Permit Modification Fact Sheet

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

General Information

Permit Number:	WI-0003565-09-1
Permittee Name:	ERCO Worldwide (USA) Inc
Address:	101 Highway 73 South
City/State/Zip:	Nekoosa WI 54457-8235
Discharge Location:	Via Outfall 001 to the Wisconsin River at 44.3349934ºN, -89.886411ºW
Receiving Water:	Wisconsin River (Petenwell Lake-Wisconsin River Watershed in the Central Wisconsin Basin) located between Port Edwards and Nekoosa in Wood County
StreamFlow ($Q_{7,10}$):	1065 cfs
Stream Classification:	Warm water sport fish community, non-public water supply

Facility Description

ERCO is an inorganic chemical manufacturer in the chlor-alkali subcategory. They currently produce liquid chlorine, sodium hydroxide solution, potassium hydroxide solution, and hydrochloric acid; they also produced anhydrous potassium carbonate but this process was shut down in 2009. These chemicals are produced by the electrolysis of sodium chloride and potassium chloride using the membrane cell process. ERCO decommissioned its old mercury cell process and replaced it with the new membrane system in 2009. This change eliminated the source of mercury and an estimated 1000 pounds per year of fugitive mercury air emissions and 1 pound per year of mercury discharged in the wastewater effluent. However, because residual mercury contamination may exist for some time at ERCO, the wastewater treatment system for mercury removal remains in place to treat wastewater sources that may be contaminated.

A maximum annual average of 4.96 million gallons per day of commingled wastewater streams is discharged into the Wisconsin River from Outfall 001. Most of the flow consists of noncontact cooling water. Also discharging from Outfall 001 is process wastewater that receives treatment in a mercury removal system, treated contaminated groundwater, pH adjustment systems, boiler blowdown, cooling tower blowdown, bromine scrubber wastewater, sulfate removal system purge, bleedoff from the cooling water intake strainer, and storm water that may be contaminated. Sampling points regulate in-plant wastewater streams in accordance with Subchapter VI of ch. NR 230, Wis. Adm. Code. Intake river water is chlorinated to prevent biofouling and is dechlorinated prior to discharging with sodium bisulfite.

ERCO's solid waste generated by the wastewater treatment processes is hauled to the Cranberry Creek Waste Management Landfill in Wisconsin Rapids.

Substantial Compliance Determination

After a desk top review of all discharge monitoring reports, compliance schedule items, and an inspection on February 17, 2022, this facility has been found to be in substantial compliance with their current permit.

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)**

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)**
701	4.96 MGD maximum annual average from January 2017 to January 2022 (approximated to be equivalent to that of Outfall 001).	INTAKE: Wisconsin River cooling water intake structure for non-contact cooling, irrigation, cooling tower water makeup, and fire protection located approximately 580 feet in the west southwest direction from the plant in the Wisconsin River, extending approximately 105 feet from the shoreline and approximately 10 feet below the normal water elevation. Grab and continuous samples shall be collected from the spigot located in the strainer building after the strainers.
001	4.96 MGD maximum annual average from January 2017 to January 2022.	EFFLUENT: At sampling point 001, the combined flows of noncontact cooling water, treated process wastewater (mercury removal system and pH adjustment system), boiler blowdown, cooling tower blowdown, municipal water supply system water, bromine scrubber pH adjustment, brine wastewater pH adjustment, deionizer wastewater pH adjustment, sulfate removal system purge, treated effluent from intercept well mercury removal system, and cooling water intake strainer bleedoff shall be sampled prior to discharge to the Wisconsin River via Outfall 001. Composite samples shall be collected from the 24-hour composite sampling collection system located near the west wall in the Wastewater Monitoring Building. Flows shall be calculated using rates monitored at Sample Points 102 and 103. Grab samples shall be collected at the sample spigot located near the south wall in the Wastewater Monitoring Building. Temperature shall be continuously measured at the 2nd pit, where all flows are comingled, once the continuous temperature system is installed per the Temperature Monitoring Compliance Schedule. pH shall be continuously measured at the 2nd pit.
101	0.077 MGD maximum annual average from January 2017 to January 2022.	IN PLANT: At in-plant Sampling Point 101 (Sulfide - Hg Removal System), batch effluent from the sulfide treatment mercury removal system Tank 187 (process wastewater from chemical production processes and storm water collected within process containment areas) and batch effluent from the pH adjustment system for deionizers Tank 726 (non-mercury bearing liquid waste) shall be sampled prior to mixing with other wastewater discharges as described under permit subsection 2.2. Categorical limits for chlor-alkali chemical manufacturing apply at this sample point.
102	0.081 MGD maximum annual average from January 2017 to January 2022.	IN PLANT: At in-plant Sampling Point 102 (Intake Water Strainer Bleedoff), bleedoff from the cooling water intake strainer shall be sampled prior to mixing with other wastewater discharges. Flow rate shall be measured via magnetic meter for calculation of flow discharged at Outfall 001. Composite samples shall be collected using a 24 hour flow proportional sampler located in the strainer building.

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)**
103	4.96 MGD maximum annual average from January 2017 to January 2022.	IN PLANT: Combination of treated process wastewater effluent, noncontact cooling water, and boiler blowdown, located prior to mixing with the bleedoff from the cooling water intake strainer. Prior to Sampling Point 103, sodium bisulfite is added for dechlorination to eliminate residual chlorine from the river water chlorination system. Flow rate shall be measured via a flow weir for calculation of flow discharged at Outfall 001.
105	N/A	FIELD BLANK: In-plant Sample Point 105 is included in the permit to satisfy the need for a field blank when mercury monitoring is conducted utilizing a composite sample type.
107	0.003 MGD maximum annual average from January 2017 to January 2022.	IN PLANT: At Sampling Point 107 (Intercept Well Mercury Removal), effluent from the intercept well mercury removal filtration system that treats contaminated groundwater intercepted by the cell room groundwater collection system shall be sampled prior to mixing with any other wastewater discharge. Flow shall be continuously measured via magnetic meter. Effluent from this sampling point is comprised of contaminated groundwater pumped from the collection system to remediate the mercury contaminant plume and to prevent it from moving off site and is discharged to the sulfide wastewater treatment system.
108	N/A	FIELD BLANK: In-plant Sample Point 108 is included in the permit to satisfy the need for a field blank when mercury monitoring is conducted utilizing a grab sample type.

