Permit Fact Sheet

General Information

Permit Number	WI-0062561-05-0
Permittee Name and Address	OCEAN SPRAY CRANBERRIES INC KENOSHA KENOSHA WI 53142
Permitted Facility Name and Address	Ocean Spray Cranberries Inc Kenosha 7800 60TH AVE
Permit Term	April 01, 2025 to March 31, 2030
Discharge Location	Discharge to Lake Michigan via a storm sewer system on the southeast corner of the facility, approximately 4 miles in length. (Lat: 42.56088°N, Long: -87.88045°W)
Receiving Water	Lake Michigan
Stream Flow ($Q_{7,10}$)	10:1 Dilution (Discharge to Lake Michigan)
Stream Classification	Cold water community; public water supply
Discharge Type	Existing, Continuous

Facility Description

Ocean Spray receives fresh fruit, fruit juice concentrate, sugar and other ingredients and processes them into fruit juices, sauces, and various other products. The facility has a contact cooling line for can cooling and a noncontact cooling line for juice cooling, whereby spent cooling water can go to the storm sewer or to the process sanitary drain, if needed. A noncontact cooling Line 2 deaerator and runback cooler was added in 2013 and the existing sauce deaerator was taken offline. Additionally, Ocean Spray has created a system in which discharge can be diverted from the storm sewer to the process sanitary sewer manually in the event of an abnormal discharge. The department has found the facility to be in substantial compliance with the current permit.

In previous permit terms temperature was reported at Sampling Point 110 as if it were an in-plant sample point but the location is just outside the facility and is representative of the final discharge that leaves the property. This description is closer to that of a final outfall than it is an in-plant sample point, so for this permit term the temperature reporting requirement is moved to the effluent Outfall 002 with no change to the sampling location.

Substantial Compliance Determination

After a desk top review of all discharge monitoring reports, land application reports, compliance schedule items, and a site visit on 10/14/2024, this facility has been found to be in substantial compliance with their current permit.

Compliance determination made by Nick Lent on 10/22/2024.

Sample Point Descriptions

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)**
002	0.44 MGD (2024)	Effluent: Combined discharge of contact cooling water from the Sauce Can Cooler line (Sample Point 111), noncontact cooling

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)**
		water from the 131 Runback Cooler (Sample Point 112), and noncontact cooling water from the 132 Deaerator and 132 Runback cooler (Sample Point 114). Samples shall be collected from each production line and a flow weighted composite sample should be created. A single grab sample from the flow weighted composite of 111, 112, and 114 should be used.
111	22,829 gpd (2024)	In-Plant: Contact cooling water from the Sauce Can Cooler line. Flow diverted to the sanitary sewer should not be reported on the Discharge Monitoring Report.
112	130,532 gpd (2024)	In-Plant: Noncontact cooling water from the 131 Runback Cooler. Flow diverted to the sanitary sewer should not be reported on the Discharge Monitoring Report.
114	323,433 gpd (2024)	In-Plant: Noncontact cooling water from the 132 Deaerator and 132 Runback Cooler. Flow to the sanitary sewer should not be reported on the Discharge Monitoring Report.
003	N/A	Effluent: Monitoring point at Gangler stormwater detention basin outlet before effluent reaches Lake Michigan.

Permit Requirements

1 Inplant - Monitoring and Limitations

1.1 Sample Point Number: 111- Sauce Can Cooler Discharge; 112- 131 Runback Cooler, and 114- 132 Deaerator & Runback Cooler

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

Changes from Previous Permit:

Flow units changed to MGD for eDMR consistency purposes. The requirements of the three sample points are identical therefore, the sampling points were combined in the permit document.

Explanation of Limits and Monitoring Requirements

Flow monitoring at these three Inplant sampling points are included in the characterize waste streams contributing to Outfall 002 and provide data for the calculated flow measurement at Outfall 002.

2 Surface Water - Monitoring and Limitations

2.1 Sample Point Number: 002- Discharge to Storm Sewer

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Calculated	Calculated total combined flow from In-Plant Sample Points 111, 112, and 114.
BOD5, Total		mg/L	Monthly	Grab	
Suspended Solids, Total	Daily Max	40 mg/L	Monthly	Grab	
Suspended Solids, Total	Monthly Avg	40 mg/L	Monthly	Grab	
pH Field		su	5/Week	Grab	
Phosphorus, Total		mg/L	Monthly	Grab	
Nitrogen, Ammonia (NH3-N) Total		mg/L	Monthly	Grab	
Oil & Grease (Hexane)		mg/L	Annual	Grab	
Arsenic, Total Recoverable		ug/L	Annual	Grab	
Chlorine, Total Residual		ug/L	5/Week	Grab	Sample shall be collected on the same day as the sample collected from Outfall 003.
Temperature Maximum		deg F	Daily	Continuous	

Changes from Previous Permit

Effluent limitations and monitoring requirements were evaluated for this permit term and the following changes were made from the previous permit. See additional explanation of limits under "Explanation of Limits and Monitoring Requirements" below.

BOD, TSS, TP, pH, and Ammonia – Sampling frequency for these parameters has been increased.

Arsenic – Annual monitoring added to the permit.

Chlorine – Monitoring increased to match the monitoring frequency at Outfall 003 where chlorine limits will become effective per the included compliance schedule. The permittee shall collect chlorine samples in both locations on the same day.

Temperature - Reporting of temperature data moved from Sample Point 110 to Outfall 002. No changes in methods of data collection are made with this reporting change.

Explanation of Limits and Monitoring Requirements

Detailed discussions of limits and monitoring requirements can be found in the attached water quality-based effluent limits (WQBEL) memo dated January 9, 2025 and updated January 21, 2025.

