	Interim limit effective through March 2028. See TSS Schedule.
Suspended Solids, Total	Weekly Avg	10 mg/L	Weekly	3-Grab Comp	Limit effective April 2028. See TSS Schedule.
pH Field	Daily Max	9.0 su	5/Week	Grab	
pH Field	Daily Min	6.0 su	5/Week	Grab	
Dissolved Oxygen	Daily Min	7.0 mg/L	5/Week	3-Grab Comp	
Temperature		deg F	3/Week	Measure	Monitoring for one year, or until data is collected every month of the year.
Phosphorus, Total		mg/L	Monthly	3-Grab Comp	Monitoring monthly until 11 samples have been collected.
Copper, Total Recoverable		ug/L	Monthly	3-Grab Comp	Monitoring monthly until 11 samples have been collected.
Lead, Total Recoverable		ug/L	Monthly	3-Grab Comp	Monitoring monthly until 11 samples have been collected.
Zinc, Total Recoverable		ug/L	Monthly	3-Grab Comp	Monitoring monthly until 11 samples have been collected.

Changes from Previous Permit

Flow sample frequency updated to 'Daily'.

BOD limits updated and sample frequency set equal to TSS.

TSS interim limit included with schedule to meet the final limit.

DO and pH sample frequency increased to weekly.

Sample frequency for Temperature increased to 3/week for one month of the year or until data is reported each month discharge occurs in.

Sample frequency for Copper, Zinc, and Lead set to Monthly until 11 total representative samples are collected.

Narrative-based debris limit added.

Explanation of Limits and Monitoring Requirements

Refer to the WQBEL memo for the detailed calculations, prepared by Michael Polkinghorn dated March 1, 2024, used for this reissuance. As well as the Technology-Based Effluent Limit (TBEL), prepared by Michael Polkinghorn dated March 1, 2024.

Flow: Reporting of flow is required daily is required because of the infrequency of discharge. Flow is estimated by the permittee and will continue to be estimated in the same way as in previous periods of discharge. The permittee will report zero (0) on days no discharge occurs. For months that no discharge occurs the permittee will indicate that no discharge occurred when prompted on the eDMR.

BOD and DO: In establishing BOD_5 limitations, the primary intent is to prevent a lowering of dissolved oxygen levels in the receiving water below water quality standards as specified in ss. NR 102.04(4)(a) and (b), Wis. Adm. Codes. Because Chemical Creek is a Class 1 Trout stream, the DO criterion of 7.0 mg/L applies when fish are spawning through fry mergence from reeds or gravel nests as described in s. NR 102.04(4)(a)3.b, Wis. Adm. Code. The period from spawning through fry emergence from their gravel nests is approximately mid-October through April but varies depending on water temperature and location in the state. The discharge from Outfall 001 can be present during April through October so this condition will be utilized for BOD_5 and DO limits for those months. Sample frequency set equal to TSS.

The previous weekly average BOD limit of 16 mg/L year-round is no longer in effect. BOD limits were not evaluated for November through March because the permittee does not discharge during those months.

TSS: Total suspended solids (TSS) effluent limits for Goodman Veneer and Lumber are regulated via narrative standards described in s. NR 102.04(1), Wis. Adm. Code. TSS effluent limits are included whenever BOD_5 WQBELs are needed and are set equal to the BOD_5 limits but no lower than 10 mg/L per department policy. A compliance schedule to meet the new limit is included because Goodman the data reported in 2019 indicates that Goodman may not be able to immediately meet this new limit.

pH: Goodman is subject to technology-based effluent limits as described in s. NR 296.09, Wis. Adm. Code 'Wet Storage Category" of subchapter IX. The BPT, BAT and NSPS standards are the same and require a pH limit of daily minimum 6.0 s.u. and daily maximum 9.0 s.u.

pH and DO: Sample frequency set to 5/week based on the intermittent discharge over the last permit term to ensure that adequate data is available for evaluation of the discharge.

Phosphorus: Phosphorus requirements are based on the Phosphorus Rules that became effective 12/1/2010 as detailed in NR 102 Water Quality Standards and NR 217 Effluent Standards and Limitations for Phosphorus. Chapter NR 217 of the Wis. Adm. Code addresses point source dischargers of phosphorus to surface waters. The code categorically limits industrial dischargers of more than 60 pounds of phosphorus per month to 1.0 mg/L unless an alternative limit is approved. WQBELs for phosphorus are needed whenever the discharge contains phosphorus at concentrations or loadings that will cause or contribute to an exceedance of the water quality standards. Phosphorus monitoring has been included monthly in the proposed permit to evaluate reasonable potential for this discharge to exceed water quality criteria for phosphorus. The sample frequency of monthly throughout the permit term is reflective of the discharge frequency of

discharge in the last permit term. If the permittee begins to discharge every year the permittee may request the department adjust sampling once 11 samples over an operational period have been collected.

Thermal: Requirements for Temperature are included in NR 102 Subchapter II Water Quality Standards for Temperature and NR 106 Subchapter V Effluent Limitations for Temperature. Thermal discharges must meet the Public Health criterion of 120 degrees F and the Fish & Aquatic Life criteria which are established to protect aquatic communities from lethal and sub-lethal thermal effects. Temperature monitoring has been included throughout the permit term when discharge occurs to evaluate reasonable potential for this discharge to exceed water quality criteria for temperature. Because time periods of the discharge during the proposed permit term is unknown the sampling is listed as throughout the permit term. However, data has been collected for a given month the permittee may request the department reevaluate the need for additional sampling for that month. Given the intermittent nature of the discharge the department has included monitoring year-round to ensure temperature data is collected every month of the year for at least one month during the permit term. The permittee shall contact the department once temperature data is collected for every month discharge occurs in.

Copper, Lead, and Zinc: Monitoring monthly throughout the permit term is included to ensure adequate data for the permit reissuance process. The sample frequency of monthly throughout the permit term is reflective of the discharge frequency of discharge in the last permit term. If the permittee begins to discharge every year the permittee may request the department adjust sampling once 11 samples over an operational period have been collected. Note that Copper samples must be more than 3 days apart. Also of note, if the monitoring results include a large number of non-detect results please contact the department to determine if more than 11 samples are needed.

