Permit Modification Fact Sheet

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

General Information

Permit Number:	WI-0043699-09-1
Permittee Name:	Waupaca Foundry Inc Plant 4
Address:	805 Ogden St
City/State/Zip:	Marinette WI 54143-2933
Discharge Location:	South bank of the main channel of the Menominee River, 360ft West of the Ogden Street Bridge
Receiving Water:	Menominee River, Wausaukee & Lower Menominee Rivers Watershed (GB13), Menominee River Basin, Upper Green Bay, in Marinette County
Stream Flow ($Q_{7,10}$):	1,240 cfs
Stream Classification:	Warm Water Sport Fish (WWSF) community; non-public water supply
Discharge Type:	Outfall 001 – Existing; Continuous / Outfall 004 Existing/Changed; Seasonal/Intermittent

Facility Description

Waupaca Foundry Inc Plant 4 (Waupaca Foundry) is a producer of ductile iron castings for the transportation and agricultural industries. The plant employs approximately 750 people and typically operates 24 hours a day, 5-7 days per week, 50 weeks per year. The facility uses scrap steel and pig iron as feedstock to melt iron in electric induction furnaces. Alloys are added to the melting process to achieve appropriate iron chemistry and physical properties. Molten iron is poured into sand molds to form the castings. The molding sand consists of silica sand, carbonaceous materials and bentonite clays. Frequently, a core is used within the mold cavity to provide a void space within the final casting. Cores are made at the facility and consist of silica sand and a small percentage of organic resin as a hardening agent. After the iron solidifies in the mold, the sand and castings are separated. The sand is processed and reused as the molding sand. The castings are transferred to the mill room where they are mechanically cleaned and ground prior to packing and shipping. Outfall 001 is composed primarily of noncontact cooling water (NCCW) from mold-making equipment, air compressor condensate, infrequent emergency NCCW from furnace inductor cooling systems, and discharge from the closed-loop furnace cooling system in emergencies such as power outages. These waste steams discharge via Outfall 001 on a nearly continuous basis to the Menominee River. Outfall 004 is composed of NCCW waste streams on an emergency basis, stormwater, and contaminated groundwater waste streams that are collected and treated via a portable granular activated carbon unit. Outfall 004 discharges on a noncontinuous basis to the Menominee River. The contaminated groundwater discharge from Outfall 004 is currently covered under the Contaminated Groundwater from Remedial Action Operations General Permit (WPDES General Permit No. WI-0046566-07-0) in accordance with s. NR 205.08, Wis. Adm. Code. By request of Waupaca Foundry, the Department has incorporated the contaminated groundwater discharge into Outfall 004 to be regulated under the individual permit during the reissued permit term.

Substantial Compliance Determination

Enforcement During Last Permit: A Notice of Noncompliance (NON) was sent 11/23/21 for failing to complete a plan review of modifications to the NCCW treatment which is considered a reviewable project per Chapter NR 108, Wis. Adm. Code. The facility has completed all previously required actions as part of the enforcement process.

After a desk top review of all discharge monitoring reports, compliance schedule items, and a site visit on 4/25/23, this facility has been found to be in substantial compliance with their current permit.

