Permit Modification Fact Sheet

Changes from the previous permit fact sheet are highlighted in grey.

General Information

Permit Number:	WI-0029327-11-3	
Permittee Name:	Grand Geneva Resort & Spa	
Address:	7036 Grand Geneva Way	
City/State/Zip:	Lake Geneva WI 53147	
Discharge Location:	Wetland adjacent to Como Creek	
Receiving Water:	Wetland adjacent to Como Creek (White River and Nippersink Creek Watershed in the Middle Fox (IL) River Basin) in Walworth County	
StreamFlow ($Q_{7,10}$):	0 cfs (Wetland with no defined base flow)	
Stream Classification:	Limited Aquatic Life (LAL)	
Design Flow(s)	Annual Average	0.40 MGD
Significant Industrial Loading?	No	
Operator at Proper Grade?	Yes – Required: A1, B, C, L, D and SS	
Approved Pretreatment Program?	N/A	

Reason for Permit Modification WI-0029327-11-1

The permit was reissued with a schedule to meet final E. coli effluent limits by April 30, 2028. Monitoring for E. coli in the effluent is not required before the facility installs disinfection treatment technology to comply with the final limits. This permit modification updates the corresponding notes in the "Monitoring Requirements and Limitations" table for Outfall 001 to clarify that monitoring is required only when the limits become effective. Additionally, as the facility does not currently disinfect, the first step of preparing an Operational Evaluation Report has been removed from the E. coli schedule in the permit and replaced with submittal of a Preliminary Compliance Alternatives Evaluation. This is a preliminary engineering design report and is intended as a precursor to the facility plan submittal. All dates remain the same in the schedule.

A typo in the permit was identified and corrected. The effluent monitoring frequency for phosphorus is 3 times per week as was correctly noted in the permit fact sheet. It was incorrectly listed as "quarterly" in the reissued permit.

The above modifications do not result in a permit that is less restrictive than what was reissued to the facility, and is therefore being modified without public notice pursuant to s. 283.53(2d)(b), Wis. Stats.

Reason for Permit Modification WI-0029327-11-2

There was an error when generating the permit where the concentration-based limits for BOD5, Total and the mass-based limits for Total Suspended Solids were not included as they were presented in the permit fact sheet. The permit has been

modified to correctly show these limits. These limits are the same as in previous permit terms. No changes have been made to the fact sheet.

Facility Description

The Grand Geneva Resort and Spa is located at Sheridan Springs Road just north of Lake Geneva in Walworth County. There are a total of three lift stations in the collection system and the facility accepts an average of 20,000 gallons per day of holding tank hauled wastes through a receiving station next to the facility. Wastewater is treated in a 0.4 million gallon per day (MGD) annual average design flow Sanitaire Mark IV C-35 wastewater treatment facility (WWTF) which can be operated in conventional plug flow or contact stabilization mode. Wastewater treatment includes communition, aeration, and clarification. After sampling, effluent is discharged to a small pond (0.4 acres) that overflows to another pond (2.0 acres). Both ponds were constructed around the same time as the resort (1970). After a holding time of approximately 7-10 days in the ponds, effluent is discharged to a large wetland area that is contiguous with Como Creek and the White River. A biologist survey was completed on July 24th, 2023, which concluded that the immediate receiving water should continue to be classified as limited aquatic life (LAL) from Outfall 001 downstream approximately 1 mile to Como Creek. It was determined that a few fish may be present in the wetland occasionally when the golf course pond overflows, but the habitat upstream and downstream likely prevents a fish community from establishing. Digested sludge is presently taken off site via a contracted hauler PATS Sanitary Service (WPDES Permit No. WI-0036111-07).

Substantial Compliance Determination

After a desk top review of all discharge monitoring reports, CMARs, land application reports, compliance schedule items, and a facility inspection on May 2, 2023 conducted by DNR wastewater engineer, Nick Lent, this facility has been found to be in substantial compliance with the current permit.

Fact Sheet Organization

This fact sheet identifies changes in permit conditions that the department has made when reissuing the Grand Geneva Resort & Spa WPDES permit. This fact sheet contains all content required under s. NR 201, Wis. Adm. Code, as applicable. The permit remains in effect until the permit is either revoked and reissued, modified, or reissued. The tables and sections that follow were taken from the permit and are numbered in this fact sheet as they are numbered in the permit. Changes to monitoring requirements, limits, and/or schedules are shaded. For complete explanations of derived effluent limitations including water quality-based effluent limitations, please refer to the attached technical memorandum: Water Quality-Based Effluent Limits Technical Memorandum for Grand Geneva Resort and Spa dated October 25, 2023.

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)**
701		INFLUENT: 24-Hr flow proportional sampler located at the inlet pipe at the comminutor.
001	0.099 MGD (01/2019 - 03/2023)	EFFLUENT: 24-Hr flow proportional sampler and grab samples collected at the contact tank. Flow meter located at the contact tank.
002		Class B, Aerobically digested, liquid sludge. Representative sludge samples shall be collected from the north end of the aerated digester sludge after mixing. Department notification and approval is required prior to changes to this disposal option.

1 Influent - Proposed Monitoring

Sample Point Number: 701- INFLUENT TO PLANT

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

Changes from Previous Permit

Monitoring requirements were re-evaluated for the proposed permit term and no changes were required in this permit section. Sampling requirements and frequencies are the same as the previous permit.