Debris: Goodman is subject to technology-based effluent limits as described in s. NR 296.09, Wis. Adm. Code 'Wet Storage Category" of subchapter IX. The BPT, BAT and NSPS standards are the same and require a narrative limitation that "Debris may not be discharged". This narrative limit has been added to the permit. The word 'debris' means woody material such as bark, twigs, branches, heartwood or sapwood that will not pass through a 2.54 cm (1.0 in) diameter round opening and is present in the discharge from a wet storage facility as defined in s. NR 297.003(3), Wis. Adm. Code

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

Expression of Limits – In accordance with the federal regulation 40 CFR 122.45(d) and s. NR 205.065, Wis. Adm. Code. limits in this permit are to be expressed as daily maximum and monthly average limits whenever practicable. Minor changes have been made to chlorine.

Monitoring Frequency Evaluation - Monitoring frequencies for parameters that have final effluent limits in effect during this permit term were evaluated taking into consideration the size and type of the facility, and whether the monitoring occurs frequently enough to characterize effluent quality and variability, to detect events of noncompliance, and to ensure fairness and consistency in permits issued across the state. Monitoring frequency decisions are based on requirements in s. NR 205.066(1), Wis. Adm. Code, (decisions are case-by-case) and considering the factors in s. NR 210.04 (a) through (e), Wis. Adm. Code, along with recommendations provided in the *Monitoring Frequencies for Individual Wastewater Permits* guidance (April 12, 2021).

Given the discharge type and frequency the sampling frequencies in the current permit are appropriate. However, flow rate should be reported daily given the infrequency of discharge from the facility. The sample frequency of monthly for throughout the permit term for many parameters is reflective of the discharge frequency of discharge in the last permit

term. If the permittee begins to discharge every year the permittee may request the department adjust sampling once 11 data points are provided over an operational period have been collected.

2 Schedules

2.1 Total Suspended Solids Effluent Limits

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

Required Action	Due Date
Report on Effluent Discharges: Submit a report on effluent discharges of TSS with conclusions regarding compliance.	10/01/2025
Action Plan: Submit an action plan for complying with the effluent limitation. If construction is required, include plans and specifications with the submittal.	10/01/2026
Initiate Actions: Initiate actions identified in the plan.	10/01/2027
Complete Actions: Complete actions necessary to achieve compliance with the effluent limitations.	03/31/2028

Explanation of Schedules

This schedule provides time for the permittee to complete actions necessary to meet the TSS limits that are based on the protection of the dissolved oxygen water quality standard of Chemical Creek's Cold Water (CW) community. This change in limits is based on a change in classification of Chemical Creek.

Special Reporting Requirements

None

Other Comments:

Land application off of the permittee's land is not approved or evaluated in this permit reissuance. No land application off the permittee's property is authorized.

Attachments:

Categorical Limits Calculations dated March 1, 2024

Water Quality Based Effluent Limits dated March 1, 2024

Expiration Date:

September 30, 2029

Justification Of Any Waivers From Permit Application Requirements

None

Prepared By: Jennifer Jerich, Wastewater Specialist

Date: 6/10/2024
Revision date post fact check: 8/7/2024
Revision date post public notice & hearing:

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: March 1, 2024

TO: Sarah Donoughe – NER/Green Bay Service Center

FROM: Michael Polkinghorn – NOR/Rhinelander Service Center Michael Polkinghorn

SUBJECT: Technology-Based Effluent Limitations for Goodman Veneer and Lumber
WPDES Permit No. WI-0065269-03-0

This is in response to your request for an evaluation of the need for technology-based effluent limitations (TBELs) using Chapters NR 220 and NR 297 of the Wisconsin Administrative Code (where applicable), for the discharge from Goodman Veneer and Lumber in Marinette County. This industrial facility discharges to Chemical Creek, located in the Pike River Watershed in the Upper Green Bay Basin.

Facility Description

Goodman Veneer and Lumber (Goodman V&L) produces hardwood lumber and veneer. The company sprays stockpiled hardwood logs to prevent splitting and staining prior to processing. Water is pumped from the Goodman Mill Pond and sprayed on logs when needed from April – October. Spray water which is not absorbed by the logs or surrounding ground, or evaporated, runs off the spray decks, flows through a settling area with any existing stormwater, then flows through a pipe to an open pit from which there is an underground conduit, approx. 0.4 mi, to Chemical Creek via Outfall 001. Wastewaters from other processes inside the mill are discharged to the Goodman Wastewater Treatment Plant. Discharge from Outfall 001 only occurred during the 2019 season during the current permit term.

Existing Permit Limitations

The current permit, expiring on 06/30/2024, includes the following effluent limitations and monitoring requirements.

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Footnotes
Flow Rate				1
BOD_5			16 mg/L	2
TSS			16 mg/L	2
pH	9.0 s.u.	6.0 s.u.		2
Dissolved Oxygen		7.0 mg/L		2
Phosphorus				1
Copper (Total Recoverable)				1
Lead (Total Recoverable)				1
Zinc (Total Recoverable)				1
Temperature				1

Footnotes:

1. Monitoring only.

2. These limits are based on the protection of the Warm Water Sport Fish (WWSF) community of the immediate receiving water.

Industrial Category

Chapter NR 297, Wis. Adm. Code specifies effluent limit guidelines for any point source discharges of wastewater generated from the processing of timber products. Goodman V&L has historically discharged timber process wastewater generated from spraying water on stored logs with the intention of maintaining their moisture content before further processing. This practice is applicable to the effluent limit guidelines in the wet storage timber processing category as described in s. NR 297.09, Wis. Adm. Code. The facility has stated in the permit application their process has not changed during the current permit term nor do they plan on altering the current process or adding additional processes to generate additional process wastewater in the reissued permit term. Therefore, the discharge from the wet storage of timber at Outfall 001 would continue to be applicable under the "Wet Storage Subcategory" of Subchapter IX of ch. NR 297, Wis. Adm. Code. The permittee must meet the applicable effluent limit guidelines as described in this subchapter. These effluent limit guidelines include:

- Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT) in s. NR 297.091, Wis. Adm. Code.
- Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT) in s. NR 297.092, Wis. Adm. Code.
- If determined to be a new source, new source performance standards (NSPS) in s. NR 297.093, Wis. Adm. Code.