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 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. The monitoring frequencies for this permit were below the base minimum for similar facilities. The department has increased sampling frequency to ensure adequate data is available to determine compliance.

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 whenever practicable. This regulation impacts limits for Chlorine.

2.2 Sample Point Number: 003- Gangler Detention Basin Outlet

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Chlorine, Total Residual	Daily Max	38 ug/L	5/Week	Grab	Monitoring effective upon reissuance. Limits effective April 1, 2029, see Chlorine Schedule. Sample shall be taken on the same day chlorine sample taken at Outfall 002.
Chlorine, Total Residual	Weekly Avg	38 ug/L	5/Week	Grab	Monitoring effective upon reissuance. Limits effective April 1, 2029, see Chlorine Schedule. Sample shall be taken on the same day chlorine sample taken at Outfall 002.
Chlorine, Total Residual	Monthly Avg	38 ug/L	5/Week	Grab	Monitoring effective upon reissuance. Limits effective April 1, 2029, see Chlorine Schedule. Sample shall be taken on the same day chlorine sample taken at Outfall 002.

Changes from Previous Permit

Sample frequency increased and limitations added with schedule for limits to become effective.

Explanation of Limits and Monitoring Requirements

Detailed discussions of limits and monitoring requirements can be found in the attached water quality-based effluent limits (WQBEL) memo dated January 9, 2025 and updated January 21, 2025.

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 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. The sampling frequency for chlorine has been increased because limitations are included in the permit.

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 whenever practicable. Therefore, the permit includes additional limits for compliance with this regulation.

Chlorine - The discharge source water is from the City of Kenosha, which adds chlorine to the drinking water supply. Available data/information indicates the discharge contains concentrations of chlorine above the applicable WQBELs at Outfalls 002 and 003. This requires a daily maximum limit for chlorine. Additionally, because there is reasonable potential for a weekly average limit, a weekly average limit set equal to the daily maximum because the daily maximum is more stringent. Therefor both weekly average and monthly average limits are included. The limitations are new to Ocean Spray Kenosha therefore, a compliance schedule has been included for these limits. See the compliance schedule section.

3 Schedules

3.1 Chlorine Limitations

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

Required Action	Due Date
Report on Effluent Discharges: Submit a report on effluent discharges of total residual chlorine at Outfall 002 and 003 with conclusions regarding compliance.	04/01/2026
Action Plan: Submit an action plan for complying with the effluent limitation. If construction is required, include plans and specifications with the submittal.	04/01/2027
Initiate Actions: Initiate actions identified in the plan.	04/01/2028
Complete Actions: Complete actions necessary to achieve compliance with the effluent limitations.	04/01/2029

Explanation of Schedule

The compliance schedule for Chlorine provides a schedule for conducting the actions necessary to comply with the new limits. The compliance schedule lays out a timeline for the permittee to investigate and implement a plan, including potential construction, to comply with the limits by the end of the schedule. See the section on Chlorine at Outfall 003 in the effluent limits and monitoring section above for more information on the need for the limits. On the same days chlorine sampling is completed at Outfall 003, the permittee shall take a chlorine sample at Outfall 002 grab sample location.

Other Comments

None

Attachments

Water Quality Based Effluent Limits with maps dated January 9, 2025

Justification Of Any Waivers From Permit Application Requirements

No waivers requested or granted as part of this permit reissuance.

Prepared By: Jennifer Jerich, Wastewater Specialist

Date: /30/2025
Revision date post fact check: 2/12/2025
Revision date post public notice:

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: 01/09/2025 updated on 01/21/2025 for cadmium result

TO: Jennifer Jerich – SCR

FROM: Nicole Krueger – SER Nicole Krueger

SUBJECT: Water Quality-Based Effluent Limitations for the Ocean Spray Cranberries Inc. Kenosha WPDES Permit No. WI-0062561-05

This is in response to your request for an evaluation of the need for water quality-based effluent limitations (WQBELs) using chapters NR 102, 104, 105, 106, 207, 210, 212, and 217 of the Wisconsin Administrative Code (where applicable), for the discharge from Ocean Spray Cranberries Inc. Kenosha. This industrial facility discharges to Lake Michigan via storm sewer located in Kenosha County. The evaluation of the permit recommendations is discussed in more detail in the attached report.

Based on our review, the following recommendations are made on a chemical-specific basis at Outfalls 110, 002, and 003.

Outfall 110 – Temperature Manhole

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Temperature Maximum						1,2

Outfall 002 – Discharge to Storm sewer

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Flow Rate						1,2
BOD_5						1,2
TSS	40 mg/L			**40 mg/L**		3
pH	9.0 s.u.	6.0 s.u.				
Phosphorus						1,2
Ammonia Nitrogen						1,2
Chlorine						2
Arsenic						4
Oil & Grease (Hexane)						1,2

Outfall 003 – Gangler Detention Basin Outlet

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Chlorine	38 µg/L		**38 µg/L**	**38 µg/L**		3

Footnotes:

1. No changes from the current permit.
2. Monitoring only.
3. Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Codes, are included in bold.
4. The methods for sampling for arsenic shall provide the most sensitive limit of detection (LOD) available so that reasonable potential can be assessed in the next reissuance.

No WET testing is required because information related to the discharge indicates low to no risk for toxicity.

Please consult the attached report for details regarding the above recommendations. If there are any questions or comments, please contact Nicole Krueger at Nicole.Krueger@wisconsin.gov or Diane Figiel at Diane.Figiel@wisconsin.gov.