Compliance determination entered by Laura Gerold, Wastewater Engineer, on April 25, 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	Average Flow Rate: 0.0212 MGD (2019 – 2023)	Representative samples shall be obtained prior to discharge via Outfall 001 to surface water. Outfall 001 is composed primarily of noncontact cooling water (NCCW) from mold-making equipment, air compressor condensate, infrequent emergency NCCW from furnace inductor cooling systems, and discharge from the closed-loop furnace cooling system in emergencies such as power outages. These waste steams discharge via Outfall 001 on a nearly continuous basis to the south bank of the main channel of the Menominee River, approx. 360ft west of the Ogden Street Bridge.
004	Emergency Use Discharge Events: (reported during 2019 – 2023) Flow: 0.005535 MGD (10/15/19) Flow: 0.01948 MGD (2/29/20) Flow: 0.064885 MGD (5/3/20) Flow: 0.003695 MGD (7/2/20) Flow: 0.002515 MGD (7/7/20) Flow: 0.000965 MGD (7/9/20) Flow: 0.023795 MGD (8/3/20) Flow: 0.0021 MGD (9/3/20) Flow: 0.022 MGD (1/3/21) Flow: 0.018455 MGD (3/13/23) Flow: 0.025855 MGD (10/2/23)	Representative samples shall be obtained prior to discharge via Outfall 004 to surface water. Outfall 004 is composed of contaminated groundwater waste streams that are collected over time in lower areas of the facility and are treated via a portable granular activated carbon unit prior to discharge. Outfall 004 discharges on a noncontinuous basis to the north bank of the south channel of the Menominee River, approx. 670ft west of the Ogden Street Bridge and next to an abandoned railroad bridge. Stormwater and noncontact cooling water in emergency situations are also discharged via Outfall 004 to the south channel of the Menominee River but are not required to be sampled at Outfall 004.
006	N/A – this is a new sample point to track the flow rate of EMERGENCY discharges separately from the treated contaminated groundwater discharged via Outfall 004	The Flow Rate of noncontact cooling water from plant cooling equipment shall be obtained prior to discharge via physical Outfall 004 to surface water in EMERGENCY USE situations. Outfall 006 is composed of NCCW waste streams on an emergency basis from the west cooling tower loop and the west furnaces 1-5 loop which are collected in a 2,350-gal holding tank. The Flow Rate only shall be recorded for Outfall 006 on the eDMR. The characteristics of the waste streams are measured at Outfall 001.

1 Surface Water - Monitoring and Limitations

Sample Point Number: 001- Noncontact Cooling Water

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Monthly	Total Daily	
Suspended Solids, Total	Daily Max	20 mg/L	Monthly	Grab	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Suspended Solids, Total	Monthly Avg	20 mg/L	Monthly	Grab	
Chlorine, Total Residual	Daily Max	38 ug/L	Monthly	Grab	
Chlorine, Total Residual	Monthly Avg	38 ug/L	Monthly	Grab	
Temperature		deg F	Monthly	Grab	Monitoring only January-December 2028.
PFOS		ng/L	Annual	Grab	Monitoring only. See PFOS/PFOA Minimization Plan Determination of Need Schedule.
PFOA		ng/L	Annual	Grab	Monitoring only. See PFOS/PFOA Minimization Plan Determination of Need Schedule.

Changes from Previous Permit:

- Addition of temperature monitoring during the fourth year of the permit (2028) to ensure 11 samples are available at the next permit reissuance.
- Addition of monthly monitoring for PFOS and PFOA in accordance with s. NR 106.98(2)(d), Wis. Adm. Code. The monitoring frequency for PFOS and PFOA has been reduced from Monthly to Annual.

Explanation of Limits and Monitoring Requirements

Refer to the WQBEL memo, Water Quality-Based Effluent Limitations for the Waupaca Foundry Plant 4 Marinette WPDES Permit No. WI-0043699-09-0, for the detailed calculations, prepared by the Water Quality Bureau, Michael Polkinghorn, Water Resources Engineer, dated February 26, 2024 used for this reissuance.

Monitoring Frequencies – The Monitoring Frequencies for Individual Wastewater Permits guidance (April 12, 2021) recommends that standard monitoring frequencies be included in individual wastewater permits based on the size and type of the facility, in order to characterize effluent quality and variability, to detect events of noncompliance, and to ensure fairness and consistency in permits issued across the state. Guidance and requirements in administrative code were considered when determining the appropriate monitoring frequencies for pollutants that have final effluent limits in effect during this permit term.

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 the TSS and chlorine effluent limits.

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. Monthly temperature monitoring for one year is included in the permit in order to collect enough data to determine the need for temperature limits at the next permit reissuance.

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 industrial dischargers to be evaluated on a case-by-case basis to determine if monitoring is required pursuant to s. NR 106.98(2)(d), Wis. Adm. Code. The Department evaluated the need for PFOS and PFOA monitoring taking into consideration industry type and other potential sources of PFOS or PFOA. Based on information available at the time the proposed permit was drafted, it was identified that the industrial discharger category may be a potential source of PFOS/PFOA, previous PFOS/PFOA sample results were within 1/5 of the PFOS or PFOA standards under s. NR 102.04(8)(d)1, Wis. Adm. Code, and the source water (municipal water supply) has known levels of PFOS/PFOA.