Chapter NR 297, Wis. Adm. Code is based on federal effluent guidelines in 40 CFR Part 429 Subpart I. Section NR 220.13, Wis. Adm. Code, includes provisions that address cases where federal and state rule differ. Wisconsin statutes at s. 283.11, Wis. Stats., address compliance with federal standards. In this case, the state rules are consistent with federal rules with a few exceptions. In such cases, the permit will in all cases be based on the state rule regardless of the federal regulations. The omissions are described below.

New Source Determination

Regarding NSPS, the state defines the new source date as October 31, 1979 in s. NR 297.003(9), Wis. Adm. Code. However, the new source date for direct dischargers is January 26, 1981 based the Boornazian memo (September 28, 2006) which specifies new source dates for federal effluent limit guidelines. The Department relies on the Boornazian memo to establish date of applicability for NSPS when it is not specified in the state or federal rules or if state rules differ. This date does not need to be determined at this time because the applicable TBELs for the "Wet Storage Category" are the same regardless of if Goodman V&L is a new or existing source. Therefore, at least BPT and BAT standards, for the "Wet Storage Subcategory" are applicable as specified in Subchapter IX of ch. NR 297, Wis. Adm. Code.

Wet Storage Subcategory: BPT, BAT, and NSPS (ss. NR 297.091, NR 297.092 and NR 297.093, Wis. Adm. Code):

BPT, BAT, NSPS standards are the same. These standards state that any discharge of pollutants to waters of the state from a wet storage facility shall achieve the following:

- Debris may not be discharged, and the pH shall be within the range of 6.0 to 9.0.

Recommended Final TBELs

Numeric TBELs Recommended for Outfall 001

Parameter	Daily Maximum	Daily Minimum	Monthly Average
pH	9.0 s.u.	6.0 s.u.	-

Narrative TBELs Recommended for Outfall 001

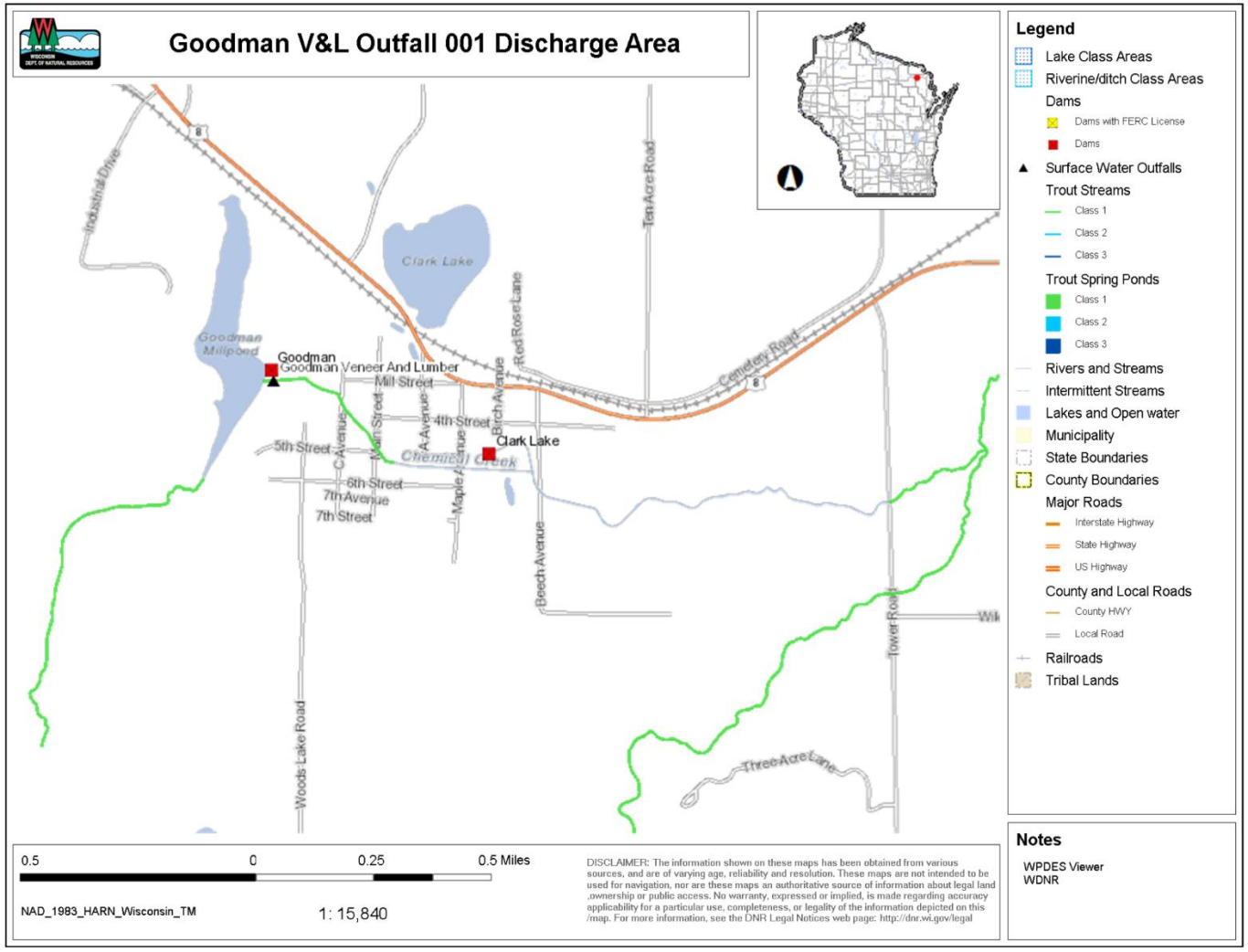
- There shall be no debris* discharged.