Explanation of Limits and Monitoring Requirements

Characterization of the influent strengths and volumes coming into the treatment plant is required under s. NR 210.04, Wis. Adm. Code. through minimally monitoring for flow, BOD5, Total, and Total Suspended Solids. 24-hr composite sampling three times per week is adequate to characterize the influent quality for this facility. Effluent flow is assumed to be representative of the influent flow as the hydraulic residence time in the treatment plant is short and the aerated digester used to store and treat waste activated sludge is decanted no more than once per week.

2 Surface Water - Proposed Monitoring and Limitations

Sample Point Number: 001- EFFLUENT

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
BOD5, Total	Weekly Avg	15 mg/L	3/Week	24-Hr Flow Prop Comp	
BOD5, Total	Monthly Avg	10 mg/L	3/Week	24-Hr Flow Prop Comp	
BOD5, Total	Weekly Avg	63 lbs/day	3/Week	Calculated	
BOD5, Total	Monthly Avg	42 lbs/day	3/Week	Calculated	
Suspended Solids, Total	Weekly Avg	15 mg/L	3/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Monthly Avg	10 mg/L	3/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Weekly Avg	63 lbs/day	3/Week	Calculated	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Suspended Solids, Total	Monthly Avg	42 lbs/day	3/Week	Calculated	
pH Field	Daily Max	9.0 su	5/Week	Grab	
pH Field	Daily Min	6.0 su	5/Week	Grab	
Dissolved Oxygen	Daily Min	4.0 mg/L	5/Week	Grab	
Phosphorus, Total	Monthly Avg	5.8 mg/L	3/Week	24-Hr Flow Prop Comp	This is an interim limit effective immediately. See Phosphorus Water Quality-Based Effluent Limitation(s) section and Water Quality Based Effluent Limits (WQBELs) for Total Phosphorus schedule in permit.
Nitrogen, Ammonia (NH3-N) Total	Daily Max	16 mg/L	3/Week	24-Hr Flow Prop Comp	Monitoring year-round. Limit effective June through September.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	12 mg/L	3/Week		Monitoring year-round. Limit effective June through September.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	6.6 mg/L	3/Week		Monitoring year-round. Limit effective June through September.
Chloride	Weekly Avg	400 mg/L	4/Month	24-Hr Flow Prop Comp	
Chloride	Monthly Avg	400 mg/L	4/Month	24-Hr Flow Prop Comp	
Chloride	Weekly Avg - Variable	lbs/day	4/Month	Calculated	Look up the variable chloride mass limit from the Non-Wet Weather and Alternative Wet Weather Mass Limit section of the permit below. Report the variable limit in the Chloride Variable Limit in the variable limit column on the DMR form.
Chloride, Variable Limit		lbs/day	4/Month	Calculated	Report the chloride mass result in the Chloride Weekly Average Mass column on the DMR.

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					Compare to the Variable Chloride Mass Limitation chart to determine compliance.
E. coli	Geometric Mean - Monthly	126 #/100 ml	Weekly	Grab	Monitoring and limit effective per the Effluent Limitations for E. coli Schedule.
E. coli	% Exceedance	10 Percent	Monthly	Calculated	Monitoring and limit effective per the Effluent Limitations for E. coli Schedule. See the E. coli Percent Limit section below. Enter the result in the DMR on the last day of the month.
PFOS		ng/L	Annual	Grab	Monitoring only. See permit subsections PFOS/PFOA Sampling and Reporting Requirements and PFOS/PFOA Minimization Plan Determination of Need and permit schedule PFOS/PFOA Minimization Plan Determination of Need.
PFOA		ng/L	Annual	Grab	Monitoring only. See permit subsections PFOS/PFOA Sampling and Reporting Requirements and PFOS/PFOA Minimization Plan Determination of Need and permit schedule PFOS/PFOA Minimization Plan Determination of Need.
Nitrogen, Total Kjeldahl		mg/L	See Listed Quarters	24-Hr Flow Prop Comp	Annual in rotating quarters. See Nitrogen Series Monitoring section below.
Nitrogen, Total		mg/L	See Listed Qtr(s)	Calculated	Total Nitrogen = Total Nitrogen Kjeldahl (mg/L)

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					+ Nitrate+ Nitrogen (mg/L). See Nitrogen Series Monitoring section in permit below.
Nitrogen, Nitrite + Nitrate Total		mg/L	See Listed Quarters	Calculated	Annual in rotating quarters. See Nitrogen Series Monitoring section below.
Temperature Maximum		deg F	Daily	Continuous	Monitoring only during 2028.
Cadmium, Total Recoverable		ug/L	Once	24-Hr Flow Prop Comp	Monitoring once during 2024 using testing methods sensitive enough to produce a Limit Of Detection (LOD) below 0.76 ug/L. See Sampling and Testing Procedures in Standard Requirements section in permit.

Changes from Previous Permit

pH and Dissolved Oxygen: The monitoring frequency was reduced from daily to five times per week (5x/week).

Phosphorus: An interim limit was added to the permit, and the frequency for monitoring was increased from annual to 3 times per week (3/week).

Nitrogen, Ammonia: The monitoring frequency was increased from monthly to 3 times per week (3/week). Daily max, weekly average, and monthly average limits were added to the permit.

Chloride: A monthly average limit was added to the permit.

