

Permit Fact Sheet

Changes from the previous permit are highlighted in grey.

General Information

Permit Number	WI-0050521-10-4 *Modification*
Permittee Name and Address	Sargento Cheese Inc. - St. Cloud Plant N5279 County Road G, St. Cloud, WI
Permitted Facility Name and Address	Sargento Cheese Inc. - St. Cloud Plant N5279 County Road G, St. Cloud, WI
Permit Term	January 01, 2025 to September 30, 2025
Discharge Location	Discharge is to an un-named tributary, 1/3-mile North of the intersection of County Roads G and T in Fond du Lac County
Receiving Water	Mullett River and groundwater of the Sheboygan River Watershed (SH03) in Mullett River of Sheboygan River in Fond du Lac county
Stream Flow (Q _{7,10})	0.23 cfs
Stream Classification	Warm water sport fish, non-public water supply
Discharge Type	Existing, intermittent

Facility Description

This facility produces mozzarella cheese. The on-site treatment plant discharges treated process wastewater to a wetland tributary via surface water outfall 003. Whey processing wastewater shall also contribute additional wastewater that must be treated prior to discharge to the wetland tributary. Discharge flows are approximately 0.22 million gallons per day.

Currently whey processing wastewater is hauled off-site for further processing. Land application outfalls 001 and 004 are retained from the current permit to allow land application of industrial process wastewater and wastewater biosolids resulting from the wastewater treatment process. Wastewater is treated in an activated sludge process with enhanced biological phosphorus removal, consisting of an influent wetwell/lift station, selector tank, aeration basin, and membrane system for liquid/solids separation. High strength chloride wastewater is captured and diverted to a tank, and ultimately hauled to another wastewater treatment facility.

Permit modification -4 was completed following an antidegradation and antibacksliding request submitted by Sargento Cheese (formerly Baker Cheese) in accordance with ch. NR 207, Wis. Adm. Code, for the following changes to the permit: reactivation of outfall 002, inclusion of total maximum daily load (TMDL) phosphorus mass limits, less stringent chloride concentration limits, and a lower IWC for chronic WET testing which warranted the addition of a chronic WET limit. The permit modification removed the WQT requirements from the permit as the permittee is able to meet the TMDL limits immediately without the need for WQT for compliance with the updated phosphorus limits.

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)
001		Representative samples of process washwater from the hauling truck prior to land application
002	Outfall activated	Representative samples of noncontact cooling water and boiler blowdown prior to discharge to the absorption pond
003		Representative samples shall be obtained at the point of discharge from the wastewater treatment plant. Samples for temperature, however, shall be obtained just prior to discharge to the stream.
004		Representative samples of the wastewater treatment plant biosolids shall be obtained prior to land application
601		Representative receiving water temperature samples shall be obtained just prior to the wetland complex.

Permit Requirements

1 Surface Water - Monitoring and Limitations

1.1 Sample Point Number: 003- TREATED PROCESS WASTEWATER

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
BOD5, Total	Daily Max	16 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies November-April, each year.
BOD5, Total	Weekly Avg	10 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies November-April, each year.
BOD5, Total	Monthly Avg	10 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies November-April, each year.
BOD5, Total	Daily Max	8.9 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies May-October, each year.
BOD5, Total	Weekly Avg	5.4 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies May-October, each year.
BOD5, Total	Monthly Avg	5.4 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies May-October, each year.
Suspended Solids, Total	Daily Max	16 mg/L	3/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Monthly Avg	10 mg/L	3/Week	24-Hr Flow Prop Comp	

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
pH Field	Daily Max	9.0 su	3/Week	Continuous	
pH Field	Daily Min	6.0 su	3/Week	Continuous	
Dissolved Oxygen	Daily Min	7.0 mg/L	3/Week	Grab	
Temperature		deg F	3/Week	Continuous	Monitoring only upon permit effective date. Final temperature limits go into effect per the Temperature Limits Compliance schedule.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	6.8 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies April & May, each year.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	2.9 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies April & May, each year.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	4.4 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies June-September, each year.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	1.9 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies June-September, each year.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	11 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies December-March, each year.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	4.5 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies December-March, each year.
Nitrogen, Ammonia (NH3-N) Total	Daily Max - Variable	mg/L	3/Week	24-Hr Flow Prop Comp	
Nitrogen, Ammonia Variable Limit		mg/L	3/Week	24-Hr Flow Prop Comp	See permit for variable limit table.
Chloride	Daily Max	740 mg/L	3/Week	24-Hr Flow Prop Comp	
Chloride	Monthly Avg	600 mg/L	3/Week	24-Hr Flow Prop Comp	
Chloride	Weekly Avg	600 mg/L	3/Week	24-Hr Flow Prop Comp	
Phosphorus, Total	Monthly Avg	1.0 mg/L	3/Week	24-Hr Flow Prop Comp	Report mg/L of phosphorus discharged.
Phosphorus, Total		lbs/day	3/Week	Calculated	See Phosphorus TMDL section
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 TMDL Calculations section.
Phosphorus, Total	Annual total	217 lbs/year	Monthly	Calculated	Calculate the sum of total monthly mass of phosphorus discharged for the calendar year and report on the last day of the month on the DMR. See TMDL section below.
Chronic WET	Monthly Avg	1.5 TUC	See Listed Qtr(s)	24-Hr Flow Prop Comp	

1.1.1 Changes from Previous Permit

Increased chloride limits with approved Antidegradation/Antibacksliding request.