*The term "debris" means woody material such as bark, twigs, branches, heartwood or sapwood that will not pass through a 2.54 cm (1.0 in) diameter round opening and is present in the discharge from a wet storage facility as defined in s. NR 297.003(3), Wis. Adm. Code.

Conclusion

Upon comparison between the TBELs and effective limits in the current permit term, the pH limits are already implemented in the permit based on water quality standards but the narrative-based debris limit is not. **Therefore, the narrative-based debris limit and monitoring is recommended during the reissued permit term.** These limits are recommended in addition to any limits determined in the WQBEL evaluation (March 2024).

Attachment #1



CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: March 1, 2024

TO: Sarah Donoughe – NER/Green Bay Service Center

FROM: Michael Polkinghorn – NOR/Rhinelander Service Center Michael Polkinghorn

SUBJECT: Water Quality-Based Effluent Limitations for Goodman Veneer and Lumber
WPDES Permit No. WI-0065269-03-0

This is in response to your request for an evaluation of the need for water quality-based effluent limitations (WQBELs) using chapters NR 102, 104, 105, 106, 207, 210, 212, and 217 of the Wisconsin Administrative Code (where applicable), for the discharge from Goodman Veneer and Lumber in Marinette County. This industrial facility discharges to Chemical Creek, located in the Pike River Watershed in the Upper Green Bay Basin. The evaluation of the permit recommendations is discussed in more detail in the attached report.

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

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Footnotes
Flow Rate				1
BOD_5 April May – September October			 10 mg/L 6.8 mg/L 14 lbs/day 5.0 mg/L	2
TSS				2
Interim			16 mg/L	
Final			10 mg/L	
pH	9.0 s.u.	6.0 s.u.		1, 2
Dissolved Oxygen		7.0 mg/L		1, 2
Phosphorus				1, 3
Copper (Total Recoverable)				1, 3
Lead (Total Recoverable)				1, 3
Zinc (Total Recoverable)				1, 3
Temperature				1, 3

Footnotes:

1. No changes from the current permit.
2. These limits are based on the protection of the dissolved oxygen water quality standard of Chemical Creek's Cold Water (CW) community. The TSS limit based on the Warm Water Sport Fish (WWSF) community will serve as the interim limit during the compliance schedule.
3. Monthly monitoring for 1 year is recommended during the reissued permit term to determine the need for limits at the next permit reissuance.

No WET testing is required because information related to the discharge indicates low to no risk for toxicity. Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Codes, are not required due to the noncontinuous nature of the discharge.

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

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

PREPARED BY: Michael A. Polkinghorn – Water Resources Engineer

E-cc: David Haas, Wastewater Engineer – NER/Green Bay Service Center
Heidi Schmitt-Marquez, Regional Wastewater Supervisor – NER/Green Bay Service Center
Diane Figiel, Water Resources Engineer – WY/3
Nathaniel Willis, Wastewater Engineer – WY/3

Attachment #1

Water Quality-Based Effluent Limitations for Goodman Veneer and Lumber

WPDES Permit No. WI-0065269-03-0

Prepared by: Michael A. Polkinghorn

PART 1 – BACKGROUND INFORMATION

Facility Description

Goodman Veneer and Lumber (Goodman V&L) produces hardwood lumber and veneer. The company sprays stockpiled hardwood logs to prevent splitting and staining prior to processing. Water is pumped from the Goodman Mill Pond and sprayed on logs when needed from April – October. Spray water which is not absorbed by the logs or surrounding ground, or evaporated, runs off the spray decks, flows through a settling area with any existing stormwater, then flows through a pipe to an open pit from which there is an underground conduit, approx. 0.4 mi, to Chemical Creek via Outfall 001. Wastewaters from other processes inside the mill are discharged to the Goodman Wastewater Treatment Plant. Discharge from Outfall 001 only occurred during the 2019 season during the current permit term.

Attachment #2 is a discharge area map of Outfall 001.

Existing Permit Limitations

The current permit, expiring on 06/30/2024, includes the following effluent limitations and monitoring requirements.

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Footnotes
Flow Rate				1
BOD_5			16 mg/L	2
TSS			16 mg/L	2
pH	9.0 s.u.	6.0 s.u.		2, 3
Dissolved Oxygen		7.0 mg/L		2
Phosphorus				1
Copper (Total Recoverable)				1
Lead (Total Recoverable)				1
Zinc (Total Recoverable)				1
Temperature				1

Footnotes:

1. Monitoring only.

2. These limits are based on the protection of the Warm Water Sport Fish (WWSF) community of the immediate receiving water.
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.

Receiving Water Information

- Name: Chemical Creek
- Waterbody Identification Code (WBIC): 632900
- Classification used in accordance with chs. NR 102 and 104, Wis. Adm. Code: Cold Water (CW) community, Class 1 Trout Stream, non-public water supply. Chemical Creek becomes an Exceptional Resource Water (ERW) approx. 1.5 mi downstream. Cold Water and Public Water Supply criteria are used for bioaccumulating compounds of concern, because the discharge is within the Great Lakes basin. The previous limit evaluation (March 2019) based limits on a Warm Water Sport Fish (WWSF) community.
- Low flows used in accordance with chs. NR 106 and 217, Wis. Adm. Code: The following 7-Q_{10} and 7-Q_2 values are from USGS for Station ME7 at SW ¼ NE 1/4, Section 3, T – 36N, R – 17E, where Outfall 001 is located:

  7-Q_{10} = 0.44 cubic feet per second (cfs)
  7-Q_2 = 0.73 cfs
  Harmonic Mean Flow = 1.33 cfs using a drainage area of 4.66 mi^2

  The Harmonic Mean has been estimated based on average flow and the 7-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 = 84 mg/L as $CaCO_3$. This value is taken from the previous limit evaluation (March 2019) with the lack of updated data and represents the geometric mean of data from effluent sampling from 09/26/2018 to 10/05/2018. As effluent consists of water drawn from the Goodman Mill Pond for use in log spraying, hardness is not expected to be significantly different between surface water and effluent.
- % of low flow used to calculate limits in accordance with s. NR 106.06(4)(c)5., Wis. Adm. Code: 25%.
- Source of background concentration data: Metals data from Popple River at FSR2159 is used for this evaluation because there is no data available for Chemical Creek. The Popple River is within a similar same ecological landscape so ambient water quality characteristics are expected to be similar. The numerical values are shown in the tables below. If no data is available, the background concentration is assumed to be negligible and a value of zero is used in the computations. Background data for calculating effluent limitations for phosphorus are described later.
- Multiple dischargers: None.
- Impaired water status: There are no known impairments to Chemical Creek or other surface waters within a reasonable distance downstream of Outfall 001.