Therefore, monthly monitoring is included. The initial determination of need 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.

Sample Point Number: 004- Treated Contaminated GW

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Total Daily	
pH Field	Daily Min	6.0 su	Monthly	Grab	
pH Field	Daily Max	9.0 su	Monthly	Grab	
Oil & Grease (Hexane)	Daily Max	10 mg/L	Monthly	Grab	
Suspended Solids, Total	Daily Max	40 mg/L	Monthly	Grab	
PFOS		ng/L	Monthly	Grab	Monitoring only. See PFOS/PFOA Minimization Plan Determination of Need Schedule.
PFOA		ng/L	Monthly	Grab	Monitoring only. See PFOS/PFOA Minimization Plan Determination of Need Schedule.

Changes from Previous Permit:

- Addition of pH, oil & grease, and TSS monitoring and limits. The treated contaminated groundwater discharge, currently covered under WPDES General Permit No. WI-0046566-07-0, has been incorporated into this permit/outfall. Any effective limits required under the General Permit have been retained in the individual permit unless both antidegradation and antibacksliding conditions in ch. NR 207, Wis. Adm. Code, were met.

- Addition of monthly monitoring for PFOS and PFOA in accordance with s. NR 106.98(2)(d), Wis. Adm. Code.

Explanation of Limits and Monitoring Requirements

Refer to the WQBEL memo, Water Quality-Based Effluent Limitations for the Waupaca Foundry Plant 4 Marinette WPDES Permit No. WI-0043699-09-0, for the detailed calculations, prepared by the Water Quality Bureau, Michael Polkinghorn, Water Resources Engineer, dated February 26, 2024 used for this reissuance.

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 industrial dischargers to be evaluated on a case-by-case basis to determine if monitoring is required pursuant to s. NR 106.98(2)(d), Wis. Adm. Code. The Department evaluated the need for PFOS and PFOA monitoring taking into consideration industry type and other potential sources of PFOS or PFOA. Based on information available at the time the proposed permit was drafted, it was identified that the industrial discharger category may be a potential source of PFOS/PFOA, previous PFOS/PFOA sample results were within 1/5 of the PFOS or PFOA standards under s. NR 102.04(8)(d)1, Wis. Adm. Code, and the source water (municipal water supply) has known levels of PFOS/PFOA.

Therefore, monthly monitoring is included. The initial determination of need 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.

Sample Point Number: 006- NCCW EMERGENCY

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Total Daily	

Changes from Previous Permit:

- This is a new sample point to track the flow rate of EMERGENCY discharges separately from the treated contaminated groundwater discharged via Outfall 004. This sample point was Outfall 004 in the previous permit.

Explanation of Limits and Monitoring Requirements

The physical Outfall 004 contains discharges of emergency NCCW from the west cooling tower loop and the west furnaces 1-5 loop (which are collected in a 2,350-gal holding tank prior to discharge), treated contaminated groundwater and stormwater. Only the Flow Rate of NCCW EMERGENCY discharges is required to be monitored and reported at Sample Point 006. Characteristics of this waste stream are measured at Outfall 001.

2 Schedules

2.1 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.	09/30/2025

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. 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.	09/30/2026

Explanation of Schedules

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.

Attachments:

PFOS and PFOA Water Quality-Based Effluent Limitations for Waupaca Foundry Inc Plant 4 Marinette -WPDES Permit No. (WI-0043699) in Marinette County, by Amy Garbe, PE, Wastewater Engineer, dated November 4, 2026

Expiration Date:

September 30, 2029

Justification Of Any Waivers From Permit Application Requirements:

No waivers from permit application requirements.