E. coli: At the end of the compliance schedule, E. coli limits of 126 #/100 ml as a monthly geometric mean that may not be exceeded and 410 #/100 ml as a daily maximum that may not be exceeded more than 10 percent of the time in any calendar month will apply. Monitoring is not required until the limit becomes effective April 30, 2028.

Copper: Monitoring was removed from the permit.

PFOS/PFOA: Monitoring once every two months was included in the permit in accordance with s. NR 106.98(2)(c), Wis. Adm. Code. The monitoring frequency for PFOS and PFOA has been reduced from 1/ 2 Months to Annual.

Temperature: Temperature monitoring was included in the permit.

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

Explanation of Limits and Monitoring Requirements

Monitoring frequencies

Section NR 205.066(1) Wis. Adm. Code allows sampling frequency to be set on a case-by-case basis. The permittee demonstrates a history of consistent compliance with existing permit limits. Data submitted during the previous permit term continues to show consistent compliance with permit limitations, and the set monitoring frequencies are consistent with requirements of state code. The frequency for pH and Dissolved Oxygen (DO) was reduced to 5x/week as there are no industrial contributors, the treatment performance and resulting effluent quality is consistent, and specifically with respect to DO, the receiving water's aquatic community does not require that a higher DO level be maintained in stream. The frequency for phosphorus monitoring increased from annual to 3 times per week as there is now a monthly average limit included in the permit. The frequency for ammonia, nitrogen increased to 3 times per week as a weekly average is included in the permit in addition to a daily maximum and monthly average limit. The current monitoring frequencies for all other parameters shall continue this permit term. If performance levels begin to vary during the permitted term, the department may re-evaluate current sampling frequencies and implement more frequent monitoring via permit modification or at permit reissuance.

Categorical Limits

BOD_5, Total Suspended Solids, pH, and Dissolved Oxygen: Standard municipal wastewater requirements for BOD_5, total suspended solids, dissolved oxygen, and pH are included based on ch. NR 210, Wis. Adm. Code 'Sewage Treatment Works' requirements for discharges to fish and aquatic life streams. Chapter NR 102, Wis. Adm. Code 'Water Quality Standards for Surface Waters' also specifies requirements for pH for fish and aquatic life streams.

Water Quality Based Limits and WET Requirements and Disinfection

Nitrogen, Ammonia: Current acute and chronic ammonia toxicity criteria for the protection of aquatic life are included in Table 2C and Table 4B of ch. NR 105, Wis. Adm. Code (effective March 1, 2004). Subchapter IV of ch. NR 106 establishes procedures for calculating water quality-based effluent limitations (WQBELs) for ammonia (effective March 1, 2004). Based on the ammonia data reported between April 14, 2010 and March 30, 2023, the maximum value is 22 mg/L for June – September which exceeds the calculated daily maximum limit of 16 mg/L. Therefore, the daily maximum limit is included in the permit.

Revisions to ch. NR 106, Wis. Adm. Code, in September 2016 aligned Wisconsin's WQBELs with 40 CFR § 122.45(d), which specifies that effluent limits for continuous dischargers must be expressed as weekly and monthly averages for publicly owned treatment works, unless shown to be impracticable. Because a daily maximum ammonia limit is necessary for Grand Geneva, weekly and monthly average limits are also included and are based on downstream protection of the designated uses for Como Creek.

Phosphorus, Total: 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. The previous permit did not include a phosphorus limit because downstream impacts were not expected. A site visit conducted by the department in July 2023 concluded that the effluent likely reaches Como Creek so downstream impacts are expected. Evaluation of effluent data collected in the previous permit term determined that the permittee's discharge has reasonable potential to cause or contribute to an exceedance of water quality downstream, therefore a limit is included.

The permittee's final water quality based effluent limits (WQBELs) for phosphorus are 0.097 mg/L and 7.82 lbs/day as a six-month average and 0.32 mg/L as a monthly average and are effective on January 1, 2031 (seven years from permit effective date). 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 it is impracticable to express the phosphorus WQBEL for the permittee as a maximum daily, weekly or monthly values. The final effluent limit for phosphorus is expressed as a six-month average. It is also expressed as a monthly average equal to three times the derived WQBEL. This final effluent limit was derived from and complies with the applicable water quality criterion. Please see the phosphorus compliance schedule included in the Schedules section. The full nine-year schedule may remain in the next permit reissuance should a major plant upgrade be needed to

comply with the final limit. A 5.8 mg/L monthly average interim limit is effective immediately. The interim limit is based on the 4-day P99 of collected data.

Chloride: A schedule to assess chloride reduction methods to allow Grand Geneva to comply with chloride limitations was included in the previous permit. Considering available effluent data from the current permit term January 20199 through March 2023 the 1-day P_{99} chloride concentration is 503 mg/L and the 4-day P_{99} of effluent data is 384 mg/L. The final WQBEL of 400 mg/L is effective December 31, 2023. Chloride mass limitations are included in the proposed permit also effective December 31, 2023. Chloride mass limitations include alternative wet weather limits per s. NR 106.07(9), Wis. Adm. Code. These variable limits are reported on the eDMR by reporting the calculated mass on the same days as chloride concentration samples are taken. Then using the chart included in the proposed permit the permittee determines compliance with mass limitations. When the permittee indicates that alternative wet weather limits apply, they shall notify the Department and provide required documentation of wet weather conditions.