Effluent Information

- Flow rate(s):

  Maximum annual average = 0.25 million gallons per day (MGD)

  This flow rate accounts for the seasonal nature of the discharge over the 2019 discharge season from the permit application and excludes days discharge did not occur. Discharge from Outfall 001 only occurred during the 2019 season during the current permit term.

- Hardness = 84 mg/L as $CaCO_3$. This value is taken from the previous limit evaluation (March 2019) with the lack of updated data and represents the geometric mean of data from effluent sampling from 09/26/2018 to 10/05/2018.
- 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: Goodman Mill Pond (max: 1,200 GPD)
- Fraction of the effluent flow withdrawn from receiving water ("f" as described in s. NR 106.06, Wis. Adm. Code): Historic limit evaluations have utilized an "f" value of 0 for this facility despite the fact the facility withdraws 100% of their source water from the Goodman Mill Pond upstream of Chemical Creek of which Outfall 001 discharges. In this case, the Goodman Mill Pond and Chemical Creek are two separate surface waterbodies with different hydrologic types (lake vs. stream) and are separated by the Goodman Dam. Therefore, the "f" value of 0 will continue be utilized in this evaluation.
- Additives: None.
- Effluent characterization: This facility is categorized as a secondary industry, 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. In this case, the facility was unable to provide these samples because the last discharge from Outfall 001 occurred in 2019. The current permit required sampling for phosphorus, copper, lead, zinc, and temperature but are also unavailable because the sampling was specified for 2022 when the discharge did not occur. Some samples for phosphorus, copper, lead, and zinc were taken during May 2019 – June 2019 and will be utilized in this evaluation.
- 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.
- Additional effluent zinc samples (n = 3, July 2018 – September 2018) are utilized to better determine the need for zinc limits during the reissued permit term.
- Additional effluent phosphorus samples (n = 3, July 2018 – September 2018) are utilized to better determine the need for zinc limits during the reissued permit term.

Toxic Substances Effluent Data

Sample Date	Copper (µg/L)	Lead (µg/L)	Zinc (µg/L)
07/16/2018			14.8
08/02/2018			20.9
09/10/2018			18.3
05/22/2019	<6.3	<5.9	47.1
06/10/2019	<6.3	6.3	25.9
Mean	<6.3	3.2	25.4

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

Attachment #1

Parameter Averages with Limits

	Average Measurement*
BOD_5	3.0 mg/L
TSS	10 mg/L
pH field	7.6 s.u.
Dissolved Oxygen	9.3 mg/L

*Any 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 the case for Goodman V&L and the limits are set based on the 1-Q_{10} method.

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

Daily Maximum Limits based on Acute Toxicity Criteria (ATC)
RECEIVING WATER FLOW = 0.35 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 MAX. CONC.
Copper	84	13.2		25.1	5.0	<6.3	<6.3
Lead	84	90		172.6	34.5	3.2	3.2
Zinc	84	103	1.21	196.3	39.3	36.5	47.1

* Per the changes to s. NR 106.07(3), Wis. Adm. Code, effective 09/01/2016 consideration of ambient concentrations and 1-Q_{10} 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 = 0.11 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.	WEEKLY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.
Copper	84	8.92		11.5	2.29	<6.3
Lead	84	23.66		30.4	6.1	3.2
Zinc	84	103.35	1.21	132	26.5	25.4

Monthly Average Limits based on Wildlife Criteria (WC)
The effluent characterization did not include any effluent sampling results for substances for which WC exist.

Monthly Average Limits based on Human Threshold Criteria (HTC)
RECEIVING WATER FLOW = 0.36 cfs (¼ of Harmonic Mean), as specified in s. NR 106.06(4), Wis. Adm. Code.

SUBSTANCE	HTC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.
Lead	140		270	54	3.2

Monthly Average Limits based on Human Cancer Criteria (HCC)
The effluent characterization did not include any effluent sampling results for substances for which HCC exist.

Conclusions and Recommendations
Based on a comparison of the effluent data and calculated effluent limitations, **effluent limitations are not recommended for any toxic substances.** Limits and/or monitoring recommendations are included in the paragraphs below:

Copper/Lead/Zinc – In this case, the facility was unable to provide permit application samples because the last discharge from Outfall 001 occurred in 2019. The current permit required sampling for copper, lead, and zinc, but are also unavailable because the sampling was specified for 2022 when the discharge did not occur. Two samples each of copper, lead, and zinc were taken during May 2019 – June 2019 but not enough for the required 12 samples required by the current permit. **Because little effluent monitoring was conducted during the current permit term, monthly monitoring for 1 year for copper, lead, and zinc, are required to continue during the reissued permit term.**

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

PART 3 – LIMITATIONS FOR BOD_5, TSS, & DO

The BOD_5, DO, and TSS limits in the current permit are based on the protection of the DO water quality standard of Chemical Creek's WWSF community and implemented from the previous limit evaluation (March 2019). Because Chemical Creek is now considered a CW community and Class 1 Trout stream at Outfall 001, those limits will be reevaluated at this time.