1 Influent – Cooling Water Intake Structure - Proposed Monitoring

1.1 Sample Point Number: 701- River Water Intake

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate	Daily Max - Variable	MGD	Daily	Calculated	See permit subsection 1.3.3
Flow Rate, Variable Limit		MGD	Daily	Calculated	See permit subsection 1.3.3
Intake Water Used Exclusively For Cooling		% Flow	Annual	Calculated	See permit subsection 1.3.3
Suspended Solids,		mg/L	Weekly	Grab	See permit subsection

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Total					1.2.1.1
Mercury, Total Recoverable		ng/L	Quarterly	Grab	See permit subsections 1.2.1.1 and 1.2.1.2
pH (Minimum)		su	Daily	Continuous	See permit subsection 1.2.1.1
pH (Maximum)		su	Daily	Continuous	See permit subsection 1.2.1.1
pH Total Exceedance Time Minutes		minutes	Daily	Continuous	See permit subsection 1.2.1.1
pH Exceedances Greater Than 60 Minutes		Number	Daily	Continuous	See permit subsection 1.2.1.1

1.1.1 Changes from Previous Permit

Influent monitoring requirements were re-evaluated for the proposed permit term and the following changes were made from the previous permit;

Sampling point: Sample point 601 is now 701. Current sampling requirements were part of the now discontinued sample point 601.

Intake Water: Annual percentage reporting for Intake Water Used Exclusively For Cooling has been added.

Flow Rate: Flow Rate and Variable Limit monitoring has been added. Flow Rate in MGD shall be reported Daily, with a Max Variable Flow Rate Limit only in effect when surface water elevation falls below top of the water intake screen. Daily Max Variable Limit does not need to be reported when surface water elevations are above the top of the water intake screen. See permit for additional reporting instructions and information.

Narrative Requirements: New requirements added per ch. NR 111 Wis. Adm. Code., promulgated in 2020.

Cooling Water Intake Structure (CWIS): The Influent section includes the CWIS description, authorization for use, and BTA (Best Technology Available) determination. The permittee is authorized to use the cooling water intake structure which consists of the following:

- Location: The source of water is the Wisconsin River in Wood County, WI. The intake structure is located at 44°20'9.58"N and 89°53'9.37"W.
- Source Waterbody Information: 7-Q_{10} = 1065 cfs; Harmonic Mean Flow = 2412 cfs.
- The Wisconsin River water intake provides water for noncontact cooling water and make-up water for the recirculating cooling tower. It consists of the following components:

  (a) A 24-inch diameter pipeline, supported by piling approximately 1 foot above the riverbed, extends 105 feet out into the Wisconsin River to a depth of about 10 feet.

  (b) A T-27HCE screen comprised of two slotted screen sections, each 33 ½ inches in length and 27 inches in diameter, and a T-27MF screen comprised of one slotted screen section of 68 inches in length and 27 inches in diameter. Both screens have slot openings of ½ inch by 1 inch, with an open screened area of 87.57%.

(c) The intake pipeline line enters a caisson at the plant, from which the water is pumped through a suction pipe. The caisson is manually cleaned of any debris and sediment, which is disposed of in a landfill.

(d) A water strainer filter is used to remove any fine material in the water. A backwash system removes the fine material captured in the strainer and is monitored for TSS at Sampling Point 102. Backwash is returned to the river at Outfall 001.

- Maximum Design Intake Flow (DIF): 9.072 MGD (14.03 cfs), which is equivalent to 1.32 % of the $Q_{7,10}$. This is based upon the intake's pump capacity, not counting redundant or emergency pumps.
- Maximum Design Intake Pipe Velocity:

$$Velocity_{\text{In Pipe}} = \frac{9{,}072{,}000\ gal}{1\ day}\ x\ \frac{1\ ft^3}{7.48\ gal}\ x\ \frac{1}{3.14 ft^2}\ x\ \frac{1\ day}{86{,}400\ s} = 4.47\ \frac{ft}{s}$$

- Actual Intake Flow: The actual intake velocity is 4.96 MGD (7.67 cfs), which is equivalent to 0.72 % of the $Q_{7,10}$.
- Percent Used for Cooling: 97%

1.1.2 Explanation of Limits and Monitoring Requirements

Intake Water: Annual percentage reporting for Intake Water Used Exclusively For Cooling has been added to analyze applicability criteria in s. NR 111.02, Wis. Adm. Code.

Flow Rate: Flow Rate monitoring has been added to analyze applicability criteria in s. NR 111.02, Wis. Adm. Code. Variable Limit monitoring added to ensure maximum through-screen intake velocity will not exceed 0.5 ft/second even when surface water elevation falls below top of the water intake screen.

Voluntary Sampling: Monitoring for TSS and pH at Sampling Point 701 is voluntarily conducted by ERCO. An apparent violation of the effluent pH could occur when the background river pH is high. Knowing the intake pH limit will help evaluate whether there is a violation. While a comparison of TSS data at Sampling Point 102 and Sampling Point 701 provides data on the contribution of solids from the strainer bleedoff.

1.1.2.1 Future BTA

Requirements in this section of the permit have been established in accordance with ch. NR 111, Wis. Adm. Code. Refer to ERCO Water Intake Structure BTA Determination (Appendix B) and the WPDES permit for more information.