Phosphorus WQT requirements removed.

Phosphorus TMDL Limits- Mass based phosphorus limits of 217 lbs/year have been added to the permit to comply with requirements of the Northeast Lakeshore TMDL. Effluent concentration (mg/L) shall be monitored and reported 3 times per week upon permit reissuance and will be used to calculate amounts reported for mass-based limits. An additional reporting requirement for lbs/month will be used to calculate the facility's 12-month rolling sum of total monthly discharge, which can be compared directly to the facility's designated WLA.

Acute WET testing monitoring removed.

Chronic WET monthly average limit added due to change in IWC.

1.1.2 Explanation of Limits and Monitoring Requirements

Please refer to the Antidegradation and Antibacksliding Evaluated memo dated November 8, 2024, prepared by Nicole Krueger for the detailed calculations and explanation.

Northeast Lakeshore Total Maximum Daily Load (TMDL): The permitted facility is located within the Northeast Lakeshore Total Maximum Daily Load (NEL TMDL), which was approved by EPA October 30, 2023. The TMDL establishes Waste Load Allocations (WLAs) for point source dischargers and determines the maximum amounts of phosphorus and total suspended solids that can be discharged and still protect water quality. The final effluent limits and monitoring expressed in the permit were derived from and comply with the applicable water quality criterion and are

consistent with the assumptions and requirements of the EPA-approved WLAs in the TMDL, which are 217 lbs/yr for phosphorus.

The approved TMDL expresses WLAs as lbs/year and lbs/day (maximum annual load divided by 365 days). As outlined in Section 4.6 of the department’s 2023 *TMDL Implementation Guidance for Wastewater Permits*, TMDL limits must be given in the permit that are consistent with the TMDL WLA permit limits derived from the TMDL and need to be expressed as specified by 40 CFR 122.45 (d), s. NR 212.76 (4), and s. NR 205.065 (7), Wis. Adm. Code, unless determined to be impracticable. Impracticability has already been determined for phosphorus limits as laid out in the phosphorus impracticability agreement that was approved by USEPA in 2012 (see NPDES MOA Addendum dated July 12, 2012 at <https://apps.dnr.wi.gov/swims/Documents/DownloadDocument?id=167886175>).

For phosphorus, continuously discharging facilities covered by the NEL TMDL are given monthly average mass limits. If the equivalent effluent concentration is less than or equal to 0.3 mg/L, six-month average mass limits (averaging period of May through October and November through April) are also included. The equivalent effluent concentration of 1.0 mg/L was calculated for the facility and, as a noncontinuous discharger, TMDL based mass limits are expressed as an annual total.

1.2 Sample Point Number: 601- IN-STREAM

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Temperature Maximum		deg F	Daily	Continuous	

1.2.1 Changes from Previous Permit

Unchanged by modification

2 Land Treatment – Monitoring and Limitations

2.1 Sample Point Number: 002- NCCW & BBD TO ABSORP POND

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Monthly	Estimated	
BOD5, Total		mg/L	Quarterly	Grab	
Suspended Solids, Total		mg/L	Quarterly	Grab	
pH Field	Daily Max	9.0 su	Quarterly	Grab	
pH Field	Daily Min	6.0 su	Quarterly	Grab	
Chloride	Daily Max	250 mg/L	Quarterly	Grab	

2.1.1 Changes from Previous Permit:

Sample point 002 reactivated.

2.1.2 Explanation of Limits and Monitoring Requirements

Monitoring frequencies and limitations listed for sample point 002 are reactivated.

3 Land Application - Sludge/By-Product Solids (industrial only)

3.1 Sample Point Number: 001- PROCESS WASHWATER TO LAND APP

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Nitrogen, Total Kjeldahl		mg/L	Monthly	Composite	
Chloride		mg/L	Monthly	Composite	
Phosphorus, Total		mg/L	Quarterly	Composite	

3.1.1 Changes from Previous Permit:

Unchanged by modification

3.1.2 Explanation of Limits and Monitoring Requirements

Unchanged by modification

3.2 Sample Point Number: 004- WASTEWATER TRTMNT BIOSOLIDS

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Solids, Total		Percent	Monthly	Grab	
Chloride		Percent	Monthly	Grab	
Nitrogen, Total Kjeldahl		Percent	Monthly	Grab	
Nitrogen, Ammonium (NH4-N) Total		Percent	Monthly	Grab	
Nitrogen, Organic Total		Percent	Monthly	Grab	
Phosphorus, Total		Percent	Monthly	Grab	
Potassium, Total Recoverable		Percent	Annual	Grab	
pH Field		su	Annual	Grab	

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Lead Dry Wt		mg/kg	Annual	Grab	
Zinc Dry Wt		mg/kg	Annual	Grab	
Copper Dry Wt		mg/kg	Annual	Grab	
Cadmium Dry Wt		mg/kg	Annual	Grab	
Nickel Dry Wt		mg/kg	Annual	Grab	