BOD_5 & DO

In establishing BOD_5 limitations, the primary intent is to prevent a lowering of dissolved oxygen levels in the receiving water below water quality standards as specified in ss. NR 102.04(4)(a) and (b), Wis. Adm. Codes. The 26-lb method (13-lb method for cold water community streams) is the most frequently used approach for calculating BOD_5 limits when resources are not available to develop a detailed water quality model. This simplified model was developed in the 1970's by the Wisconsin Committee on Water Pollution on the Fox, Wisconsin, Oconto, and Flambeau Rivers. Further studies throughout the 1970's proved this model to be relatively accurate. The model has since then been used by the Department on many occasions when resources are not available to perform a site-specific model. The "26" value stems from the following equation:

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

The 4.8 mg/L has been calculated by taking 2.4 mg/L which is the number one receives when converting 26 lbs of BOD/day/cfs into mg/L, multiplied by 2.0 which is the change in the DO level for warm water community streams. Because Chemical Creek is a cold water community stream, the multiplier remains at 2.4 mg/L. A typical background DO level for Wisconsin waters is 7 mg/L, so a 1 mg/L decrease is allowed to meet the 6 mg/L standard for cold water community streams. The above relationship is temperature dependent and an appropriate temperature correction factor is applied. The 26-lb method is based on a typical 24°C summer value for warm water streams. Adjustments for temperature are made using the following equation:

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

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

Because Chemical Creek is a Class 1 Trout stream, the DO criterion of 7.0 mg/L applies when fish are spawning through fry emergence from redds or gravel nests as described in s. NR 102.04(4)(a)3.b, Wis. Adm. Code. The period from spawning through fry emergence from their gravel nests is approx. mid-October – April but varies depending on water temperature and location in the state. Therefore, no drop in DO is allowed during October – April at the typical background DO level of 7.0 mg/L. The discharge from Outfall 001 can be present during April and October so this condition will be utilized for BOD_5 and DO limits for those months.

Calculations based on Full Assimilative Capacity at 7-Q_{10} Conditions:

$$WA\ Limit\ \left(\frac{mg}{L}\right) = 2.4 * (DO_o - DO_{std}) * \frac{7Q_{10} + Q_e * (1-f)}{Q_e} * 0.967^{T-24}$$

Where:

Q_e = effluent flow = 0.25 MGD
DO_{stream} = background dissolved oxygen = 7.0 mg/L
DO_{eff} = DO Limit = 7.0 mg/L
DO_{std} = dissolved oxygen criteria from s. NR 102.04(4), Wis. Adm. Code = 6 mg/L (May – September) and 7.0 mg/L (October – April)
7-Q_{10} = 0.44 cfs
f = 0
DO_o = Initial mixed river DO = $\frac{DO_{eff} * Q_e + DO_{stream} * (7 - Q_{10} - Q_e * f)}{Q_e * (1-f) + 7 - Q_{10}}$ = 7.0 mg/L
T = Receiving water temperatures from s. NR 102.25, Wis. Adm. Code.

The table below shows the calculated weekly average BOD_5 WQBELs during April/October and May – September. Monthly receiving water temperatures from s. NR 102.25, Wis. Adm. Code, are averaged over each time period:

Calculated Weekly Average BOD_5 WQBELs

Parameter	April/October	May – September
Effluent Flow (MGD)	0.25	0.25
River Flow 7-Q_{10} (cfs)	0.44	0.44
River Temperature (°F)	48	60
River Temperature (°C)	8.9	16
Effluent DO (mg/L)	7.0	7.0
Background DO (mg/L)	7.0	7.0
Mix DO (mg/L)	7.0	7.0
DO Criterion (mg/L)	7.0	6.0
f	0	0
Concentration Limits (mg/L)	0	6.8
Mass Limits (lbs/day)	0	14

The concentration based BOD_5 limits of 5.0 mg/L during May – October and 10 mg/L during November

– April are the most stringent BOD_5 limits given to any facility per Department policy. Mass BOD_5 limits are typically not given during any time period the minimum BOD_5 limits are implemented. In addition, a daily minimum DO limit of 7.0 mg/L would be needed when the minimum BOD_5 limits are implemented. The calculated BOD_5 WQBELs are less than the minimums; **therefore, the minimum limits are recommended for April and October instead during the reissued permit term.**

The weekly average BOD_5 limits of 6.8 mg/L and 14 lbs/day are recommended for May – September during the reissued permit term. The daily minimum DO limit of 7.0 mg/L is required to be retained during the reissued permit term to satisfy the DO condition of the BOD_5 limits.

Total Suspended Solids (TSS)
Total suspended solids (TSS) effluent limits are regulated via narrative standards described in NR 102.04(1), Wis. Adm. Code. TSS effluent limits are included whenever BOD_5 WQBELs are needed and are set equal to the BOD_5 limits but no lower than 10 mg/L per Department policy. **Therefore, the weekly average TSS limit of 10 mg/L is recommended during the reissued permit term.** The following table summarizes effluent TSS monitoring data from July 2019 – September 2019.

TSS Effluent Data

Sample Date	Weekly Avg. (mg/L)
07/01/2019	4.2
07/10/2019	27.4
07/17/2019	11.2
07/29/2019	6.2
08/01/2019	13.4
08/05/2019	11.8
08/12/2019	8.0
08/19/2019	12.6
08/29/2019	7.0
09/12/2019	3.0
09/18/2019	5.4

Goodman V&L has an effluent TSS monitoring frequency of weekly in the current permit where each sample is equivalent to a representative weekly average. A review of this effluent data show Goodman V&L would have exceeded the 10 mg/L weekly average limit 5 times. This demonstrates a compliance schedule is recommended during the reissued permit term. An interim limit is required when a compliance schedule is needed in the permit to meet a limit. The interim limit should reflect a concentration that the facility is able to meet without investing in additional "temporary" treatment, but also should prevent backsliding from current conditions. **Therefore, the current TSS limit of 16 mg/L as a weekly average is recommended to serve as the interim limit for the compliance schedule.**

PART 4 – PHOSPHORUS

Technology-Based Effluent Limit
Subchapter II of Chapter NR 217, Wis. Adm. Code, requires industrial facilities that discharge greater than 60 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 Goodman V&L does not currently have an existing technology-based limit, the need for this limit in the reissued permit is evaluated. The maximum effluent phosphorus sample from the current permit term is 0.12 mg/L (06/10/2019). The maximum effluent flow from the current permit term for Outfall 001 is 0.358 MGD (06/01/2021). Assuming this concentration and flow occurs daily for 1 month, the estimated maximum monthly mass phosphorus discharge for Outfall 001 is 0.12 mg/L × 0.358 MGD × 8.34 × 30 days/month = 11 lbs/month. Assuming this maximum monthly mass phosphorus discharge for 1 year demonstrates that the annual monthly average phosphorus loading is less than the 60 lbs/month threshold in accordance with s. NR 217.04(1)(a)2, Wis. Adm. Code. **Therefore a technology-based limit is not recommended during the reissued permit term.** In addition, the need for a WQBEL for phosphorus must be considered.