1.1.2.2 Visual or Remote Inspections

The permittee is required to conduct visual or remote inspections of the intake structure at least weekly during periods of operation, pursuant to s. NR 111.14(4), Wis. Adm. Code. However, since weekly inspection of the water intake structure is not feasible due to the structure being offshore and submerged below murky water, weekly monitoring of the river water caisson level to make sure there are no significant obstruction will be held instead.

1.1.2.3 Reporting Requirements

The permittee is required to submit an annual certification statement and report, pursuant to s. NR 111.15(1)(c), Wis. Adm. Code.

1.1.2.4 Intake Screen Discharges and Removed Substances

Floating debris and accumulated trash collected on the cooling water intake trash rack shall be removed and disposed of in a manner to prevent any pollutant from the material from entering the waters of the State pursuant to s. NR 205.07 (3) (a), Wis. Adm. Code, except that backwashes may contain fine materials that originated from the intake water source such as sand, silt, small vegetation or aquatic life. Note that currently, ERCO does not have a trash rack in place.

1.1.2.5 Endangered Species Act

This permit does not authorize take of threatened or endangered species. 40 CFR §125.98 (b) (1) requires the inclusion of this provision in all permits subject to 316(b) requirements. Contact the state Natural Heritage Inventory (NHI) staff with inquiries regarding incidental take of state-listed threatened and endangered species and the US Fish and Wildlife Service with inquiries regarding incidental take of federally-listed threatened and endangered species. Note that no threatened or endangered species are believed to be present in the vicinity of the intake at the time of permit issuance.

2 Inplant - Proposed Monitoring and Limitations

2.1 Sample Point Number: 101- Process Wastewater Treatment

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Calculated	See permit subsection 2.2.1.1
Suspended Solids, Total		mg/L	Weekly	Grab Comp	See permit subsection 2.2.1.2
Suspended Solids, Total	Daily Max	124 kg/day	Weekly	Calculated	
Suspended Solids, Total	Monthly Avg	62 kg/day	Weekly	Calculated	
Mercury, Total Recoverable		ng/L	Weekly	Grab Comp	See permit subsection 2.2.1.2, 2.2.1.4
Chlorine, Total Residual		ug/L	Weekly	Grab	See permit subsection 2.2.1.3
Chlorine, Total Residual	Daily Max	622 grams/day	Weekly	Calculated	
Chlorine, Total Residual	Monthly Avg	369 grams/day	Weekly	Calculated	
pH (Average)	Daily Max	9.0 su	Weekly	Grab	See permit subsection 2.2.1.3
pH (Average)	Daily Min	6.0 su	Weekly	Grab	See permit subsection 2.2.1.3

2.1.1 Changes from Previous Permit:

In-Plant Process Wastewater Treatment limitations and monitoring requirements were re-evaluated for the proposed permit term and the following changes were made from the previous permit;

Flow rate: Sample type corrected from total daily to calculated.

Mercury: Limits no longer required, however, monitoring will continue.

Total residual chlorine and pH: Language in permit subsection 2.2.1.3 corrected from requiring immediate analysis to requiring the analysis to occur within 15 minutes. Also note that although sample frequency is recommended to be daily per the "Monitoring Frequencies for Individual Wastewater Permits" official 2021 guidance document, there is no variability in total residual chlorine data and no significant variability in pH data to require an increase in sampling frequency. Given that the data gathered at this sampling point comes from the average of a collection of batch processes, the feasibility of an increased sampling frequency was also considered in this determination.

2.1.2 Explanation of Limits and Monitoring Requirements

Flow: Paragraph 2.2.1.1 of the permit defines the combined flow value from the two treatment systems for Sampling Point 101. The calculated flow is the sum of the volumes of the all the batch discharges from treatment tanks 187 and 726.

Mercury: Limits removed as mercury cells were decommissioned and as explained in Chlor-Alkali Categorical Limits (Appendix A), it is not of concern because the 1-day P_{99} statistic analysis revealed that there is a 99% probability the daily mercury max will not exceed 0.0003kg, a value that is less than 2% of the lowest allowable limit of 0.019 kg. However, monitoring of mercury will continue to assess mercury contributions from the treatment area versus other sources.

Total suspended solids: Paragraph 2.2.1.2 of the permit describes the collection of effluent grab samples for total suspended solids from the mercury removal system at Tank 187, and the pH adjustment system at Tank 726. The grab samples from both treatment systems for each batch are then composited to reflect the combined discharge on a volume proportional basis. Additional language requiring settled solids to be resuspended prior to analysis added.

Total residual chlorine and pH: Paragraph 2.2.1.3 of the permit clarifies how grab samples are to be collected for pH and total residual chlorine. They must be by a grab sample and analyzed within 15 minutes. This paragraph defines a calculated average, on a flow proportional basis, using the grab sample results to represent a surrogate for a composite sample.

2.1.3 Categorical Limits

Refer to Appendix A, for the evaluation of the chlor-alkali categorical limits that apply to Sampling Point 101, which consists of the discharges from the sulfide treatment mercury removal system and pH adjustment system. The treatment systems operate as batch processes, with each tank typically having three to four discharges per day. While separate sampling points for each treatment system is preferable for tracking purposes, the two systems will continue to be monitored combined on a flow proportional basis with one sample representing both treatment systems to reduce confusion in reporting. Sample point locations will be re-evaluated at subsequent permit reissuances.

2.2 Sample Point Number: 102- Intake Water Strainer Bleedoff

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
Suspended Solids, Total		mg/L	Weekly	24-Hour Flow Prop Comp	

2.2.1 Changes from Previous Permit:

In-Plant Intake Water Strainer Bleed Off monitoring requirements were re-evaluated for the proposed permit term and the following changes were made from the previous permit;

Flow rate: Sample type corrected from total daily to continuous.

Total Suspended Solids: Sample type for total suspended solids (TSS) has been corrected from 24-hour composite to 24-hour flow proportional composite.