E. coli: Revisions to bacteria surface water quality criteria to protect recreational uses and accompanying E. coli WPDES permit implementation procedures became effective May 1, 2020. The administrative code rule changes included the following actions: revised the bacteria water quality criteria from fecal coliform to E. coli to protect recreation in ch. NR 102, Wis. Adm. Code.; removed fecal coliform criteria for certain individual waters from ch. NR 104, Wis. Adm. Code.; revised permit requirements for publicly and privately owned sewage treatment works in ch. NR 210, Wis. Adm. Code.; and, updated approved analytical methods for bacteria in ch. NR 219, Wis. Adm. Code. Monitoring requirements and final limits for E. coli are not effective until April 30, 2028 per the schedule in the permit.

PFOS and PFOA: NR 106 Subchapter VIII – Permit Requirements for PFOS and PFOA Dischargers became effective on August 1, 2022. At the first reissuance of a WPDES permit after August 1, 2022, the new rule requires WPDES permits for municipal dischargers with an average flow rate less than 1 MGD, to be evaluated on a case-by-case basis to determine if monitoring is required pursuant to s. NR 106.98(2)(c), 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, it was identified that source water has known levels of PFOS/PFOA.

Therefore, monitoring once every two months is included. A sample frequency of 1/2 months means one sample is taken during any two-month period. Examples of 1/2 month sample would be every other month (Jan, March, May, etc.) or back-to-back months with a break in between (February & March, May & June, Aug & Sept, etc.). DMR Short Forms will be generated for the following time periods: January-February, March-April, May-June, July-August, September-October, and November-December. At a minimum one sample result will be present on each form.

The initial determination of the need for sampling shall be conducted for up to two years in order to determine if the permitted discharge has the reasonable potential to cause or contribute to an exceedance of the PFOS or PFOA standards under s. NR 102.04(8)(d)1, Wis. Adm. Code.

Pursuant to s. NR 205.066, Wis. Adm. Code, the department may specify the monitoring frequency for PFOS and PFOA on a case-by-case basis after the initial 24 months of sampling.

After a review of the data submitted with the Year 2 Report on Effluent Discharges, the department has determined that it is warranted to reduce the sampling frequency in this case. The department is requiring continued monitoring of these compounds to complete the permit term to ensure that the current effluent quality is maintained. At the next permit reissuance, the department will make another determination as to whether further reduction or removal of monitoring is warranted, based on the continued sampling results.

Temperature Maximum: Available temperature data from November 4, 2011 to December 31, 2017 indicates that no temperature limitations are needed. Monitoring for one year in the permit is included to reevaluate data at next permit reissuance.

Total Nitrogen Monitoring (NO2+NO3, TKN and Total N): The Department has included effluent monitoring for Total Nitrogen in the permit through the authority under §§ 283.55(1)(e), Wis. Stats., which allows the department to require the permittee to submit information necessary to identify the type and quantity of any pollutants discharged from the point source, and through s. NR 200.065(1)(h), Wis. Adm. Code, which allows for this monitoring to be collected

during the permit term. Quarterly effluent monitoring for Total Nitrogen is included in the permit because of the potential for higher nitrogen loading resulting from higher flows (major facilities), higher concentrations, or both. More information on the justification to include total nitrogen monitoring in wastewater permits can be found in the "Guidance for Total Nitrogen Monitoring in Wastewater Permits" dated October 1, 2019.

Annual tests are scheduled in the following rotating quarters: July - September 2024; October – December 2025; January – March 2026; April – June 2027; July – September 2028

TMDL Under Development

A Total Maximum Daily Load (TMDL) is being developed for the Fox (IL) River basin for phosphorus. The TMDL will address phosphorus water quality impairments within the basins and provide waste load allocations (WLA) required to meet water quality standards. This TMDL will likely result in phosphorus limitations that must be included in WPDES permits, which may be different than those calculated in this WQBEL memo. TMDL-derived phosphorus limits may be included in lieu of or in addition to the calculated limits upon permit reissuance or modification once the TMDL has been approved by U.S. EPA, according to s. NR 217.16, Wis. Adm. Code.

3 Land Application - Proposed Monitoring and Limitations

Municipal Sludge Description						
Sample Point	**Sludge Class (A or B)**	**Sludge Type (Liquid or Cake)**	**Pathogen Reduction Method**	**Vector Attraction Method**	**Reuse Option**	**Amount Reused/Disposed (Dry Tons/Year)**
002	B	Liquid	Hauled to another Facility	Hauled to another Facility	Hauled to another Facility	268 (hauled to another facility per permit application)
Does sludge management demonstrate compliance? **Yes**						
Is additional sludge storage required? **No**						
Is Radium-226 present in the water supply at a level greater than 2 pCi/liter? No If yes, special monitoring and recycling conditions will be included in the permit to track any potential problems in landapplying sludge from this facility						
Is a priority pollutant scan required? No Priority pollutant scans are required once every 10 years at facilities with design flows between 5 MGD and 40 MGD, and once every 5 years if design flow is greater than 40 MGD.						