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

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

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 Chemical Creek.
Qs = 100% of the 7-Q_2 of 0.73 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 = 0.25 MGD = 0.39 cfs.
f = the fraction of effluent withdrawn from the receiving water = 0.

Section NR 217.13(2)(d), Wis. Adm. Code, specifies that the background phosphorus concentration used in the limit calculation formula shall be calculated as a median using the procedures specified in s. NR 102.07(1)(b) to (c), Wis. Code. All representative data from the most recent 5 years shall be used, but data from the most recent 10 years may be used if representative of current conditions.

A previous limit evaluation (March 2019) did not calculate a specific phosphorus WQBEL but demonstrated Chemical Creek and the Goodman Mill Pond upstream of Outfall 001 were both likely to have background phosphorus concentrations below the phosphorus criterion of 0.075 mg/L. Both surface waters receive no discharge from a point source and the surrounding land use is predominantly residential. The reference stations used are included below:

Attachment #1

SWIMS ID	10021949	10031785	193003
Station Name	Monitoring station at Rat River at Harper Rd	Monitoring station at Pike River at Pike R. Road	Monitoring station at Popple River- Near Morgan Lake
Waterbody	Rat River	Pike River	Popple River
Sample Count	7	6	65
First Sample	10/23/2007	10/25/2010	5/7/2007
Last Sample	7/21/2009	9/19/2011	9/11/2017
Mean	0.031 mg/L	0.02 mg/L	0.029
Median	0.03 mg/L	0.016 mg/L	0.027
NR 217 Median	0.03 mg/L	0.016 mg/L	0.027

Section NR 217.13(2)(d), Wis. Adm. Code, states that the determination of upstream concentrations shall be evaluated at each permit reissuance. Additional data were considered in estimating the background phosphorus concentration.

A review of all available in stream total phosphorus data stored in the Surface Water Integrated Monitoring System database indicates the monitoring stations for the Rat and Pike Rivers do not have any updated data but the Popple River stations does. Therefore, its background phosphorus data will be used. The median background total phosphorus concentration in the Popple River near Morgan Lake Rd Fr 2159 - Town of Fence (n = 53, October 2014 – October 2023, SWIMS ID: 193003) is 0.0244 mg/L.

Substituting a median value of 0.0244 mg/L into the limit calculation equation above, the calculated limit is 0.17 mg/L.

The facility may opt to sample the receiving water upstream of the outfall since there is no available data for Chemical Creek or the Goodman Mill Pond. The WQBEL may be amended if background phosphorus stream data, collected during the period of May – October and with regards to other stipulations laid out in s. NR 217.13(2)(d), Wis. Adm. Code, is submitted to the Department that shows the upstream concentration of total phosphorus is in fact less than the applicable criterion. For informational purposes only, the following table shows a range of limits based on possible background concentrations. This calculation is based on effluent flow 0.25 MGD and stream flow (7-Q_2) of 0.73 cfs at the criterion of 0.075 mg/L in accordance with s. NR 217.13(2), Wis. Adm. Code.

Total Phosphorus Background Concentrations & Limits

Upstream 'Concentrations' (mg/L)	Corresponding P Limit (mg/L)
0.02	0.18
0.03	0.16
0.04	0.14
0.05	0.12
0.06	0.10
0.07	0.084
> = 0.075	0.075

Effluent Data

The following table summarizes effluent total phosphorus monitoring data from July 2018 – June 2019.

Attachment #1

Total Phosphorus Effluent Data

Sample Date	Conc. (mg/L)
07/16/2018	<0.052
08/02/2018	<0.052
09/10/2018	<0.052
05/22/2019	<0.052
06/10/2019	0.12
Mean	0.024

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

Reasonable Potential Determination
The discharge does not have reasonable potential to cause or contribute to an exceedance of the water quality criterion because the mean of reported effluent total phosphorus data is less than 1/5th of the calculated WQBEL (0.034 mg/L). **Therefore, a phosphorus WQBEL is not recommended during the reissued permit term.**

In this case, the facility was unable to provide permit application samples because the last discharge from Outfall 001 occurred in 2019. The current permit required sampling for phosphorus but were also unavailable because the sampling was specified for 2022 when the discharge did not occur. Two samples of phosphorus were taken during May 2019 – June 2019 but not enough for the required 12 samples required by the current permit. **Because little effluent monitoring was conducted during the current permit term, monthly phosphorus monitoring for 1 year is required to continue during the reissued permit term.**

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 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 this case, the facility was unable to provide temperature samples because the last discharge from Outfall 001 occurred in 2019 and the permit required sampling was specified for 2022 when the discharge did not occur. **Therefore, the need for WQBELs for temperature cannot be determined at this time. Because effluent monitoring was not conducted during the current permit term, monthly monitoring for 1 year for temperature is required to continue during the reissued permit term.** Because the fish and aquatic life classification of Chemical Creek changed from a WWSF community in the previous limit evaluation (March 2019) to a CW community, temperature WQBELs based on a typical discharge season for Outfall 001 will be calculated for informational purposes.

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 May 2019 – September 2019.

The heat loss equation as described by s. NR 106.55(5), Wis. Adm. Code, is used for discharges to storm sewer/storm water conveyance channels where the default cooling rate is estimated as 1 ºF per 400 ft and is used to estimate the given cooling over the 0.4 mi between the open pit to Outfall 001.

The table below summarizes the calculated, cooling-adjusted, temperature limits. The complete thermal table used for the limit calculation included as attachment #3. Limits can only be calculated for months where a discharge occurred.