2.2.2 Explanation of Limits and Monitoring Requirements

The intake water strainer is a component of the Wisconsin River water intake system. The strainer is a filtration system for removing fine particles. The strainer is backwashed to clean the filter and the wastewater known as bleedoff is discharged to Outfall 001.

Flow rate: Sample type corrected from total daily to continuous as there is a magnetic meter which measures flow continuously.

Total suspended solids: TSS are currently monitored at Sampling Point 102 and at the water intake with Sampling Point 701 to provide data on the contribution of solids from the strainer bleedoff. Averaging the concentrations of TSS over the last 5 years [2017-2021], an increase in TSS between the two locations is noted with average concentrations of 9 mg/L at the intake and 45 mg/L at the strainer bleedoff. Although this is a significant increase, it is important to note that the TSS data collected from Sampling Point 701 is currently being taken after the strainers so the current increase between the two locations is not representative of the difference in TSS between the river water and strainer bleedoff. It is also presumed that due to maintenance and other work on the dam upstream of ERCO, higher than normal TSS levels were observed. To allow future assessments for compliance with s. NR 205.07(3)(a), Wis. Adm. Code, TSS samples for Sampling Point 701 and 102 shall continue. Changing the sampling point to be prior to the strainers is recommended.

2.3 Sample Point Number: 103- Process Wastewater and NCCW

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

2.3.1 Changes from Previous Permit:

In-Plant Process Wastewater and NCCW monitoring requirements were re-evaluated for the proposed permit term and no changes are recommended.

Flow: Narrative explanation of how flow at Sample Point 103 is measured added.

2.3.2 Explanation of Limits and Monitoring Requirements

Flow: The flow rate monitored at Sampling Point 103 is necessary because it is combined with Sampling Point 102 to calculate the total daily flow for Outfall 001.

2.4 Sample Point Number: 105- Mercury Field Blank-Composite

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Mercury, Total Recoverable		ng/L	Weekly	Blank	See permit subsection 2.2.4.1

2.4.1 Changes from Previous Permit:

In-Plant Mercury Field Blank monitoring requirements were re-evaluated for the proposed permit term and the following changes were made from the previous permit;

Sample Point Number: Name changed from Mercury Field Blank to Mercury Field Blank-Composite to distinguish between field blanks taken for grab samples and the field blanks taken for composite samples.

Mercury: The special note making non-complying results conditionally acceptable has been removed.

2.4.2 Explanation of Limits and Monitoring Requirements

Mercury: The standard requirements for mercury sample collection and analysis states at least one field blank for each set of mercury samples shall be collected. Only one sampling point for composite samples is needed to report the data.

2.5 Sample Point Number: 107- Intercept Well Mercury Removal

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
Mercury, Total Recoverable		ng/L	Monthly	Grab	See permit subsection 2.2.5.1

2.5.1 Changes from Previous Permit:

In-Plant Intercept Well Mercury Removal monitoring requirements were re-evaluated for the proposed permit term and the following changes were made from the previous permit;

Flow rate: Sample type corrected from total daily to continuous.

2.5.2 Explanation of Limits and Monitoring Requirements

Flow rate: Sample type corrected from total daily to continuous as there is a magnetic meter which measures flow continuously.

A new mercury treatment system was installed in 2001 exclusively for the intercepted contaminated groundwater that is being pumped and treated. The permittee was operating this system as the result of a RCRA (Resource Conservation and Recovery Act) remediation effort with the approval of DNR waste management program. However, the wastewater program was not informed of this, and a plan approval was not issued for the wastewater treatment system, which is a reviewable project under ch. NR 108, Wis. Adm. Code. Based on the information provided the plans would have been approved, but they may not be retroactively. The extraction well groundwater was originally routed through the existing sulfide treatment mercury removal system (Sampling Point 101) but this second treatment system was installed because the groundwater was interfering with the sulfide treatment system's performance. In the cell room groundwater collection and treatment system, the groundwater is treated with a set of three100 micron cartridge filters, replaced approximately weekly, for more effective total suspended solids removal and therefore lower mercury concentrations.
Due to mercury cells no longer being used and a significant increase in the mercury concentration from this remedial action unit, in December 2021, the cell room groundwater intercept collection trench system was redirected to the sulfide wastewater treatment system.

Sampling Point 107 was created to track the mercury effluent concentration from the cell room groundwater collection system. This waste stream previously was not monitored for the WPDES permit but it was monitored occasionally for the RCRA groundwater monitoring program. The mercury contaminated groundwater originates from residual contamination from the failure of a concrete process trench in the cell room. The pumping of contaminated groundwater (at a rate of about 10 gpm) began in 1998 to remediate the mercury contaminant plume and to keep it from moving off site.

Monitoring has provided data on the performance of the treatment system and the relative contribution of this contamination source to the overall mass of residual mercury contamination at the site.

2.6 Sampling Point 108 - Field Blank - Grab

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Mercury, Total Recoverable		ng/L	Weekly	Blank	See permit subsection 2.2.6.1.

2.6.1 Changes from Previous Permit:

In-Plant Mercury Field Blank – Grab subsection added to the permit to distinguish between field blanks taken for grab samples and the field blanks taken for composite samples.

2.6.2 Explanation of Limits and Monitoring Requirements

Mercury: The standard requirements for mercury sample collection and analysis states at least one field blank for each set of mercury samples shall be collected. Only one sampling point for grab samples is needed to report the data.