3.2.1 Changes from Previous Permit:

Unchanged by modification

3.2.2 Explanation of Limits and Monitoring Requirements

Unchanged by modification

4 Schedules

4.1 Temperature Limits Compliance

Required Action	Due Date
Preliminary Compliance Report: Submit a preliminary compliance report indicating alternatives to achieve the final temperature limits. Informational Note: Refer to NR 106 Subchapters V & VI or NR 102.26, Wis. Adm. Code, for information regarding the re-evaluation of limits.	09/30/2021
Action Plan: Submit an action plan for complying with all applicable effluent temperature limits.	09/30/2022
Construction Plans: Submit construction plans (if construction is required for complying with effluent temperature limits) and include plans and specifications with the submittal.	03/31/2023
Initiate Actions: Initiate actions identified in the plan.	09/30/2023
Progress Report: Submit a progress report that provides details on the actions taken thus far and any actions planned to be completed prior to the final compliance date.	09/30/2024
Complete Actions: Complete actions necessary to achieve compliance with effluent temperature limits.	09/30/2025

4.1.1 Explanation of Schedule

Unchanged by modification

4.2 Annual Water Quality Trading (WQT) Report

Required Action	Due Date
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<p>Annual WQT Report: Submit an annual WQT report that shall cover the first year of the permit term. The WQT Report shall include:</p> <p>The number of pollutant reduction credits (lbs/month) used each month of the previous year to demonstrate compliance;</p> <p>The source of each month's pollutant reduction credits by identifying the approved water quality trading plan that details the source;</p> <p>A summary of the annual inspection of each nonpoint source management practice that generated any of the pollutant reduction credits used during the previous year; and</p> <p>Identification of noncompliance or failure to implement any terms or conditions of this permit with respect to water quality trading that have not been reported in discharge monitoring reports.</p>	01/31/2021
<p>Annual WQT Report #2: Submit an annual WQT report that shall cover the previous year.</p>	01/31/2022
<p>Annual WQT Report #3: Submit an annual WQT report that shall cover the previous year.</p>	01/31/2023
<p>Annual WQT Report #4: Submit an annual WQT report that shall cover the previous year.</p>	01/31/2024
<p>Annual WQT Report #5: Submit an annual WQT report that shall cover the previous year. If the permittee wishes to continue to comply with phosphorus limits through WQT in subsequent permit terms, the permittee shall submit a revised WQT plan including a demonstration of credit need, compliance record of the existing WQT, and any additional practices needed to maintain compliance over time.</p>	01/31/2025
<p>Annual WQT Report Required After Permit Expiration: In the event that this permit is not reissued by the expiration date, the permittee shall continue to submit annual WQT reports by January 31 each year covering the total number of pollutant credits used, the source of the pollution reduction credits, a summary of annual inspection reports performed, and identification on noncompliance or failure to implement any terms or conditions of the approved water quality trading plan for the previous calendar year.</p>	

4.2.1 Explanation of Schedule

The permittee requested removal of WQT for TP compliance with permit modification -4 due to the need for a higher phosphorus limit from increased loadings. Therefore, it is recommended that the annual phosphorus limit in lbs/year be included in the permit and the current s. NR 217.13, Wis. Adm. Code limits be removed. Annual phosphorus mass limit is recommended under the Northeast Lakeshore Regional TMDL.

Attachments

Sargento Cheese Inc. – St Cloud Antidegradation and Antibracksliding Evaluation WPDES Permit No. WI-0050521

Prepared By: Ashley Clark, Wastewater Specialist

Fact Sheet for Modification -4 Date: November 12, 2024

DATE: 11/08/2024

TO: Ashley Clark – NER

FROM: Nicole Krueger – SER *Nicole Krueger*

SUBJECT: Sargento Cheese Inc – St Cloud Antidegradation and Antibacksliding Evaluation
 WPDES Permit No. WI-0050521

This is in response to Sargento Cheese’s (formally Baker Cheese) antidegradation and antibacksliding request per ch. NR 207, Wis. Adm. Code for total maximum daily load (TMDL) phosphorus mass limits, less stringent chloride concentration limits, and a lower IWC for chronic WET testing.

Sargento discharges effluent at an annual average flow rate of 0.30 MGD to a tributary to the Mullet River in the Sheboygan River Watershed in the Sheboygan River Basin. This discharge is included in the Northeast Lakeshore Basin TMDL as approved by EPA in October 2023.

Existing Permit Limitations

The following table summarizes the current limits and monitoring in the permit that are being evaluated for antidegradation purposes in this memo.