3.1 Sample Point Number: 002- Hauled Sludge

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Solids, Total		Percent	Annual	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	Annual	Composite	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Cadmium Dry Wt	Ceiling	85 mg/kg	Annual	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Annual	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Annual	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Annual	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	Annual	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Annual	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Annual	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Annual	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Annual	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Annual	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Annual	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Annual	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Annual	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Annual	Composite	
Nitrogen, Total Kjeldahl		Percent	Annual	Composite	
Nitrogen, Ammonium (NH4-N) Total		Percent	Annual	Composite	
Phosphorus, Total		Percent	Annual	Composite	
Phosphorus, Water Extractable		% of Tot P	Annual	Composite	
Potassium, Total Recoverable		Percent	Annual	Composite	
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	Once in 2025. See Sludge Analysis for PCBs section in permit.
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	Once in 2025. See Sludge Analysis for PCBs section in permit.
PFOA + PFOS		µg/kg	Annual	Calculated	Report the sum of PFOS and PFAS. See PFAS Permit Sections for more information.

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
PFAS Dry Wt			Annual	Grab	Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS Permit Sections for more information.

Changes from Previous Permit

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

PCB Total Dry Wt: A composite sample analyzed for PCBs shall be taken once in calendar year 2025. The last sample collection for PCBs was in 2020.

Explanation of Limits and Monitoring Requirements

The permittee hauls sludge to another permitted facility and does not land apply. Should land application occur under this permit, prior to land application of waste the permittee shall contact the Department for additional requirements. Requirements for land application of municipal sludge are determined in accordance with ch. NR 204, Wis. Adm. Code. Ceiling and high quality limits for metals in sludge are specified in s. NR 204.07(5), Wis. Adm. Code. Requirements for pathogens are specified in s. NR 204.07(6) and in s. NR 204.07 (7), Wis. Adm. Code for vector attraction requirements. Limitations for PCBs are addressed in s. NR 204.07(3)(k), Wis. Adm. Code.

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

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

4 Schedules

4.1 Water Quality Based Effluent Limits (WQBELs) for Total Phosphorus

The permittee shall comply with the WQBELs for Phosphorus as specified. No later than 14 days following each compliance date, the permittee shall notify the Department in writing of its compliance or noncompliance. If a submittal is required, a timely submittal fulfills the notification requirement.

Required Action	Due Date
Operational Evaluation Report: The permittee shall prepare and submit to the Department for approval an operational evaluation report. The report shall include an evaluation of collected effluent data, possible source reduction measures, operational improvements or other minor facility modifications that will optimize reductions in phosphorus discharges from the treatment plant during	12/31/2024

Required Action	Due Date
the period prior to complying with final phosphorus WQBELs and, where possible, enable compliance with final phosphorus WQBELs by December 31, 2026. The report shall provide a plan and schedule for implementation of the measures, improvements, and modifications as soon as possible, but not later than December 31, 2026, and state whether the measures, improvements, and modifications will enable compliance with final phosphorus WQBELs. Regardless of whether they are expected to result in compliance, the permittee shall implement the measures, improvements, and modifications in accordance with the plan and schedule specified in the operational evaluation report. If the operational evaluation report concludes that the facility can achieve final phosphorus WQBELs using the existing treatment system with only source reduction measures, operational improvements, and minor facility modifications, the permittee shall comply with the final phosphorus WQBEL by December 31, 2026 and is not required to comply with the milestones identified below for years 3 through 9 of this compliance schedule ('Preliminary Compliance Alternatives Plan', 'Final Compliance Alternatives Plan', 'Final Plans and Specifications', 'Treatment Plant Upgrade to Meet WQBELs', 'Complete Construction', 'Achieve Compliance'). STUDY OF FEASIBLE ALTERNATIVES - If the Operational Evaluation Report concludes that the permittee cannot achieve final phosphorus WQBELs with source reduction measures, operational improvements and other minor facility modifications, the permittee shall initiate a study of feasible alternatives for meeting final phosphorus WQBELs and comply with the remaining required actions of this schedule of compliance. If the Department disagrees with the conclusion of the report, and determines that the permittee can achieve final phosphorus WQBELs using the existing treatment system with only source reduction measures, operational improvements, and minor facility modifications, the Department may reopen and modify the permit to include an implementation schedule for achieving the final phosphorus WQBELs sooner than December 31, 2032.	
Compliance Alternatives, Source Reduction, Improvements and Modifications Status: The permittee shall submit a 'Compliance Alternatives, Source Reduction, Operational Improvements and Minor Facility Modification' status report to the Department. The report shall provide an update on the permittee's: (1) progress implementing source reduction measures, operational improvements, and minor facility modifications to optimize reductions in phosphorus discharges and, to the extent that such measures, improvements, and modifications will not enable compliance with the WQBELs, (2) status evaluating feasible alternatives for meeting phosphorus WQBELs.	12/31/2025
Preliminary Compliance Alternatives Plan: The permittee shall submit a preliminary compliance alternatives plan to the Department. If the plan concludes upgrading of the permittee's wastewater treatment facility is necessary to achieve final phosphorus WQBELs, the submittal shall include a preliminary engineering design report. If the plan concludes Adaptive Management will be used, the submittal shall include a completed Watershed Adaptive Management Request Form 3200-139 without the Adaptive Management Plan. If water quality trading will be undertaken, the plan must state that trading will be pursued.	12/31/2026
Final Compliance Alternatives Plan: The permittee shall submit a final compliance alternatives plan to the Department. If the plan concludes upgrading of the permittee's wastewater treatment is necessary to meet final phosphorus WQBELs, the submittal shall include a final engineering design report addressing the treatment plant upgrades, and a facility plan if required pursuant to ch. NR 110, Wis. Adm. Code.	12/31/2027