3 Surface Water – Proposed Monitoring and Limitations

3.1 Sample Point Number: 001- Combined Wastewater Discharge

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Calculated	See permit subsection 3.2.1.1
Temperature		deg F	Daily	Continuous	See permit subsection 3.2.1.2
Mercury, Total Recoverable	Daily Max	42 ng/L	Weekly	24-Hr Comp	See permit subsections 3.2.1.3, 3.2.1.4, 3.2.1.5, 3.2.1.6
Mercury, Total Recoverable	Daily Max	1.19 grams/day	Weekly	Calculated	
Phosphorus, Total	Monthly Avg	0.63 mg/L	Monthly	24-Hr Comp	See permit subsection 3.2.1.7
Phosphorus, Total	6-Month Avg	0.21 mg/L	Monthly	24-Hr Comp	See permit subsection 3.2.1.7
Phosphorus, Total	Monthly Avg	19 lbs/day	Monthly	Calculated	
Phosphorus, Total	6-Month Avg	6.4 lbs/day	Monthly	Calculated	See permit subsection 3.2.1.7
Phosphorus, Total		lbs/month	Monthly	Calculated	Calculate the Total Monthly Discharge of

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					phosphorus and report on the last day of the month on the DMR. See permit subsection 3.2.1.7
Phosphorus, Total		lbs/yr	Monthly	Calculated	Calculate the 12-month rolling sum of total monthly mass of phosphorus discharged and report on the last day of the month on the DMR. See permit subsection 3.2.1.7
Chloride	Daily Max	1,500 mg/L	Monthly	24-Hr Comp	
Chloride	Monthly Avg	1,500 mg/L	Monthly	24-Hr Comp	
Chloride	Daily Max	74,000 lbs/day	Monthly	Calculated	
pH (Minimum)	Daily Min	4.0 su	Daily	Continuous	See permit subsection 3.2.1.8
pH (Maximum)	Daily Max	11 su	Daily	Continuous	See permit subsection 3.2.1.8
pH Total Exceedance Time Minutes	Monthly Total	446 minutes	Daily	Continuous	See permit subsection 3.2.1.8
pH Exceedances Greater Than 60 Minutes	Daily Max	0 Number	Daily	Continuous	See permit subsection 3.2.1.8
Halogen, Total Residual as Cl2	Daily Max	38 ug/L	Weekly	Grab	See permit subsection 3.2.1.10
Halogen, Total Residual as Cl2	Monthly Avg	38 ug/L	Weekly	Grab	See permit subsection 3.2.1.10
PFOS		ng/L	Quarterly	Grab	Monitoring only. See PFOS/PFOA Minimization Plan Determination of Need schedule and permit subsection 3.2.1.11 and 3.2.1.12
PFOA		ng/L	Quarterly	Grab	Monitoring only. See PFOS/PFOA Minimization Plan Determination of Need schedule and permit subsection 3.2.1.11 and 3.2.1.12

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Acute WET		Tua	See Listed Qtr(s)	24-Hr Comp	See permit subsection 3.2.1.13

3.1.1 Changes from Previous Permit

Effluent limitations and monitoring requirements were re-evaluated for the proposed permit term and the following changes were made from the previous permit;

Flow and Parameter Monitoring For Outfall 001: Sampling point 103 is no longer defined as an alternate location for monitoring but is now defined as the point of representative sampling for Outfall 001.This is deemed appropriate because the additional effluent coming from Sample Point 102 makes less than 2% of the total discharge and is not considered to have significant impacts on final results, especially since there are no added contaminants to this flow. The Department also considered that the strainer backwash and two stormwater lines run underground and enter the second pit, where everything is comingled, at three separate locations which would make a representative sample from the second pit questionable.

Temperature: Sample type changed from grab to continuous in anticipation of the monitoring system update.

Mercury: Limit reduced from 53ng/L to 42 ng/L and from 1.48 grams/day to 1.19 grams/day based on data at time of calculations.

Total phosphorus: 6 month-average reduced from 10 lbs/day to 6.4lbs/day, and a total phosphorus monthly-average limit of 19 lbs/day added. Monitoring of lbs/month and pounds/year has also been added to remain consistent with the Phosphorus WLA Appendix K of the Wisconsin River TMDL.

Chloride: Daily-max limits of 1,500 mg/L and 74,000 lbs/day added. Monthly-average limits of 1,500 mg/L added. Sample frequency for chloride re-evaluated but not changed from monthly to 4x month on consecutive days each month as recommended by the 2021 approved monitoring frequency guidance document because there is no weekly average limit and evaluation of past data shows consistent results.

Total Halogen Residual as Cl2: Monthly-average limit of 38 ug/L added.

PFOS/PFOA: ~~Monthly monitoring is included in the permit 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 Quarterly.

Acute WET: Sample type corrected from 24-hour flow proportional composite to 24-hour composite.

Chronic WET: Monitoring removed because it is believed that there is enough dilution and therefore little potential for chronic toxicity effects.

Mercury Variance – Implement Pollutant Minimization Program Plan: 3.2.1.4 subsection added to describe the conditions of variance.

Total Maximum Daily Load (TMDL) Limitations for Adm. Total Phosphorus: 3.2.1.7 section added to explain the permittee's approved site-specific criteria for total phosphorus and appropriate reporting requirements per NR 102.06 (7), Wis. Adm. Code, promulgated in 2020. Sample preservation guidelines pursuant s. NR 219.04, Wis. Adm. Code also added.

Additives: List of chemicals approved for use deleted.

3.1.2 Explanation of Limits and Monitoring Requirements

Refer to the Water Quality Based Effluent Limits (Appendix E) recommendation memo dated November 25, 2019 and the addendum of it dated January 20, 2023 (Appendix F).

Temperature: Sample type corrected from grab to continuous as continuous temperature monitoring will be established per the Temperature Monitoring Compliance Schedule in the next permit term. Permit subsection 3.2.1.2 added to explain monitoring requirements.

Mercury: The alternative effluent limit (AEL) for mercury was reduced from 53 ng/L and 1.48 grams/day to 42 ng/L and 1.19 grams/day. The limits were replaced with new daily maximum limits calculated using the 1-day P99 of the Outfall 001most current effluent data set available when the limits were calculated. The mercury AEL needs to be applied for each permit reissuance to evaluate for continued eligibility. It will eventually be replaced by the WQBEL of 7.2 ng/L, the current background concentration in the Wisconsin River (at Wisconsin Rapids), in accordance with s. NR 106.06 (6) (c), Wis. Adm. Code.