Parameter	Daily Maximum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Chloride	492 mg/L	395 mg/L	395 mg/L		
Phosphorus WQT Computed Compliance			0.225 mg/L	0.075 mg/L 0.16 lbs/day	
WET					1

Footnotes:

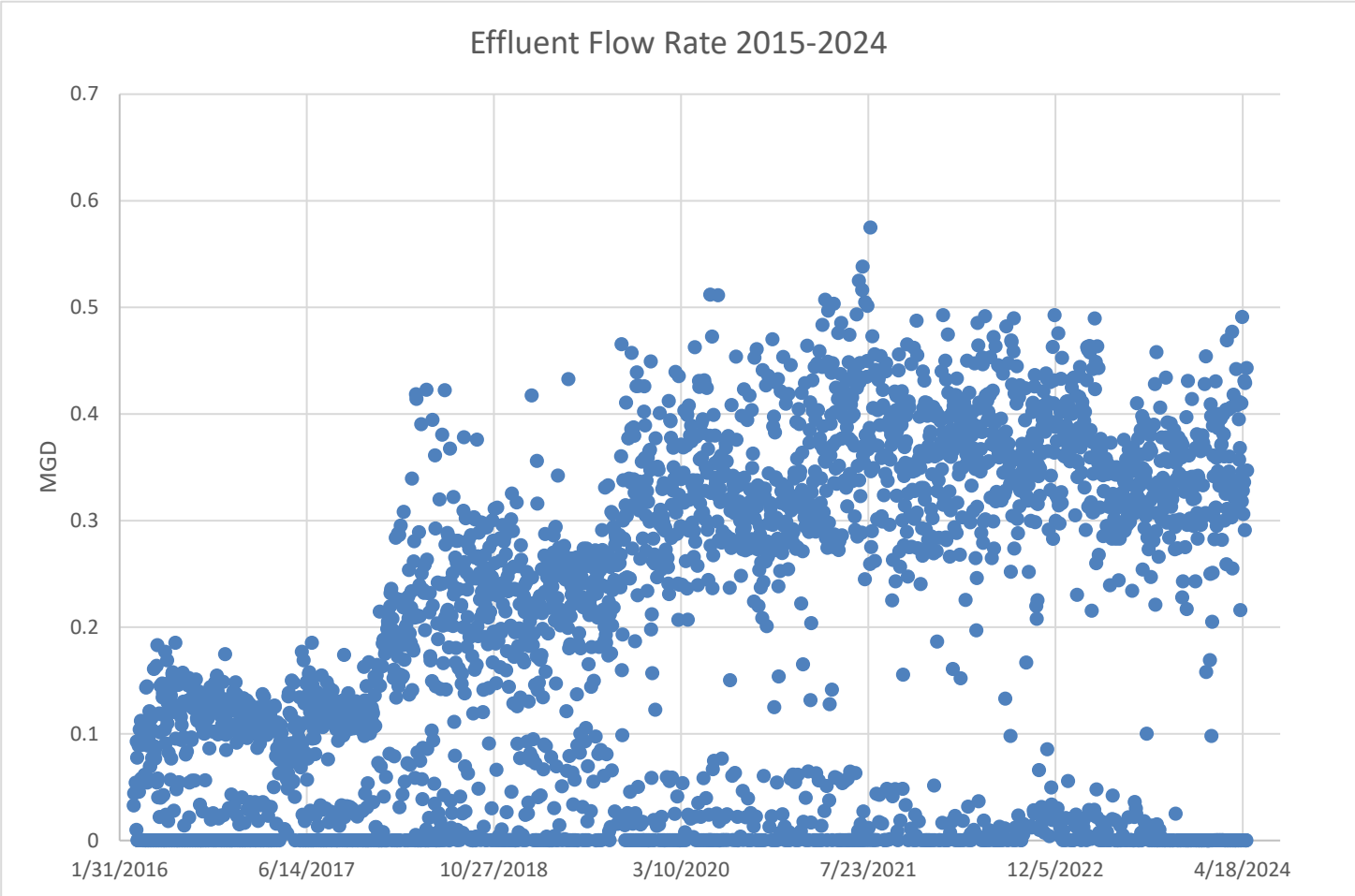
1. The IWC for chronic WET testing is 100%.

Receiving Water Information

- Name: Baker Creek
- Classification: Warmwater Sportfish
- Low Flow
 - 7-Q₁₀ = 0.23 cfs (cubic feet per second)
 - 7-Q₂ = 0.29 cfs
- *The previous evaluations used 0 cfs low flows. The updated flows are from USGS from 12/15/2023.
- % of Flow used to calculate limits: 100%. Sargento submitted a mixing zone study dated 08/30/2024 which demonstrated 100% mixing.

The effluent flow rates and production rates have increased since the initial imposition of limits, as shown in the graph below:





Chloride

The summary of chloride data in the current permit is shown in the table below:

Effluent Chloride Data	
	Chloride mg/L
1-day P ₉₉	435
4-day P ₉₉	353
30-day P ₉₉	307
Mean	283
Std	55.1
Sample size	471
Range	109 – 512

Sargento has requested higher limits based on exceedances during the permit term and updated low flows provided by USGS. In order to receive higher limits, a demonstration of need must be made per s. NR 207.04(1), Wis. Adm. Code.