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

PREPARED BY: Nicole Krueger, Water Resources Engineer – SER

E-cc: Nick Lent, Wastewater Engineer – SER
Bryan Hartsook, Regional Wastewater Supervisor – SER
Diane Figiel, Water Resources Engineer – WY/3
Nate Willis, Wastewater Engineer – WY/3

Attachment #1

Water Quality-Based Effluent Limitations for
Ocean Spray Cranberries Inc. Kenosha

WPDES Permit No. WI-0062561-05

Prepared by: Nicole Krueger

PART 1 – BACKGROUND INFORMATION

Facility Description

Ocean Spray receives fresh fruit, fruit juice concentrate, sugar and other ingredients and processes them into fruit juices, sauces and various other products. The facility has a contact cooling line for can cooling and a noncontact cooling line for juice cooling, whereby spent cooling water can go to the storm sewer or to the process sanitary drain, if needed. Discharge can be diverted from the storm sewer to the process sanitary sewer manually in the event of an abnormal discharge. There are plans to add an anaerobic digester to treat high strength wastewater prior to discharge to Kenosha Water Utility during the current permit term.

Attachment #2 is a map of the area showing the approximate location of Outfall 002.

Existing Permit Limitations

The current permit, expiring on March 31, 2025, includes the following effluent limitations and monitoring requirements.

Outfall 110 – Temperature Manhole

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Temperature Maximum						1,2

Outfall 002 – Discharge to Storm sewer

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Flow Rate						1,2
BOD_5						1,2
TSS	40 mg/L			**40 mg/L**		1,3
pH						1,2
Phosphorus						1,2
Ammonia Nitrogen						1,2
Residual Chlorine						2
Oil & Grease (Hexane)						1,2

Outfall 003 – Gangler Detention Basin Outlet

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Chlorine						2

Footnotes:

1. These limitations are not being evaluated as part of this review. Because the water quality criteria (WQC), reference effluent flow rates, and receiving water characteristics have not changed, limitations for these water quality characteristics do not need to be re-evaluated at this time.
2. Monitoring only.
3. Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Codes, are included in bold.

Receiving Water Information

- Name: Lake Michigan
- Waterbody Identification Code (WBIC): 20
- Classification used in accordance with chs. NR 102 and 104, Wis. Adm. Code: Cold Water and Public Water Supply.
- Flow: A ten-to-one dilution ratio will be used for calculating effluent limitations based on chronic or long-term impacts, in accordance with s. NR 106.06(4)(b)2, Wis. Adm. Code, because the receiving water does not exhibit a unidirectional flow at the point of discharge.
- Hardness = 139 mg/L as $CaCO_3$. This value represents the geometric mean of data from chronic WET testing from Kenosha Wastewater Treatment Facility from 07/23/2019 – 03/15/2022.
- Source of background concentration data: Metals data from Lake Michigan is used for this evaluation, shown in the table below:

Substance	Concentration	Source
Arsenic	0.82 µg/L	1
Mercury	0.58 ng/L	2
Cadmium	0.0085 µg/L	3
Chromium	0.49 µg/L	3
Copper	0.44 µg/L	3
Lead	0.052 µg/L	3
Zinc	0.39 µg/L	3
Chloride	11.8 mg/L	4

1. Drinking water intake for Kenosha Sewer Utilities
2. Intake data from WE Energies Oak Creek Power Plant
3. WQ Rules Implementation Plan, 1995
4. Chloride data is from Lake Michigan from Station ID 303138

If no data is available, the background concentration is assumed to be negligible and a value of zero is used in the computations. Background data for calculating effluent limitations for ammonia nitrogen are described later.

- Multiple dischargers: There are several other dischargers to Lake Michigan however they are not in the immediate vicinity and the mixing zones do not overlap. Therefore, the other dischargers do not impact this evaluation.
- Impaired water status: Lake Michigan is 303(d) listed as impaired for PCBs and mercury.

Effluent Information

- Flow rate(s):
  Maximum annual average = 0.42 MGD (Million Gallons per Day)
  For reference, the overall average flow from 04/01/2020 – 10/31/2024 was 0.34 MGD.
- Hardness = 131 mg/L as $CaCO_3$. This value represents the geometric mean of data from the permit reissuance application from 09/16/2024 – 10/10/2024.
- Acute dilution factor used in accordance with s. NR 106.06(3)(c), Wis. Adm. Code: Not applicable – this facility does not have an approved Zone of Initial Dilution (ZID).
- Water source: Kenosha Water Utility (Lake Michigan)
- Additives: None.
- Effluent characterization: This facility is categorized as a secondary industry, so the permit application required effluent sample analyses for a limited number of common pollutants, as specified in s. NR 200.065, Table 1, Wis. Adm. Code, primarily metal substances plus ammonia, chloride, hardness and phosphorus.
- Effluent data for substances for which a single sample was analyzed is shown in the tables in Part 2 below, in the column titled "MEAN EFFL. CONC.". Otherwise, substances with multiple effluent data are shown in the tables below or in their respective parts in this evaluation.