ERCO is allowed to use a calculated effluent mercury concentration when the measured concentration is known to be unrepresentative due to contamination problems that may occur and could impact the monitoring result. The calculated effluent concentration would use the concentrations measured at all known individual sources of mercury and account for dilution with the other wastewater sources as described in permit subsection 3.2.1.6.

Total Phosphorus: The phosphorus technology based effluent limit, was replaced with the new more restrictive WQBEL for phosphorus in accordance with ch. NR 217, Wis. Adm. Code. It includes both a monthly average limit of 0.63 mg/L and 19 lbs/day, and a 6-month average limit of 6.4lbs/day and 0.21 mg/L, in accordance with Phosphorus WLA Appendix K of the Wisconsin River TMDL. Based on 2017-2021 effluent data from Outfall 001 ERCO is in compliance with the new limits. Therefore, a compliance schedule is unnecessary.

Chloride: Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Code.

pH: This is a water quality standard applicable to discharges with continuous pH monitoring. pH limits are consistent with s. NR 102.04(4)(c) and s. NR 102.05(3)(h).

Total Halogen residual as Cl2: A 38 µg/L monthly-average limit for total residual halogen has been incorporated into the permit to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Code. Sources of chlorine include chlorination of the influent river water used for cooling, chlorinated municipal water used for boiler make-up and potable water at the facility, and the chlorine and hydrochloric acid production processes. Both chlorine and bromine may be present in the wastewater, and while the department does not have a toxicity criterion for bromine, it is assumed that bromine toxicity is the same as chlorine, making it subject to the same limitations as chlorine. The analysis for Halogen, Total Residual as Cl2, has been determined to be the best option for collecting necessary data as it detects other halogens including bromine.

PFOS/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. 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.

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

Alternative to Outfall 001: The necessity for using sampling point 103 as an alternative for outfall 001 is not perceived.

Mercury Variance – Implement Pollutant Minimization Program Plan: 3.2.1.4 subsection added to describe the conditions of variance and as a new standard section.

Total Maximum Daily Load (TMDL) Limitations for Adm. Total Phosphorus: 3.2.1.7 section added per NR 102.06 (7), Wis. Adm. Code, promulgated in 2020.

Additives: List of chemicals approved for use has been removed because chemicals throughout permit term are continuously changing. Removal of the list ensures compliance of permit throughout term.

4 Schedules

4.1 Mercury Pollutant Minimization Program

As a condition of the variance to the water quality based effluent limitation(s) for mercury granted in accordance with s. NR 106.145(6), Wis. Adm. Code, the permittee shall perform the following actions.

Required Action	Due Date
Annual Mercury Progress Reports: Submit an annual mercury progress report related to the pollutant minimization activities for the previous year. The annual mercury progress report shall: Indicate which mercury pollutant minimization activities or activities outlined in the Pollutant Minimization Program Plan have been implemented and state which, if any, activities from the Pollutant Minimization Program Plan were not pursued and why; Include an assessment of whether each implemented pollutant minimization activity appears to be effective or ineffective at reducing pollutant discharge concentrations and identify actions planned for the upcoming year; Identification of barriers that have limited program effectiveness and adjustments to the program that will be implemented during the next year to help address these barriers; Include an analysis of trends in total effluent mercury concentrations based on mercury sampling; and Include an analysis of how influent and effluent mercury varies with time and with significant loading of mercury. The first annual mercury progress report is to be submitted by the Due Date.	01/31/2024
Annual Mercury Progress Report #2: Submit a mercury progress report, related to the pollutant minimization activities for the previous year, as defined above.	01/31/2025
Annual Mercury Progress Report #3: Submit a mercury progress report, related to the pollutant minimization activities for the previous year, as defined above.	01/31/2026
Annual Mercury Progress Report #4: Submit a mercury progress report, related to the pollutant minimization activities for the previous year, as defined above.	01/31/2027

Final Mercury Report: Submit a final report documenting the success in reducing mercury concentrations in the effluent, as well as the anticipated future reduction in mercury sources and mercury effluent concentrations. The report shall: Summarize mercury pollutant minimization activities that have been implemented during the current permit term and state which, if any, activities from the Pollutant Minimization Program Plan were not pursued and why; Include an assessment of which pollutant minimization activities appear to have been effective or ineffective. Evaluate any needed changes to the pollutant reduction strategy accordingly; Identification of barriers that have limited program effectiveness and adjustments to the program that will be implemented during the next variance term (if applicable) to help address these barriers; Include an analysis of trends in mercury concentrations based on sampling and data during the current permit term; and Include an analysis of how influent and effluent mercury varies with time and with significant loadings of mercury. If the permittee intends to reapply for a mercury variance per s. NR 106.145, Wis. Adm. Code, for the reissued permit, a detailed Pollutant Minimization Program Plan outlining the pollutant minimization activities proposed for the upcoming permit term shall be submitted along with the final report. An updated pollutant minimization plan shall: Include an explanation of why or how each pollutant minimization activity will result in reduced discharge of the target pollutant; Evaluate any new available information on pollutant sources, timing, and concentration to update the mass balance assumptions and expected sources of the pollutant, and Identify any information needs that would help to better determine pollutant sources and make plans to collect that information.	01/31/2028
Annual Mercury Reports After Permit Expiration: In the event that this permit is not reissued by the date the permit expires, the permittee shall continue to submit annual mercury reports for the previous year following the due date of Annual Mercury Progress Reports listed above. Annual Mercury Progress reports shall include the information as defined above.	

4.2 Water Intake Requirements

The permittee shall submit annual certification statements as specified by Section 1.3.3.1, Annual Certification Statement and Report, in accordance with the following schedule.