To demonstrate need for a higher daily maximum limit per s. NR 207.04(1)(a)1.d., Wis. Adm. Code: “The permittee’s daily discharge equals or exceeds 85% of a daily maximum effluent limitation established in a permit 5 or more times during a calendar year;” and e. “There are exceedances of any daily maximum.” The table below summarizes the daily effluent data that has exceeded 85% of the daily maximum limit of 492 mg/L during the current permit term:

Daily Maximum 85% Chloride Exceedances

Date	Effluent Data mg/L	Notes
2/15/2021	448	
10/26/2021	443	
1/5/2022	419	
1/6/2022	436	
3/2/2023	454	
7/13/2023	455	
8/1/2023	547	A power outage caused the high chloride lift station pumps to shut down which caused high chloride to overflow into the wastewater treatment plant.
8/2/2023	424	
8/3/2023	414	
12/6/2023	512	The brine line wash in the production facility was inadvertently diverted and sent to the wastewater treatment plant.
12/7/2023	427	
12/12/2023	467	
12/13/2023	501	
1/24/2024	450	A spill at the plant caused a power outage.
1/25/2024	448	
1/26/2024	459	
2/8/2024	420	
3/12/2024	646	Brine from the high chloride lift station overflowed to the wastewater treatment plant.
3/13/2024	513	
3/14/2024	493	
3/19/2024	419	A valve was inadvertently switched on which sent a high salt waste stream to the wastewater treatment plant.
3/20/2024	462	
6/13/2024	429	
7/16/2024	483	
7/24/2024	458	

To demonstrate need for a higher weekly average limit per s. NR 207.04(1)(a)1.c., Wis. Adm. Code: “The permittee’s daily discharge equals or exceeds 85% of a weekly average effluent limitation established in a permit for 4 consecutive weeks;” and e.: there are exceedances of any weekly average. The table below summarizes the weekly average data that has exceeded 85% of the weekly average limit of 395 mg/L during the current permit term:

Weekly Average 85% Chloride Exceedances

Date	Effluent Data mg/L	Notes
02/15-02/17/2021	391	
07/15-07/21/2021	336	
01/03-01/06/2022	363	
02/01-02/06/2023	344	

Date	Effluent Data mg/L	Notes
02/08-02/13/2023	336	
02/22-02/27/2023	339	
03/01-03/06/2023	372	
07/11-07/13/2023	378	
08/01-08/03/2023	462	A power outage caused the high chloride lift station pumps to shut down which caused high chloride to overflow into the wastewater treatment plant.
08/06-08/10/2023	372	
12/04-12/07/2023	435	The brine line wash in the production facility was inadvertently diverted and sent to the wastewater treatment plant.
12/12-12/15/2023	441	
01/24-01/26/2024	452	A spill at the plant caused a power outage.
02/05-02/08/2024	354	
02/12-02/15/2024	355	
02/19-02/22/2024	343	
03/04-03/06/2024	342	
03/12-03/14/2024	551	Brine from the high chloride lift station overflowed to the wastewater treatment plant.
03/18-03/20/2024	412	A valve was inadvertently switched on which sent a high salt waste stream to the wastewater treatment plant.
03/25-03/27/2024	378	
04/08-04/10/2024	374	
05/06-05/13/2024	343	
06/10-06/13/2024	376	
06/17-06/19/2024	358	
06/25-06/27/2024	345	
07/01-07/03/2024	359	
07/16-07/18/2024	407	
07/22-07/24/2024	390	
08/01-08/06/2024	343	
08/12-08/15/2024	357	
08/19-08/22/2024	339	
08/27-08/28/2024	353	

There were 5 exceedances of 85% of the daily maximum limit during a calendar year and 10 consecutive weeks that exceeded 85% of the weekly average limit. Per s. NR 207.(1)(a)4., Wis. Adm. Code, the exceedances “were not due to temporary upsets.”. **Therefore, the demonstration of need for higher chloride limits is met.**

Antidegradation/Antibacksliding

Sargento has demonstrated that the increased loadings are accommodating important economic development through increased employment and production levels per. NR 207.04(c), Wis. Adm. Code and that significant lowering of water quality cannot be prevented in a cost-effective manner per s. NR 207.04(d), Wis. Adm. Code.

The permittee has to meet the US FDA and WI DATCP sanitation requirements which comprises of rigorous cleaning protocols, including the brine flumes which has contributed to the exceedance of permit limits.

Due to the current chloride limits, Sargento has been sending low strength wash water streams to the high chloride silo which is hauled offsite for treatment. It's estimated that about 50% of the volume that is hauled offsite is low strength water which adds significant costs and more trucks on the road.

Sargento has also been unable to reuse condensate of whey (COW) water because this dilution is needed to meet the effluent limits so is sent to the wastewater treatment plant. The permittee would like to be able to reuse COW water in the process system to meet sustainability goals and use less well water. Using less dilution water will increase the hydraulic retention time at the wastewater treatment plant which is anticipated to help remove other nutrients.

Weekly Average Limits based on Chronic Toxicity Criteria (CTC)

RECEIVING WATER FLOW = 0.24 cfs (100% of the 7-Q₁₀), as specified in s. NR 106.06(4)(c), Wis. Adm. Code

	CTC	WEEKLY AVE. LIMIT
Chloride (mg/L)	395	599

The weekly average limit is recommended to be 600 mg/L, rounded to two significant figures.