Effluent Data

Sample Date	Outfall 002 Chlorine µg/L	Outfall 003 Chlorine µg/L
08/27/2019		20
08/28/2019		10
05/19/2020	980	20
11/17/2020	469	13
06/30/2021	549	17
10/13/2021	630	19
04/05/2022	724	<20
01/19/2023	469	143
06/13/2023	890	260
12/08/2023	190	260
05/30/2024	1020	30
09/16/2024		810
10/23/2024	1180	450
12/19/2024	1130	370
1-day P_{99}	1771	1117
4-day P_{99}	1191	607
Average	748	173

"<" means that the pollutant was not detected at the indicated level of detection and replaced with zeros in calculations

Effluent Copper Data

Sample Date	Copper µg/L
09/16/2024	<4
10/03/2024	<8

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Sample Date	Copper µg/L
10/07/2024	<8
10/10/2024	<8
Average	0

"<" means that the pollutant was not detected at the indicated level of detection and replaced with zeros in calculations

Effluent Arsenic Data

Sample Date	Arsenic µg/L
10/03/2024	0.72
10/07/2024	0.71
10/10/2024	0.70
Average	0.71

The following table presents the average concentrations and loadings at Outfall 002 from 05/01/2019 – 05/30/2024 for all parameters with limits in the current permit to meet the requirements of s. NR 201.03(6), Wis. Adm. Code:

Parameter Averages with Limits

	Average Measurement
TSS	5.9 mg/L*

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

PART 2 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR TOXIC SUBSTANCES – EXCEPT AMMONIA NITROGEN

Permit limits for toxic substances are required whenever any of the following occur:

1. The maximum effluent concentration exceeds the calculated limit (s. NR 106.05(3), Wis. Adm. Code)
2. If 11 or more detected results are available in the effluent, the upper 99th percentile (or P_{99}) value exceeds the comparable calculated limit (s. NR 106.05(4), Wis. Adm. Code)
3. If fewer than 11 detected results are available, the mean effluent concentration exceeds 1/5 of the calculated limit (s. NR 106.05(6), Wis. Adm. Code)

Daily maximum limits are set based on two times the acute toxicity criteria rather than the 10:1 dilution.

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

All effluent data in the tables below are for Outfall 002, unless otherwise noted.

Daily Maximum Limits based on Acute Toxicity Criteria (ATC)
10:1 dilution

SUBSTANCE	REF. HARD.* mg/L	ATC	MEAN BACK-GRD.	MAX. EFFL. LIMIT**	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	1-day P_{99}	1-day MAX. CONC.	**003** 1-day P_{99}	1-day MAX. CONC.
Chlorine		19.0		38.1			**1171**	**1180**	**1117**	**810**
Arsenic		340	0.82	680	136	0.71				
Cadmium	131	5.9	0.09	11.9	2.4	<2				
Chromium	131	2249	0.49	4499	900	<3				
Copper	131	20.0	0.44	40.0	8.0	<8				
Lead	131	139	0.05	278	55.5	<20				
Nickel	131	590		1179	236	<3				
Zinc	131	152	0.39	305	61.0	<20				
Chloride (mg/L)		757	11.8	1514	303	17.1				

* The indicated hardness may differ from the effluent hardness because the effluent hardness exceeded the maximum range in ch. NR 105, Wis. Adm. Code, over which the acute criteria are applicable. In that case, the maximum of the range is used to calculate the criterion.

Weekly Average Limits based on Chronic Toxicity Criteria (CTC)
10:1 dilution

SUBSTANCE	REF. HARD.* mg/L	CTC	MEAN BACK-GRD.	WEEKLY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	4-day P_{99}	**003** 4-day P_{99}
Chlorine		7.28		80.1			**1191**	**607**
Arsenic		148	0.82	1620	324	0.71		
Cadmium	139	3.19	0.09	34.2	6.8	<2		
Chromium	139	113	0.49	1237	247	<3		
Copper	139	13.7	0.44	147	29.3	<8		
Lead	139	38.5	0.05	423	84.6	<20		
Nickel	139	69.0		759	152	<3		
Zinc	139	161	0.39	1762	352	<20		
Chloride (mg/L)		395	11.8	4227	845	17.1		

* The indicated hardness may differ from the receiving water hardness because the receiving water hardness exceeded the maximum range in ch. NR 105, Wis. Adm. Code, over which the chronic criteria are applicable. In that case, the maximum of the range is used to calculate the criterion.

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

Monthly Average Limits based on Human Threshold Criteria (HTC)
10:1 dilution

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SUBSTANCE	HTC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.
Cadmium	4.4	0.09	48	9.5	<2
Chromium (+3)	100	0.49	1095	219	<3
Lead	10	0.05	109	21.9	<20
Nickel	100		1100	220	<3

Monthly Average Limits based on Human Cancer Criteria (HCC)
10:1 dilution

SUBSTANCE	HCC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.
Arsenic	0.2	0.82	0.2	0.04	**0.71**

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

Conclusions and Recommendations
Based on a comparison of the effluent data and calculated effluent limitations, effluent limitations are required for chlorine.

Chlorine – The discharge source water is from the City of Kenosha, which adds chlorine to the drinking water supply. Available data/information indicates the discharge contains concentrations of chlorine above the applicable WQBELs at Outfalls 002 and 003. Therefore, **a daily maximum effluent limit of 38 µg/L is needed for the reissued permit.** The weekly average limit of 80 µg/L is less restrictive than the daily maximum limit, so limits to meet expression of limits requirements is discussed below.

Because there is reasonable potential for a weekly average limit, a weekly average limit is needed as well and set equal to the daily maximum limit because it is more stringent than the calculated WQBEL. **Therefore, weekly average and monthly average limits of 38 µg/L are required** to meet expression of limits requirements in addition to the daily max limit.

These limits shall be effective at Outfall 003 at the Gangler detention basin outlet, before the effluent meets Lake Michigan, where the chlorine criteria apply. Some dissipation is expected to occur between Outfalls 002 and 003. **Monitoring only is recommended to continue at Outfall 002.**

The chlorine data collected at Outfall 003 is shown below over the course of the permit term, for informational purposes.