Prepared By: Sarah Donoughe, Wastewater Specialist-Adv **Date:** July 22, 2024

Revised By: Sarah Donoughe, Wastewater Specialist-Adv **Date:** November 4, 2026

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: November 4, 2026

TO: Sarah Donoughe – NER

FROM: Kari Fleming – WY/3

SUBJECT: PFOS and PFOA Water Quality-Based Effluent Limitations for Waupaca Foundry Inc Plant 4 Marinette -WPDES Permit No. (WI-0043699) in Marinette County

This is in response to your request for an evaluation of the need for PFOS and PFOA limitations for the Waupaca Foundry Inc Plant 4 Marinette. This secondary industrial facility discharges to the Menominee River, located in the Wausaukee and Lower Menominee Rivers Watershed in the Menominee River Basin.

The current permit, effective since October 2024, has monitoring only for PFOS and PFOA for Outfall 001 and 004. 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: Menominee River
- Classification: Warm Water Sport Fish (WWSF) community, non-public water supply. Cold Water and Public Water Supply criteria are used for bioaccumulating compounds of concern, because the discharge is within the Great Lakes basin.
- Flow: The following 7-Q_{10} and 7-Q_2 values are from USGS where Outfall 001 is located:
  7-Q_{10} = 1,240 cfs (cubic feet per second)
  7-Q_2 = 1,740 cfs
  Harmonic Mean Flow = 2,255 cfs using a drainage area of 4,070 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).

- % of Flow used to calculate limits: 25%

Effluent Information

- Flow: Maximum Annual Average Flow = 0.0584 MGD (million gallons per day)
  For reference, the actual average flow from January 2024 to September 2026 was 0.012 MGD.
- Effluent characterization: This facility is categorized as a secondary industry.

The following table lists the statistics for effluent PFOS and PFOA levels from October 2024 through September 2026 for Outfall 001. Due to no discharge from Outfall 004, no samples for PFOS or PFOA were collected.

	PFOS ng/L	PFOA ng/L
1-day P_{99}	N/A	N/A
4-day P_{99}	N/A	N/A
30-day P_{99}	N/A	N/A

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Mean*	1.33	0.88
Std	0.93	1.21
Sample Size	24	24
Range	<0.62-4.5	<1.3-6.5

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

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 Menominee River
Qs = 25% of the harmonic mean pursuant s. NR 106.06(4)(c)10., Wis. Adm. Code = 563 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 = 0.0584 MGD = 0.090 cfs
f = the fraction of effluent withdrawn from the receiving water = 0

After substituting the appropriate variables, the calculated PFOA limit is 592,000 ng/L.

Reasonable Potential Determination

In accordance with s. NR 106.98(4)(b), 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 arithmetic average of reported effluent PFOS data is less than 1/5th the calculated WQBEL (8 ng/L). Therefore, **a WQBEL is not required.**

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 PFOA** because the arithmetic average of reported effluent PFOA data is less than 1/5th the calculated WQBEL (592,000 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 for Outfall 001. At this time, reasonable potential was not evaluated for Outfall 004 due to do discharge and sampling conditions remain.

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 for Outfall 001.**

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.

Attachment (1) – PFOS and PFOA Data

PREPARED BY: _____ date: 11/4/26
Amy Garbe, P.E., Wastewater Engineer

cc: Laura Gerold, P.E., Compliance Staff – NER/Green Bay
Nate Willis, P.E., PFAS Implementation Coordinator – CO

Attachment 1 – PFOS & PFOA Data

Sample Date	PFOS Effluent Result [ng/L]	PFOA Effluent Result [ng/L]
Oct-24	1.9	2
Nov-24	<0.62	3.6
Dec-24	<0.62	6.5
Jan-25	<0.62	2
Feb-25	1.8	3.4
Mar-25	<1.4	<1.3
Apr-25	<1.4	1.6
May-25	<1.4	<1.3
Jun-25	4.5	1.9
Jul-25	2.9	2.3
Aug-25	1.5	<1.4
Sep-25	2	<1.4
Oct-25	1.6	1.8
Nov-25	1.6	2.1
Dec-25	<1.4	1.7
Jan-26	<1.4	<1.3
Feb-26	1.6	1.9
Mar-26	1.8	1.7
Apr-26	<1.4	<1.3
May-26	<1.5	2.5
Jun-26	<1.5	2.7
Jul-26	<1.5	<1.4
Aug-26	<1.5	3.1
Sep-26	<1.5	1.9