Required Action	Due Date
Annual Certification Statements and Reports: Submit an annual certiftication statement and report on the water intake structures. The annual certification shall include a summary of maintence and operation of water intake structure technologies, a summary of visual or remote inspections conducted, and a summary of any substantial modifications to the the operation of any units that will impact cooling water withdrawls or operation of the water intake structure.	01/31/2024

The first annual certification statement and report is to be submitted by the Due Date.	
Annual Certification Statement #2: Submit a second annual certification statement as defined above.	01/31/2025
Annual Certification Statement #3: Submit a third annual certification statement as defined above.	01/31/2026
Annual Certification Statement #4: Submit a fourth annual certification statement as defined above.	01/31/2027
Annual Certification Statement #5: Submit a fifth annual certification statement as defined above.	01/31/2028
Annual Certification Statements After Expiration: In the event that this permit is not reissued on time, the permittee shall continue to submit annual certification statements each year by the date specified in Section 1.3.3.1.	

4.3 Intake Structure Required Updates

To comply with code and meet cooling water intake structure BTA, the following updates are required.

Required Action	Due Date
Submit Plans and Sepcifications for Review : Create a plan to meet the requirement for impingement mortality standard established in s. NR 111.12, Wis. Adm. Code. Submit this plan to the Department.	04/01/2024
Modifications to Meet BTA: the permittee shall complete intake structure modifications as approved by the Department to meet requirement for impingement mortality standard established in s. NR 111.12, Wis. Adm. Code.	04/01/2025

4.4 PFOS/PFOA Minimization Plan Determination of Need

The permittee shall submit a PFOS/PFOA Minimization Plan Determination of Need report as specified by Section 3.2.1.12, in accordance with the following schedule.

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 PFOS and PFOA data collected including any voluntary influent, intake, in-plant, collection system sampling, and blank sample results.	04/01/2024
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 PFOS and PFOA data collected including any voluntary 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	04/01/2025

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.	

4.5 Phosphorus Refrigerated Sampler

The permittee shall preserve aqueous Phosphorus samples at ≤6 °C pursuant s. NR 219.04 Wis. Adm. Code.

Required Action	Due Date
Status Report on Acquisition of Refrigerated Sampler: Submit an update regarding the acquisition of the refrigerated sampler and expected timeline for installation.	04/01/2024
Phosphorus Refrigerated Sampler : Refrigerated sampler shall be installed to preserve aqueous Phosphorus samples at = 6 °C.	04/01/2025

4.6 Temperature Monitoring

For monitoring temperature continuously, collect measurements in accordance with s. NR 218.04(13).

Required Action	Due Date
Continuous Temperature Monitoring: To accurately report the highest temperature in any given day, a continuous temperature monitoring system shall be installed and set-up in accordance to NR 218.04(13).	04/01/2024

4.7 Explanation of Schedules

4.7.1 Mercury Pollutant Minimization Program

Mercury pollutant minimization efforts have been and continue to be implemented by ERCO to reduce the mercury effluent concentration even after mercury cells have been decommissioned since May, 2010. The permit includes schedule 5.1 for a PMP because the granting of a mercury AEL requires a PMP in accordance with s. NR 106.145 (6), Wis. Adm. Code. Even with the elimination of the mercury cell process, there remains a need to address any residual mercury contamination at the facility. The last submitted mercury PMP by ERCO was March 29, 2022.

4.7.2 Water Intake Requirements

Annual certification statement and report added to schedules as required by NR 111.15(1)(c), Wis. Adm. Code.

4.7.3 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.

4.7.4 Phosphorus Refrigerated Sampler

To preserve aqueous Phosphorus samples, they must be stored at temperatures of ≤6 °C pursuant s. NR 219.04 Wis. Adm. Code. Therefore, a refrigerated sampler shall be installed.

4.7.5 Other Comments:

The Wisconsin Department of Natural Resources granted ERCO Worldwide Inc. - Port Edwards' request dated February 14, 2022 and revised on April 6, 2022 for confidential treatment of production data contained in its application for reissuance of its Wisconsin Pollutant Discharge Elimination System (WPDES) permit. The Department is authorized to treat information as confidential under s. 283.55(2)(c), Wis. Stats.

5 Attachments:

~~Appendix A - Chlor-Alkali Categorical Limits (July 8th, 2022)~~
~~Appendix B - ERCO Water Intake Structure BTA Determination (July 8th, 2022)~~
~~Appendix C - Substantial Compliance Determination (April 19, 2022)~~
~~Appendix D - Simplified Water Flow Schematic (December 07, 2021)~~
~~Appendix E - Water Quality Based Effluent Limits (November 25, 2019)~~
~~Appendix F - Water Quality Based Effluent Limits Addendum (January 20, 2023)~~

PFOS and PFOA Water Quality-Based Effluent Limitations for the ERCO Worldwide (USA) Inc. – Port Edwards WPDES Permit No. (WI-0003565) in Wood County, by Amy Garbe, PE, Wastewater Engineer, dated April 17, 2025

6 Justification Of Any Waivers From Permit Application Requirements

No waivers were given from permit application monitoring and reporting requirements.

7 Proposed Expiration Date:

March 31st, 2028

Prepared By:

Laura Rodriguez Alvarez Wastewater Engineer

Date: January 23th, 2023

Revised By: Sarah Donoughe, Wastewater Specialist-Adv

Date: April 25, 2025

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: April 17, 2025

TO: Sarah Donoughe – NER

FROM: Kari Fleming – WY/3

SUBJECT: PFOS and PFOA Water Quality-Based Effluent Limitations for the ERCO Worldwide (USA) Inc. – Port Edwards WPDES Permit No. (WI-0003565) in Wood County

This is in response to your request for an evaluation of the need for PFOS and PFOA limitations for ERCO Worldwide (USA) Inc. – Port Edwards. This industrial facility discharges to the Wisconsin River, located in the Petenwell Lake-Wisconsin River Watershed in the Central Wisconsin Basin.