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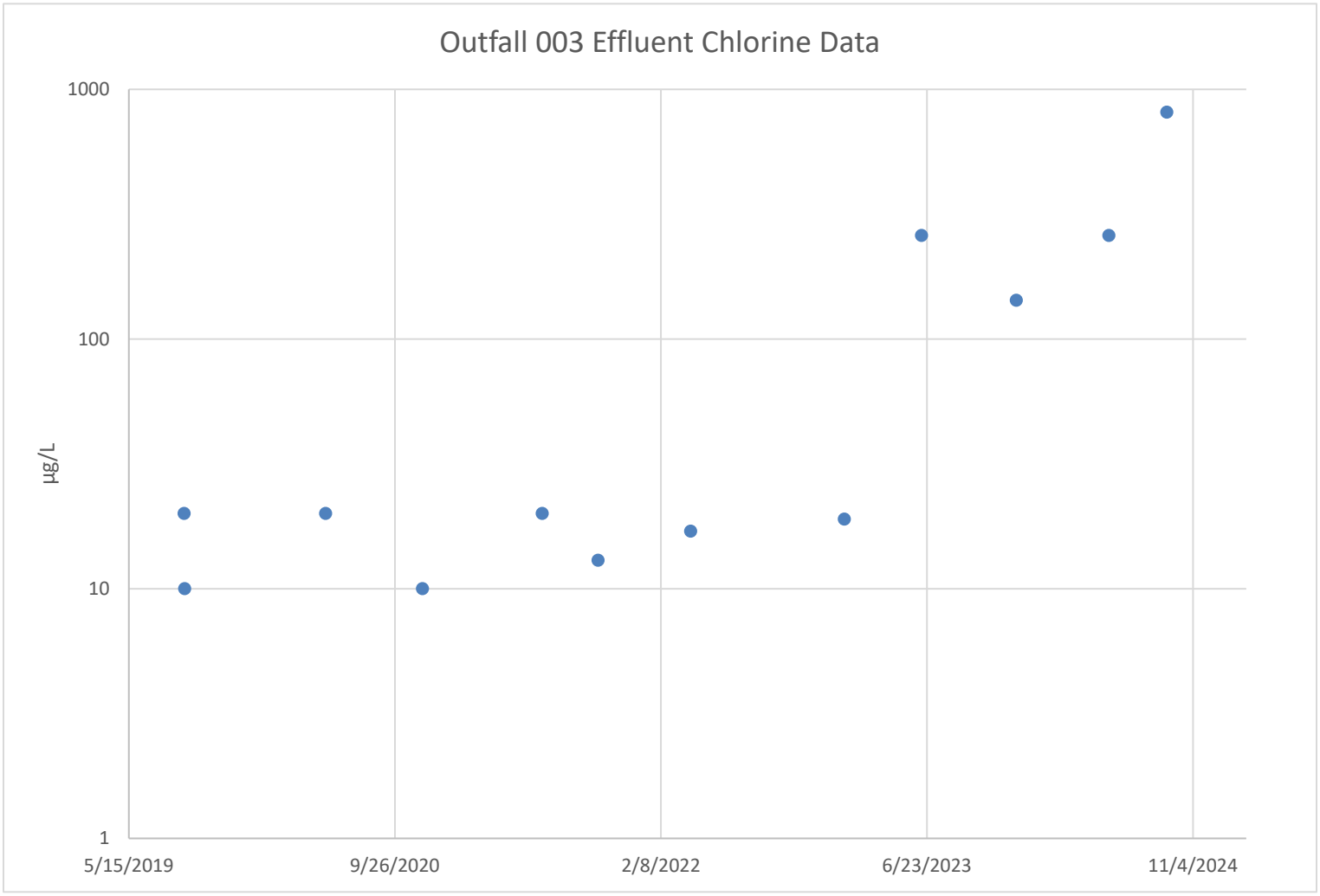

Arsenic – The average result of the available arsenic samples was 0.71 µg/L which is greater than 0.2 µg/L. Intake factors are considered to determine if arsenic limits are needed. Ocean Spray uses water from the City of Kenosha which is from Lake Michigan which is the same water the effluent is discharged to.

The background arsenic data is shown below, which has been reported by Kenosha Wastewater Treatment Facility.

Background Arsenic Data – Lake Michigan

	Arsenic µg/L
1-day P_{99}	1.19
4-day P_{99}	0.99
30-day P_{99}	0.88
Mean	0.82
Std	0.14
Sample size	23

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	Arsenic µg/L
Range	0.61 - 1.1

Section NR 106.06(6), Wis. Adm. Code, allows a facility to demonstrate that a pollutant present in intake water, which is passed through the facility and discharged does not cause, have the reasonable potential to cause, or contribute to the excursion of water quality criteria in the receiving water. The demonstration has five conditions, all of which must be met:

1. The permittee withdraws 100 percent of its intake water containing the substance from the same body of water into which the discharge is made;
2. The permittee does not contribute any additional mass of the substance to the wastewater;
3. The permittee does not alter the substance chemically or physically in a manner that would cause adverse water quality impacts to occur that would not occur if the pollutants were left in-stream;
4. The permittee does not increase the concentration at the edge of the mixing zone, or at the point of discharge if a mixing zone is not allowed, as compared to the concentration in the intake water, unless the increased concentration does not cause or contribute to an excursion above an applicable water quality standard; and
5. The timing and location of the discharge would not cause adverse water quality impacts to occur that would not occur if the identified intake pollutant were left instream.

The average effluent concentration of 0.71 µg/L is less than the average of the available background data. All conditions are demonstrated for Ocean Spray, so **arsenic limits are not recommended in the reissued permit. Monitoring is recommended in the reissued permit to ensure the conditions above are met** using the most sensitive limit of detection (LOD) that is available.