The current daily maximum and monthly average limits are based on expression of limits requirements, so are recalculated here using the updated weekly average WQBEL.

Expression of Limits Requirements

Sections NR 106.07(4) and NR 205.067(7), Wis. Adm. Code require WPDES permits contain daily maximum and monthly average limitations for industrial dischargers whenever practicable and necessary to protect water quality.

The methods for calculating limitations for industrial discharges to conform to 40 CFR 122.45(d) are specified in s. NR 106.07(4), Wis. Adm. Code, as follows:

1. Whenever a weekly average limitation is determined necessary to protect water quality:
 - o A monthly average limitation shall also be included in the permit and set equal to the weekly average limit unless a more restrictive limit is already determined necessary to protect water quality.
 - o A daily maximum limitation shall also be included in the permit and set equal to the daily maximum WQBEL calculated under s. NR 106.06, Wis. Adm. Code, or a daily maximum limitation calculated using the following procedure, whichever is more restrictive:

$$\text{Daily Maximum Limitation} = \text{WQBEL}_c \times \text{DMF}$$

Where:

DMF = Daily Multiplication Factor as defined in Table 2

CV = coefficient of variation (CV) as calculated in s. NR 106.07(5m), Wis. Adm. Code.

s. NR 106.07 (4) (e). Table 2 — Daily Multiplication Factor

CV	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
DMF	1.114	1.235	1.359	1.460	1.557	1.639	1.712	1.764	1.802	1.828

CV	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
DMF	1.842	1.849	1.851	1.843	1.830	1.815	1.801	1.781	1.751	1.744

Below are the recommended calculated chloride limits:

Expression of Limits Summary

Parameter	Daily Maximum	Weekly Average	Monthly Average	Multiplication Factor (CV)
Chloride	740 mg/L	600 mg/L	600 mg/L	1.23 (0.195)