Monthly Temperature Limits

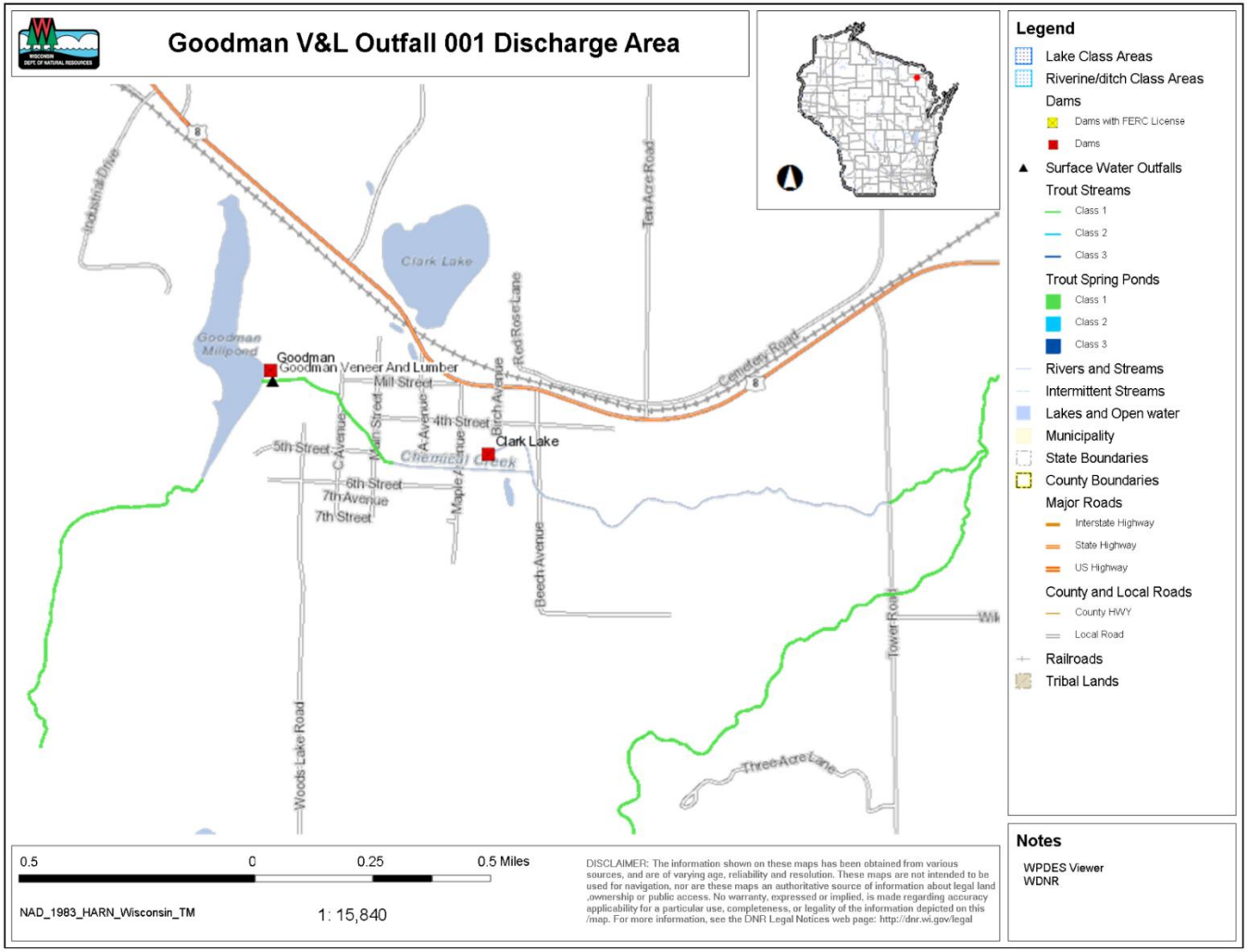
Month	Calculated Effluent Limit	
	Weekly Average Effluent Limitation (°F)	Daily Maximum Effluent Limitation (°F)
MAY	70	80
JUN	73	79
JUL	73	80
AUG	71	81
SEP	66	83

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).*

Outfall 001 is comprised of log spray water and stormwater. The discharge does not have a history of WET failures, no additives used, and no toxic compounds are expected at levels of concern. Since there is believed to be a very low risk of toxicity, **WET testing is not recommended during the reissued permit term.**

Attachment #2



Attachment #3

Temperature Limits for Receiving Waters with Unidirectional Flow

(calculation using default ambient temperature data)

						Temp Dates	Flow Dates
Facility:	Goodman V&L		**7-Q10:**	0.44	cfs		
Outfall(s):	001		**Dilution:**	25%		**Start:** NA	05/06/19
Date Prepared:	2/7/2024		**f:**	0		**End:** NA	09/16/19
Design Flow (Qe):	0.25	MGD	**Stream type:**	Cold water community			
Storm Sewer Dist.	2112	ft	**Qs:Qe ratio:**	0.3	: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		**Adjusted Thermal Limits**	
	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	**Weekly Average**	**Daily Maximum**
	(°F)	(°F)	(°F)	(cfs)	(MGD)	(MGD)		(°F)	(°F)	(°F)	(°F)	(°F)	(°F)
JAN	35	47	68	0.44	0	0	0						
FEB	36	47	68	0.44	0	0	0						
MAR	39	51	69	0.44	0	0	0						
APR	47	57	70	0.44	0	0	0						
MAY	56	63	72	0.44	0.345	0.358	0			64	75	70	80
JUN	62	67	72	0.44	0.396	0.416	0			68	74	73	79
JUL	64	67	73	0.44	0.345	0.358	0			68	75	73	80
AUG	63	65	73	0.44	0.258	0.281	0			66	76	71	81
SEP	57	60	72	0.44	0.185	0.194	0			61	77	66	83
OCT	49	53	70	0.44	0	0	0						
NOV	41	48	69	0.44	0	0	0						
DEC	37	47	69	0.44	0	0	0						