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

PART 3 – pH

Ocean Spray does not currently have pH limits. The criteria for fish and aquatic life for pH per NR 102.04(4)(c), Wis. Adm. Code is 6.0 to 9.0 s.u. Therefore, it is recommended that **pH limits of 6.0 s.u. as a daily minimum and 9.0 s.u. as a daily maximum be included in the reissued permit.**

The table below shows the reported pH data from the current permit term.

Effluent pH Data

	pH s.u.
05/19/2020	7.41
06/09/2021	7.2
04/05/2022	7.96
06/13/2023	7.93

	pH s.u.
09/16/2024	7.6

Ocean Spray can currently meet the recommended pH limits, so **no compliance schedule is needed.**

PART 4 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR AMMONIA NITROGEN

The State of Wisconsin promulgated revised water quality standards for ammonia nitrogen in ch. NR 105, Wis. Adm. Code, effective March 1, 2004 which includes criteria based on both acute and chronic toxicity to aquatic life. Given the fact that Ocean Spray does not currently have ammonia nitrogen limits, the need for limits is evaluated at this time.

Effluent Data
The following table evaluates the statistics based upon ammonia data reported from 05/19/2020 – 09/16/2024, with those results being compared to the calculated limits to determine the need to include ammonia limits in Ocean Spray's permit for the respective month ranges. That need is determined by calculating 99th upper percentile (or P_{99}) values for ammonia during each of the month ranges and comparing the daily maximum values to the daily maximum limit.

Ammonia Nitrogen Effluent Data

Sample Date	Ammonia Nitrogen mg/L
05/19/2020	0.196
06/09/2021	0.0446
04/05/2022	<0.025
06/13/2023	<0.3
09/16/2024	<0.31
Average*	0.05

*Values lower than the level of detection were substituted with a zero

Because the effluent data is significantly lower than the any calculated limits based on acute or chronic toxicity, **no limits are recommended. Monitoring is recommended to continue in the reissued permit.**

PART 5 – PHOSPHORUS

Technology-Based Effluent Limit
Subchapter II of Chapter NR 217, Wis. Adm. Code, requires industrial facilities that discharge greater than 60 pounds of Total Phosphorus per month to comply with a monthly average limit of 1.0 mg/L, or an approved alternative concentration limit.

Because Ocean Spray does not currently have an existing technology-based limit, the need for this limit in the reissued permit is evaluated. The data demonstrates that the annual monthly average phosphorus loading is less than 60 lbs/month, which is the threshold for industrials in accordance to s. NR 217.04(1)(a)2, Wis. Adm. Code, and therefore no technology-based limit is required.

Annual Average Mass Total Phosphorus Loading

Attachment #1

Month	Result mg/L	Total Flow MG/month	Total Phosphorus lb./mo.
May 2020	0.422	7.42	26
June 2021	0.432	9.41	34
April 2022	0.404	9.89	33
June 2023	0.34	12.7	36
Sept 2024	0.53	18.8	83
Average			42.5

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

In addition, the need for a WQBEL for phosphorus must be considered.

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

Section NR 102.06(5)(b) specifies that a total phosphorus criterion of 7 µg/L (0.007 mg/L) applies for the open and nearshore water of Lake Michigan. For direct discharges to Lake Michigan such as Ocean Spray, s. NR 217.13(4), Wis. Adm. Code, states that the Department shall set effluent limits consistent with nearshore or whole lake models approved by the Department. In the absence of an approved model, a limit of 0.6 mg/L as a six-month average is typically recommended based on the best readily available phosphorus removal technology.

Effluent Data
The following table summarizes effluent total phosphorus monitoring data from the current permit term.

Total Phosphorus Effluent Data

Sample Date	Phosphorus mg/L
05/19/2020	0.422
06/09/2021	0.432
04/05/2022	0.404
06/13/2023	0.34
09/16/2024	0.53
Average	0.426

There is no phosphorus treatment at this facility and the effluent is below the typically recommended limit of 0.6 mg/L. In absence of a nearshore or whole lake model, no phosphorus limits are recommended. **Continued monitoring is recommended in the reissued permit.**

PART 6 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR THERMAL

Surface water quality standards for temperature took effect on October 1, 2010. These regulations are detailed in chs. NR 102 (Subchapter II – Water Quality Standards for Temperature) and NR 106

(Subchapter V – Effluent Limitations for Temperature) of the Wisconsin Administrative Code. Daily maximum and weekly average temperature criteria are available for the 12 different months of the year depending on the receiving water classification.

Due to the amount of upstream flow available for dilution in the limit calculation (Qs:Qe >20:1), the lowest calculated limitation is 120° F (s. NR 106.55(6)(a), Wis. Adm. Code).

The table below summarizes the maximum temperatures reported during monitoring from 01/01/2023 – 12/31/2023.

Monthly Temperature Effluent Data & Limits

Month	Representative Highest Monthly Effluent Temperature		Calculated Effluent Limit	
	Weekly Maximum (°F)	Daily Maximum (°F)	Weekly Average Effluent Limitation (°F)	Daily Maximum Effluent Limitation (°F)
JAN	99	106	NA	120
FEB	96	102	NA	120
MAR	95	103	NA	120
APR	103	107	NA	120
MAY	104	109	NA	120
JUN	103	110	NA	120
JUL	99	114	NA	120
AUG	92	97	NA	120
SEP	109	114	NA	120
OCT	106	119	NA	120
NOV	103	113	NA	120
DEC	199	262	NA	120

The temperature meter is believed to be malfunctioning in December 2023 so this data is not considered to be representative of normal conditions and is not used in this evaluation to determine if limits are necessary.