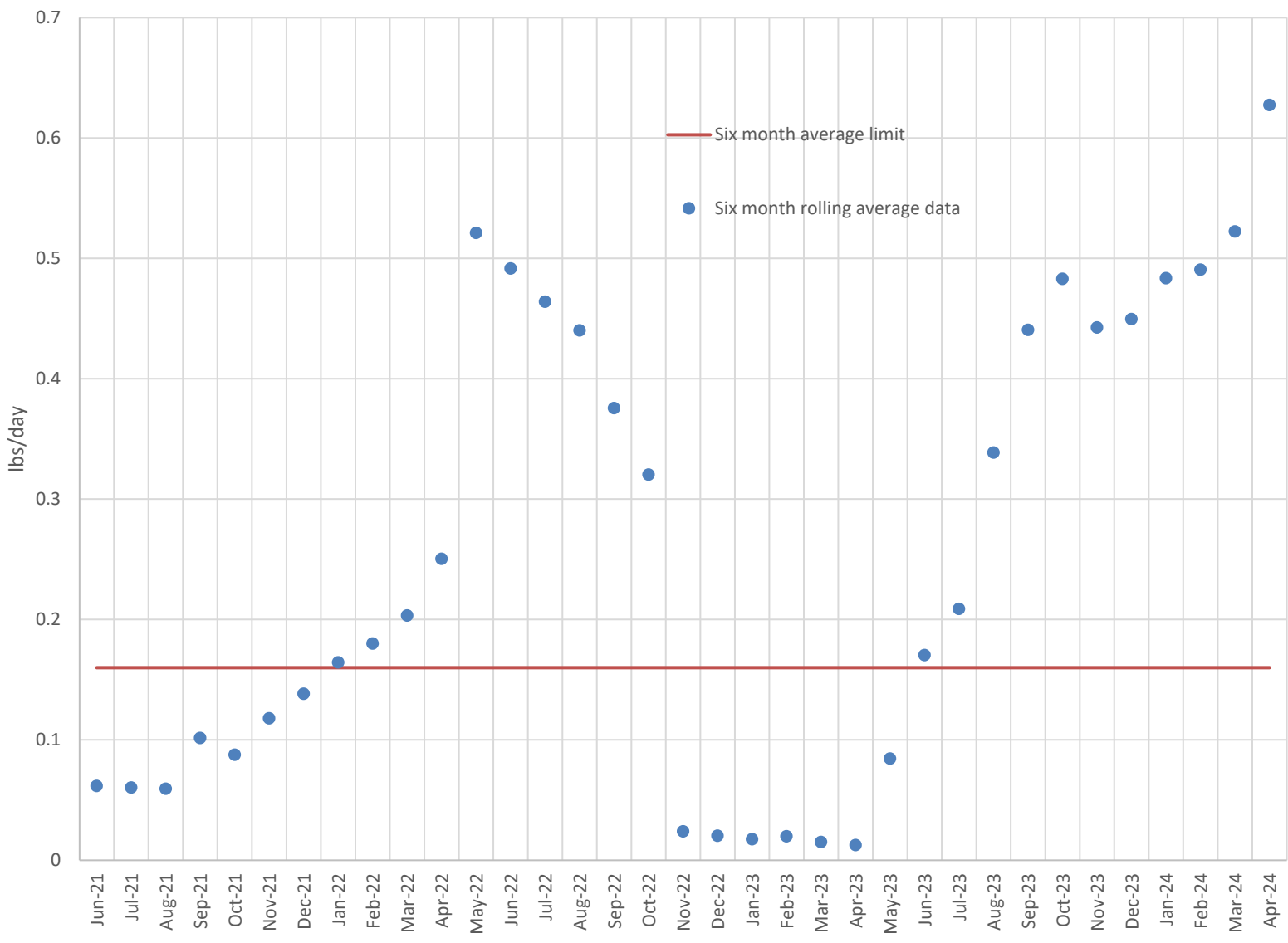
TMDL Limits – Phosphorus

Total phosphorus (TP) effluent limits in lbs/day are calculated as recommended in the *TMDL Development and Implementation Guidance: Integrating the WPDES and Impaired Waters Programs* (April 2020) and are based on the annual phosphorus wasteload allocation (WLA) given in pounds per year. This WLA found in Appendix K of the *Total Maximum Daily Loads for Total Phosphorus and Total Suspended Solids in the Northeast Lakeshore Region* report are expressed as maximum annual loads (lbs/year).

Antidegradation/Antibacksliding

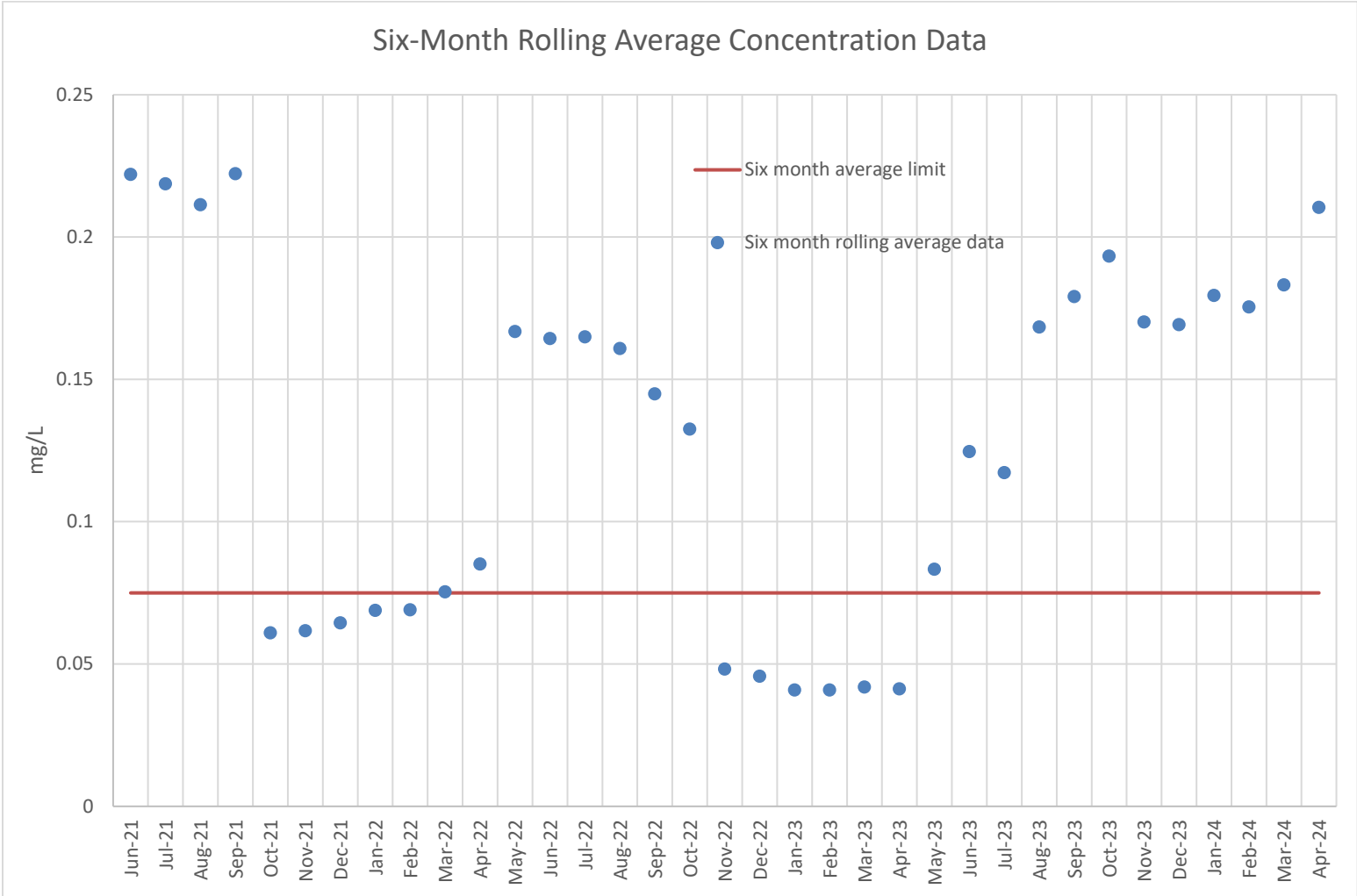
Sargento has requested an annual mass limit of 217 lbs/year rather than the current s. NR 217.13, Wis. Adm. Code WQBELs. The current six-month average mass limit is 0.16 lbs/day, which is shown in the graph below, compared to the six-month average rolling mass data.