Required Action	Due Date
If the plan concludes Adaptive Management will be implemented, the submittal shall include a completed Watershed Adaptive Management Request Form 3200-139 and an engineering report addressing any treatment system upgrades necessary to meet interim limits pursuant to s. NR 217.18, Wis. Adm. Code. If the plan concludes water quality trading will be used, the submittal shall identify potential trading partners. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	
Progress Report on Plans & Specifications: Submit progress report regarding the progress of preparing final plans and specifications. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	12/31/2028
Final Plans and Specifications: Unless the permit has been modified, revoked and reissued, or reissued to include Adaptive Management or Water Quality Trading measures or to include a revised schedule based on factors in s. NR 217.17, Wis. Adm. Code, the permittee shall submit final construction plans to the Department for approval pursuant to s. 281.41, Stats., specifying treatment plant upgrades that must be constructed to achieve compliance with final phosphorus WQBELs, and a schedule for completing construction of the upgrades by the complete construction date specified below. (Note: Permit modification, revocation and reissuance, and reissuance are subject to s. 283.53(2), Stats.) Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	12/31/2029
Treatment Plant Upgrade to Meet WQBELs: The permittee shall initiate construction of the upgrades. The permittee shall obtain approval of the final construction plans and schedule from the Department pursuant to s. 281.41. Stats. Upon approval of the final construction plans and schedule by the Department pursuant to s. 281.41, Stats., the permittee shall construct the treatment plant upgrades in accordance with the approved plans and specifications. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	06/30/2030
Construction Upgrade Progress Report #1: The permittee shall submit a progress report on construction upgrades. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	12/31/2030
Construction Upgrade Progress Report #2: The permittee shall submit a progress report on construction upgrades. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	12/31/2031
Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	11/30/2032
Achieve Compliance: The permittee shall achieve compliance with final phosphorus WQBELs. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	12/31/2032

4.2 Effluent Limitations for E. coli

The permittee shall comply with surface water limitations for E. coli as specified. No later than 14 days following each compliance date, the permittee shall notify the Department in writing of its compliance or noncompliance. If a submittal is required, a timely submittal fulfills the notification.

Required Action	Due Date
Preliminary Compliance Alternatives Evaluation: The permittee shall submit a preliminary engineering design report regarding future compliance with final E. coli effluent limits.	11/30/2024
Submit Facility Plan: The permittee shall submit a Facility Plan per s. NR 110.09, Wis. Adm. Code. The permittee may submit an abbreviated facility plan if the Department determines that the modifications are minor.	04/30/2025
Final Plans and Specifications: The permittee shall submit final construction plans to the Department for approval pursuant to ch. NR 108, Wis. Adm. Code, specifying treatment plant upgrades that must be constructed to achieve compliance with final E. coli limitations and a schedule for completing construction of the upgrades by the complete construction date specified below.	03/31/2026
Treatment Plant Upgrade to Meet Limitations: The permittee shall initiate bidding, procurement, and/or construction of the project. The permittee shall obtain approval of the final construction plans and schedule from the Department pursuant to s. 281.41. Stats., prior to initiating activities defined as construction under ch. NR 108, Wis. Adm. Code. Upon approval of the final construction plans and schedule by the Department pursuant to s. 281.41, Stats., the permittee shall construct the treatment plant upgrades in accordance with the approved plans and specifications.	09/30/2026
Construction Upgrade Progress Report: The permittee shall submit a progress report on construction upgrades.	09/30/2027
Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades.	03/31/2028
Achieve Compliance: The permittee shall achieve compliance with final E. coli limitations.	04/30/2028

4.3 PFOS/PFOA Minimization Plan Determination of Need

Required Action	Due Date
Report on Effluent Discharge: Submit a report on effluent PFOS and PFOA concentrations and include an analysis of trends in monthly and annual average PFOS and PFOA concentrations. This analysis should also include a comparison to the applicable narrative standard in s. NR 102.04(8)(d), Wis. Adm. Code. This report shall include all additional PFOS and PFOA data that may be collected including any influent, intake, in-plant, collection system sampling, and blank sample results.	12/31/2024
Report on Effluent Discharge and Evaluation of Need: Submit a final report on effluent PFOS and PFOA concentrations and include an analysis of trends in monthly and annual average PFOS and PFOA concentrations of data collected over the last 24 months. The report shall also provide a comparison on the likelihood of the facility needing to develop a PFOS/PFOA minimization plan. This report shall include all additional PFOS and PFOA data that may be collected including any influent, intake, in-plant, collection system sampling, and blank sample results. The permittee shall also submit a request to the department to evaluate the need for a PFOS/PFOA minimization plan.	12/31/2025

If the department determines a PFOS/PFOA minimization plan is needed based on a reasonable potential evaluation, the permittee will be required to develop a minimization plan for department approval no later than 90 days after written notification was sent from the department. The department will modify or revoke and reissue the permit to include PFOS/PFOA minimization plan reporting requirements along with a schedule of compliance to meet WQBELs. Effluent monitoring of PFOS and PFOA shall continue as specified in the permit until the modified permit is issued. If, however, the department determines there is no reasonable potential for the facility to discharge PFOS or PFOA above the narrative standard in s. NR 102.04(8)(d), Wis. Adm. Code, no further action is required and effluent monitoring of PFOS and PFOA shall continue as specified in the permit.	