Reasonable Potential

Permit limits for temperature are recommended based on the procedures in s. NR 106.56, Wis. Adm. Code.

- An acute limit for temperature is recommended for each month in which the representative daily maximum effluent temperature for that month exceeds the acute WQBEL. The representative daily maximum effluent temperature is the greater of the following:
  (a) The highest recorded representative daily maximum effluent temperature
  (b) The projected 99th percentile of all representative daily maximum effluent temperatures

- A sub−lethal limitation for temperature is recommended for each month in which the representative weekly average effluent temperature for that month exceeds the weekly average WQBEL. The representative weekly average effluent temperature is the greater of the following:
  (a) The highest weekly average effluent temperature for the month.
  (b) The projected 99th percentile of all representative weekly average effluent temperatures for the month

Based on the available effluent data, **no effluent limits are recommended for temperature**. The complete thermal table used for the limit calculation is attached. Monitoring is recommended to continue in the reissued permit.

PART 7 – WHOLE EFFLUENT TOXICITY (WET)

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

- Acute tests predict the concentration that causes lethality of aquatic organisms during a 48 to 96-hour exposure. To assure that a discharge is not acutely toxic to organisms in the receiving water, WET tests must produce a statistically valid LC_{50} (Lethal Concentration to 50% of the test organisms) greater than 100% effluent, according to s. NR 106.09(2)(b), Wis. Adm Code.
- Chronic tests predict the concentration that interferes with the growth or reproduction of test organisms during a seven-day exposure. To assure that a discharge is not chronically toxic to organisms in the receiving water, WET tests must produce a statistically valid IC_{25} (Inhibition Concentration) greater than the instream waste concentration (IWC), according to s. NR 106.09(3)(b), Wis. Adm Code. The IWC is an estimate of the proportion of effluent to total volume of water (receiving water + effluent). The IWC of **9%** shown in the WET Checklist summary below was calculated according to the following equation, as specified in s. NR 106.03(6), Wis. Adm Code:

  The IWC is 9% based on dilution of 10 parts lake water to 1-part effluent, as specified in s. NR 106.06(4)(b)2, Wis. Adm. Code, or a factor of 1 in 11 to calculate the IWC.

- According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), a synthetic (standard) laboratory water may be used as the dilution water and primary control in acute WET tests, unless the use of different dilution water is approved by the Department prior to use. The primary control water must be specified in the WPDES permit.
- According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), receiving water must be used as the dilution water and primary control in chronic WET tests, unless the use of different dilution water is approved by the Department prior to use. The dilution water used in WET tests conducted on Outfall 001 shall be a grab sample collected from the receiving water location, upstream and out of the influence of the mixing zone and any other known discharge. The specific receiving water location must be specified in the WPDES permit.

The WET checklist was developed to help DNR staff make recommendations regarding WET limits,

monitoring, and other related permit conditions. The checklist indicates whether acute and chronic WET limits are needed, based on requirements specified in s. NR 106.08, Wis. Adm. Code. The checklist steps the user through a series of questions, assesses points based on the potential for effluent toxicity, and suggests monitoring frequencies based on points accumulated during the checklist analysis. As toxicity potential increases, more points accumulate, and more monitoring is recommended to ensure that toxicity is not occurring. A summary of the WET checklist analysis completed for this permittee is shown in the table below. Staff recommendations based on best professional judgment are provided below the summary table. For guidance related to reasonable potential and the WET checklist, see Chapter 1.3 of the WET Guidance Document: https://dnr.wisconsin.gov/topic/Wastewater/WET.html.