The current permit, effective since April 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: Wisconsin River
- Classification: Warm water sport fish community, non-public water supply.
- Flow: The following 7-Q10 and 7-Q2 values are from USGS for Station 05400760, where Outfall 001 is located. The Harmonic Mean has been estimated as recommended in State of Wisconsin Water Quality Rules Implementation Plan (Publ. WT-511-98)
  7-Q10 = 1065 cfs (cubic feet per second)
  7-Q2 = 1860 cfs
  90-Q10 = 1581 cfs (est. as 85% of 7-Q2)
  Harmonic Mean Flow = 2412 cfs

- % of Flow used to calculate limits: 25%
- Background Receiving Water/Source Water Data: ERCO sampled their intake (Sample Point 701) in addition to Outfall 001 for both PFOS and PFOA. The following table lists the statistics for the intake water PFOS and PFOA levels from April 2023 through February 2025.

	PFOS ng/L	PFOA ng/L
1-day P_{99}	9.09	16.84
4-day P_{99}	6.15	11.89
30-day P_{99}	4.64	9.30
Mean	3.90	8.01
Std	1.61	2.85
Sample Size	23	23
Range	0.337-6.3	3.6-16.7

Effluent Information

- Flow rate(s): Outfall 001
  Annual average = 5.91 MGD (Million Gallons per Day)

Peak daily = 7.39 MGD
Peak weekly = 6.62 MGD
Peak monthly = 6.52 MGD

For reference, the actual average flow from January 2023 through February 2025 was 4.50 MGD.

- Water source: 98% of wastewater discharged at outfall 001 is comprised of water from the Wisconsin River.
- Effluent characterization: This facility is categorized as a primary industrial discharge

The following table lists the statistics for effluent PFOS and PFOA levels from April 2023 through February 2025.

	PFOS ng/L	PFOA ng/L
1-day P_{99}	6.64	15.41
4-day P_{99}	5.06	11.04
30-day P_{99}	4.20	8.73
Mean	3.76	7.58
Std	0.99	2.55
Sample Size	23	23
Range	2.4-5.9	3.5-12

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 s. NR 106.98(4), Wis. Adm. Code. Therefore, the effluent limit for PFOS is set equal to criteria (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 Wisconsin River
Qs = 25% of the harmonic mean pursuant s. NR 106.06(4)(c)10., Wis. Adm. Code = 603 cfs
Cs = background concentration of PFOA in the receiving water pursuant to s. NR 106.06(4)(e), Wis. Adm. Code = 8.01 ng/L
Qe = effluent flow rate = 5.91 MGD = 9.14 cfs
f = the fraction of effluent withdrawn from the receiving water = 0.98

After substituting the appropriate variables, the calculated PFOA limit is 5,746 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 (5,746 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 (both intake and effluent), the department has determined that it is warranted to reduce the sampling frequency in this case to quarterly.**

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: 4/17/25
Amy Garbe, P.E., Wastewater Engineer

cc: Logan Rubeck, Basin Engineer – WCR/Eau Claire
Nate Willis, P.E., PFAS Implementation Coordinator – CO

Attachment 1 – PFOS P99 Calculation

EFFLUENT VARIABILITY ANALYSIS -

SUBSTANCE:			
NUMBER OF VALUES:	------		
TOTAL	23		
DETECTED	23		
NON-DETECTED	0		
d	0		
m	3.75913		
mean of all data	3.75913		
s	0.990142		
	------	------	------
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	1.069378	1.069378	1.069378
(sigma_d)^2	0.067077	0.067077	0.067077
mu_d	1.290649	1.290649	1.290649
(sigma_dn)^2	0.067077	0.017196	0.00231
mu_dn	1.290649	1.31559	1.323033
P_99 exponent	1.893268	1.620707	1.434862
	-------	-------	-------
P_99	6.64	5.06	4.20
	-------	-------	-------

Data Summary

Apr-23	2.4
May-23	3.5
Jun-23	5.1
Jul-23	5.9
Aug-23	5.12
Sep-23	5.22
Oct-23	3.88
Nov-23	3.34
Dec-23	2.6
Jan-24	2.6
Feb-24	2.8
Mar-24	3.3
Apr-24	2.9
May-24	3
Jun-24	3.4
Jul-24	4.7
Aug-24	4.4
Sep-24	4.7
Oct-24	2.9
Nov-24	4.1
Dec-24	3.7
Jan-25	2.9
Feb-25	4

Attachment 2 – PFOA P99 Calculation

EFFLUENT VARIABILITY ANALYSIS -			
=	= =	=	=
SUBSTANCE:			
NUMBER OF VALUES:	------		
TOTAL	23		
DETECTED	23		
NON-DETECTED	0		
d	0		
m	7.583913		
mean of all data	7.583913		
s	2.554528		
	------	------	------
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	1.113458	1.113458	1.113458
(sigma_d)^2	0.10747	0.10747	0.10747
mu_d	1.972294	1.972294	1.972294
(sigma_dn)^2	0.10747	0.02797	0.003775
mu_dn	1.972294	2.012044	2.024142
P_99 exponent	2.735077	2.401179	2.167098
	-------	-------	-------
P_99	15.41	11.04	8.73
	-------	-------	-------

Data Summary	
Apr-23	3.5
May-23	5.3
Jun-23	9.2
Jul-23	9
Aug-23	7.17
Sep-23	6.79
Oct-23	6.64
Nov-23	4.73
Dec-23	11
Jan-24	11
Feb-24	10
Mar-24	12
Apr-24	3.8
May-24	6.5
Jun-24	6.4
Jul-24	6.2
Aug-24	5.6
Sep-24	6.1
Oct-24	5.3
Nov-24	6.6
Dec-24	11
Jan-25	9.6
Feb-25	11