Explanation of Compliance Schedules

Phosphorus: Section NR 217.17, Wis. Adm. Code, provides criteria for compliance schedules, factors that will help determine the length of compliance schedules, and requirements on the content of compliance schedules. Compliance with the final limit must be achieved as soon as possible. However, the schedule affords the permittee time to evaluate treatment options as well as compliance alternatives such as Adaptive Management and Water Quality Trading. The rules allow up to 9 years in cases where a major facility upgrade is needed. The need for the remaining years in the schedule will be reassessed at the next permit reissuance.

A Total Maximum Daily Load (TMDL) is being developed for the Fox (IL) River basin for phosphorus. The TMDL will address phosphorus water quality impairments within the basins and provide waste load allocations (WLA) required to meet water quality standards. This TMDL will likely result in phosphorus limitations that must be included in WPDES permits, which may be different than those calculated in this WQBEL memo. TMDL-derived phosphorus limits may be included in lieu of or in addition to the calculated limits upon permit reissuance or modification once the TMDL has been approved by U.S. EPA, according to s. NR 217.16, Wis. Adm. Code. In many completed TMDL studies the resulting phosphorus limits are less restrictive. This is because the assigned WLAs are based on the facility's design flow as compared to the actual flow. This facility is operating at approximately one-quarter of its design flow.

Disinfection and E. coli: A compliance schedule is included in the permit to provide time for the permittee to investigate options for meeting new effluent E. coli water quality-based effluent limits while coming into compliance with the limits as soon as reasonably possible. The need for an Operational Evaluation Report prior to disinfection being installed at the plant has been removed from the schedule as it is expected that the effluent limits cannot be met with existing treatment. This step has been replaced with submittal of a preliminary engineering design report as a precursor to the facility plan. Interim dates were not changed.

PFOS/PFOA Minimization Plan Determination of Need: As stated above, NR 106 Subchapter VIII – Permit Requirements for PFOS and PFOA Dischargers became effective on August 1, 2022. S. NR 106.98, Wis. Adm. Code, specifies steps to generate data in order to determine the need for reducing PFOS and PFOA in the discharge. Data generated per the effluent monitoring requirements will be used to determine the need for developing a PFOS/PFOA minimization plan. As part of the schedule, the permittee is required to submit two annual Reports on Effluent Discharge.

If the department determines that a minimization plan is needed, the permit will be modified or revoked/reissued to include additional requirements.

Special Reporting Requirements

None

Other Comments:

None

Attachments:

~~Water Quality-Based Effluent Limitations for Grand Geneva Resort and Spa dated October 25, 2023 and prepared by DNR Water Resources Engineer, Nicole Krueger~~

PFOS and PFOA Water Quality-Based Effluent Limitations for the Grand Geneva Resort and Spa Wastewater Treatment Facility -WPDES Permit No. (WI-0029327) in Walworth County, by Amy Garbe, PE, Wastewater Engineer, dated January 26, 2026

Proposed Expiration Date:

December 31, 2028

Justification Of Any Waivers From Permit Application Requirements

None requested and none granted.

Prepared By: Bryan Hartsook, Wastewater Field Supervisor

Dated: January 12, 2024

Revised By: Sarah Donoughe, Wastewater Specialist-Adv

Date: February 5, 2026

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: January 26, 2026

TO: Sarah Donoughe – NER

FROM: Kari Fleming – WY/3

SUBJECT: PFOS and PFOA Water Quality-Based Effluent Limitations for the Grand Geneva Resort and Spa Wastewater Treatment Facility -WPDES Permit No. (WI-0029327) in Walworth County

This is in response to your request for an evaluation of the need for PFOS and PFOA limitations for the Grand Geneva Resort and Spa Wastewater Treatment Facility. This privately owned sewage treatment works discharges to a wetland complex located in the White River and Nippersink Creek Watershed in the Middle Fox (IL) Basin.

The current permit, effective since December 2023, has monitoring only for PFOS and PFOA. The following review is based on new regulations which are now in effect throughout the state of Wisconsin and recommendations are made in accordance with chapters NR 102, 104, 105, 106, 207, and 217 of the Wisconsin Administrative Code, where applicable.

Receiving Water Information

- Name: Wetland Complex to Como Creek
- Classification: A biologist survey was completed on July 24th, 2023, which concluded that the immediate receiving water should continue to be classified as limited aquatic life (LAL) from Outfall 001 downstream approximately 0.4 miles to Como Creek. It was determined that a few fish may be present in the wetland occasionally when the golf course pond overflows, but the habitat upstream and downstream likely prevents a fish community from establishing.
- Flow: The following 7-Q10 and 7-Q2 values are estimates from USGS, where Outfall 001 is located:
  7-Q10 = 0 cfs (cubic feet per second)
  7-Q2 = 0 cfs
  Harmonic Mean Flow = 0.0 cfs
- % of Flow used to calculate limits: Not applicable where the receiving water low flows are zero.

Effluent Information

- Flow:
  Annual average = 0.40 MGD (Million Gallons per Day)
  Peak weekly = 0.90 MGD
  For reference, the actual average flow from January 2024 to October 2025 was 0.094 MGD.
- Effluent characterization: This facility is categorized as a minor municipality.

The following table lists the statistics for effluent PFOS and PFOA levels from February 2024 through October 2025.