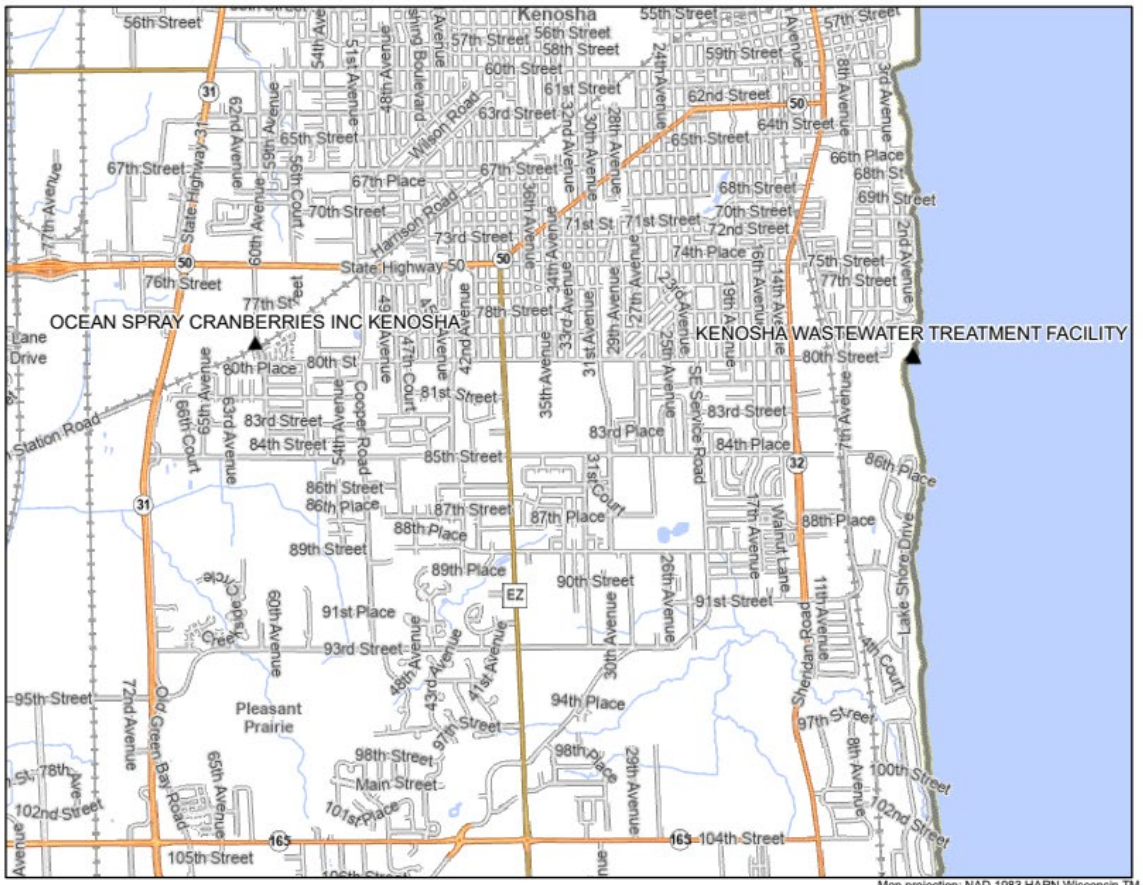
WET Checklist Summary

	Acute	Chronic
AMZ/IWC	Not Applicable. **0 Points**	IWC = 9%. **0 Points**
Historical Data	0 tests used to calculate RP. **5 Points**	0 tests used to calculate RP. **5 Points**
Effluent Variability	Little variability, no violations or upsets, consistent WWTF operations. **0 Points**	Same as Acute. **0 Points**
Receiving Water Classification	Cold water. **5 Points**	Same as Acute. **5 Points**
Chemical-Specific Data	Reasonable potential for limits for chlorine based on ATC; Ammonia and chloride detected. Additional Compounds of Concern: None **7 Points**	Reasonable potential for limits for chlorine based on CTC; Ammonia, and chloride detected. Additional Compounds of Concern: None **7 Points**
Additives	No additives used. **0 Points**	No additives used. **0 Points**
Discharge Category	NCCW **0 Point**	Same as Acute. **0 Points**
Wastewater Treatment	NCCW – no treatment necessary **0 Points**	Same as Acute. **0 Points**
Downstream Impacts	No impacts known **0 Points**	Same as Acute. **0 Points**
Total Checklist Points:	**17 Points**	**17 Points**
Recommended Monitoring Frequency (from Checklist):	2 tests during permit term	No tests needed.
Limit Required?	No	No
TRE Recommended? (from Checklist)	No	No

- Because this is noncontact cooling water with no additives in use, **no WET testing is recommended because information related to the discharge indicates the potential for effluent toxicity is believed to be low.** A chlorine limit is in the permit to address any potential toxicity related to chlorine.

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Ocean Spray Outfall Location



Legend: (some map layers may not be displayed)

- Surface Water Outfalls
- Rivers and Streams
- Intermittent Streams
- Open Water
- water

Latest Leaf Off Imagery

- Red: Band_1
- Green: Band_2
- Blue: Band_3

Notes:

This map is a product generated by a DNR web mapping application.

This map is for informational purposes only and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. The user is solely responsible for verifying the accuracy of information before using for any purpose. By using this product for any purpose user agrees to be bound by all disclaimers found here: https://dnr.wisconsin.gov/legal

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Attachment #3

Temperature limits for receiving waters without unidirectional flow

(calculation using default ambient temperature data)

Facility: Ocean Spray

Lake Michigan waters - S

Outfall(s): 002

Great Lakes shore discharge

Date Prepared: 12/9/2024

Design Flow (Qe): 0.42 MGD

Maximum area of mixing zone allowed (coefficient "A"): 3,125,000 ft^2

	Temp Dates	Flow Dates
Start:	01/01/23	04/01/20
End:	12/31/23	10/31/24

Month	Water Quality Criteria			Representative Highest Effluent Flow Rate (Qe)		B	e^{-a} (for SL-WQBEL)	e^{-a} (for A-WQBEL)	Representative Highest Monthly Effluent Temperature		**Calculated Effluent Limit**	
	Ta (default)	Sub-Lethal WQC	Acute WQC	7-day Rolling Average (Qesl)	Daily Maximum Flow Rate (Qea)				Weekly Average	Daily Maximum	**Weekly Average Effluent Limitation**	**Daily Maximum Effluent Limitation**
	(°F)	(°F)	(°F)	(MGD)	(MGD)				(°F)	(°F)	(°F)	(°F)
JAN	35	43	69	0.44	0.53	0.405	0.000	0.000	99	106	NA	120
FEB	34	46	69	0.41	0.49	0.405	0.000	0.000	96	102	NA	120
MAR	37	52	70	0.43	0.52	0.405	0.000	0.000	95	103	NA	120
APR	43	59	70	0.41	0.48	0.405	0.000	0.000	103	107	NA	120
MAY	48	65	72	0.41	0.48	0.405	0.000	0.000	104	109	NA	120
JUN	54	70	73	0.59	0.64	0.405	0.000	0.000	103	110	NA	120
JUL	59	71	74	0.54	0.65	0.405	0.000	0.000	99	114	NA	120
AUG	63	70	76	0.46	0.57	0.555	0.000	0.000	92	97	NA	120
SEP	60	64	74	0.46	0.60	0.555	0.000	0.000	109	114	NA	120
OCT	53	57	73	0.48	0.65	0.405	0.000	0.000	106	119	NA	120
NOV	45	49	71	0.50	0.69	0.405	0.000	0.000	103	113	NA	120
DEC	38	44	70	0.87	0.95	0.405	0.000	0.000	199	262	NA	**120**