	PFOS ng/L	PFOA ng/L
1-day P_{99}	9.56	10.33
4-day P_{99}	6.02	7.27
30-day P_{99}	4.24	5.67

Mean	3.4	4.88
Std	1.80	1.75
Sample Size	11	11
Range	1.7-8.1	2.5-8.6

Water Quality Based Limit – PFOS and PFOA
Administrative rules for PFOS and PFOA took effect on August 1, 2022. These rule revisions include additions to ch. NR 102 (s. NR 102.05), Wis. Adm. Code, which establish PFOS and PFOA standards for surface waters. Revisions to ch. NR 106 (s. NR 106, Subchapter VIII), Wis. Adm. Code establish procedures for determining water quality based effluent limits for PFOS and PFOA, based on the applicable standards in ch. NR 102, Wis. Adm. Code.

PFOS
Due to PFOS being a bioaccumulating compound of concern (BCC), no mixing zone is allowed pursuant to s. NR 106.98(4), Wis. Adm. Code. Therefore, the effluent limit for PFOS is set equal to criterion (8 ng/L).

PFOA
The conservation of mass equation is described in s. NR 106.06(4)(b)1. Wis. Adm. Code, and includes variables of water quality criterion (WQC), receiving water flow rate (Qs), effluent flow rate (Qe), and upstream PFOA concentrations (Cs) provided below.

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

Where:
WQC = 95 ng/L for the wetland complex to Como Creek
Qs = 25% of the harmonic mean pursuant s. NR 106.06(4)(c)10., Wis. Adm. Code = 0 cfs
Cs = background concentration of PFOA in the receiving water pursuant to s. NR 106.06(4)(e), Wis. Adm. Code
Qe = effluent flow rate = 0.40 MGD = 0.62 cfs
f = the fraction of effluent withdrawn from the receiving water = 0

After substituting the appropriate variables, the calculated PFOA limit is 95 ng/L.

Reasonable Potential Determination
In accordance with s. NR 106.98(4)(a), Wis. Adm. Code, **the discharge does not have reasonable potential to cause or contribute to an exceedance of the water quality criterion for PFOS** because the 30-day P_{99} of reported effluent PFOS data is less than the calculated WQBEL (8 ng/L). Therefore, **a WQBEL is not required.**

The discharge does not have reasonable potential to cause or contribute to an exceedance of the water quality criterion for PFOA because the 30-day P_{99} of reported effluent PFOA data is less than the calculated WQBEL (95 ng/L). Therefore, **a WQBEL is not required.**

Conclusions
The discharge has no reasonable potential to cause or contribute to an exceedance of the water quality criterion for PFOS nor PFOA. Therefore, no WQBELs are required.

Pursuant to s. NR 205.066, Wis. Adm. Code, the department may specify the monitoring frequency for PFOS and PFOA on a case-by-case basis after the initial 24 months of sampling. **After a review of the available data, the department has determined that it is warranted to reduce the sampling frequency in this case to annually.**

If there are any questions or comments on these recommendations, please contact Amy Garbe by telephone at (608) 716-9968 or by email at Amy.Garbe@wisconsin.gov.

Attachments (2) – P99 Calculations

PREPARED BY: _____ date: 1/26/26
Amy Garbe, P.E., Wastewater Engineer

cc: Nick Lent, Basin Engineer – SER/Milwaukee
Nate Willis, P.E., PFAS Implementation Coordinator – CO

EFFLUENT VARIABILITY ANALYSIS -

SUBSTANCE:

NUMBER OF VALUES:			
TOTAL	11		
DETECTED	11		
NON-DETECTED			
d	0		
m	3.4		
mean of all data	3.4		
s	1.801111		
n	1	4	30
d^n	0	0	0
p	0.99	0.99	0.99
Z_p	2.326785	2.326785	2.326785
1+(s/m)^2	1.280623	1.280623	1.280623
(sigma_d)^2	0.247347	0.247347	0.247347
mu_d	1.100102	1.100102	1.100102
(sigma_dn)^2	0.247347	0.067804	0.009311
mu_dn	1.100102	1.189873	1.21912
P_99 exponent	2.257304	1.79575	1.443635
P_99	9.56	6.02	4.24

Data Summary

Feb-24	1.7
Apr-24	2.7
Jun-24	3.2
Jul-24	3.9
Sep-24	8.1
Dec-24	2
Jan-25	2.1
Apr-25	2.9
May-25	2.5
Jul-25	3.5
Oct-25	4.8

Attachment 2 – PFOA P99 Calculation

EFFLUENT VARIABILITY ANALYSIS -				
=	= =	=	=	
SUBSTANCE:				
NUMBER OF VALUES:	------			
TOTAL	11			
DETECTED	11			
NON-DETECTED	0			
d	0			
m	4.881818			
mean of all data	4.881818			
s	1.751467			
	------	------	------	
n	1	4	30	
d^n	0	0	0	
p	0.99	0.99	0.99	
Z_p	2.326785	2.326785	2.326785	
1+(s/m)^2	1.128718	1.128718	1.128718	
(sigma_d)^2	0.121083	0.121083	0.121083	
mu_d	1.524976	1.524976	1.524976	
(sigma_dn)^2	0.121083	0.031673	0.004281	
mu_dn	1.524976	1.569681	1.583377	
P_99 exponent	2.334627	1.983775	1.735625	
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P_99	10.33	7.27	5.67	
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Data Summary	
Feb-24	3.4
Apr-24	4.9
Jun-24	5.2
Jul-24	8.6
Sep-24	6.7
Dec-24	2.9
Jan-25	3.8
Apr-25	5.1
May-25	2.5
Jul-25	5.1
Oct-25	5.5