Six-Month Rolling Average Mass Data



The current six-month average concentration limit is 0.075 mg/L, which is shown in the graph below, compared to the six-month average rolling concentration data.

Six-Month Rolling Average Concentration Data



Sargento currently complies with the s. NR 217.13, Wis. Adm. Code WQBELs through water quality trading. They currently have 73 lbs/year of trading credits and the table below summarizes the credits that have been used each year since the trades have been in place:

Year	Credits used lbs/year
2021	71
2022	66
2023	60

The number of credits used so far in 2024 (Jan – June) is 71.2 lbs.

The flow rate used previously to calculate the current phosphorus limits was 0.25 MGD which was the facility’s initial design flow. The actual effluent flow from 2015 when the s. NR 217.13, Wis. Adm. Code WQBELs become effective has increased.

The maximum annual average flow from the current permit term, excluding days of zero flow, is now 0.30 MGD which is an increase from when the current limits were calculated. This is due to an increase in production at the plant. Although production flows have increased, the influent phosphorus loading has decreased due to optimization and segregating and hauling high phosphorus offsite as well as sanitation and chemical use improvements.

Sargento is also currently working on improving the biological health of the wastewater treatment plant in response to WET failures by reducing the amount of cerium chloride to remove phosphorus. This effort started in July 2023 which has resulted in higher effluent data.

Sargento has demonstrated need for higher phosphorus limits per s. NR 207.04(1), Wis. Adm. Code. The permittee has demonstrated that the increased loadings are accommodating important economic development through increased employment and production levels per. NR 207.04(c), Wis. Adm. Code. Significant lowering of water quality cannot be prevented in a cost-effective manner per s. NR 207.04(d), Wis. Adm. Code. Therefore, **it's recommended that the requested annual phosphorus mass limit of 217 lbs/year be included in the permit and the current s. NR 217.13, Wis. Adm. Code limits be removed.** The current limit of 1.0 mg/L expressed as a monthly average is recommended to continue.

Whole Effluent Toxicity (WET)

Sargento has requested a lower IWC for chronic WET tests due to the updated low flows from USGS. Currently, the IWC is 100% due to the previous assumption that the receiving water low flows were 0 cfs. Since USGS has provided updated low flows, the IWC is recalculated below.

- 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 IC₂₅ (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 **66%** 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:

$$IWC \text{ (as \%)} = Q_e \div \{(1 - f) Q_e + Q_s\} \times 100$$

Where:

Q_e = annual average flow = 0.30 MGD = 0.464 cfs

f = fraction of the Q_e withdrawn from the receiving water = 0

Q_s = 100% of the 7-Q₁₀ = 0.23 cfs

WET Data History

Date Test Initiated	Acute Results LC ₅₀ %				Chronic Results IC ₂₅ %				Footnotes or Comments
	<i>C. dubia</i>	Fathead minnow	Pass or Fail?	Used in RP?	<i>C. dubia</i>	Fathead Minnow	Pass or Fail?	Use in RP?	
02/23/2021					>100	87.6	Fail	Yes	1
04/13/2021					81.9	>100	Fail	Yes	1
03/29/2022					>100	>100	Pass	Yes	
05/10/2022	>100	>100	Pass	Yes	24.3	>100	Fail	Yes	
08/09/2022					39.3	>100	Fail	Yes	
08/08/2023	>100	>100	Pass	Yes	44.4	>100	Fail	Yes	2

08/09/2023	>100	>100	Pass	Yes	>100	>100	Pass	Yes	
10/24/2023					>100	>100	Pass	Yes	

Footnotes:

1. These tests would have been considered failures using the updated IWC.
2. This test was performed by the State Lab of Hygiene.

- According to s. NR 106.08, Wis. Adm. Code, WET reasonable potential is determined by multiplying the highest toxicity value that has been measured in the effluent by a safety factor, to predict the likelihood (95% probability) of toxicity occurring in the effluent above the applicable WET limit. The safety factor used in the equation changes based on the number of toxicity detects in the dataset. The fewer detects present, the higher the safety factor, because there is more uncertainty surrounding the predicted value. **WET limits must be given, according to s. NR 106.08(6), Wis. Adm. Code, whenever the applicable Reasonable Potential equation results in a value greater than 1.0.**

$$\text{Acute Reasonable Potential} = [(TU_a \text{ effluent}) (B)(AMZ)]$$

$$\text{Chronic Reasonable Potential} = [(TU_c \text{ effluent}) (B)(IWC)]$$

According to s. NR 106.08(6)(d), Wis. Adm. Code, TU_a and TU_c effluent values are equal to zero whenever toxicity is not detected (i.e. when the LC_{50} , IC_{25} or $IC_{50} \geq 100\%$).

Acute Reasonable Potential = $0 < 1.0$, reasonable potential is not shown, and a limit is not required.

$$\text{Chronic Reasonable Potential} = [(TU_c \text{ effluent}) (B)(IWC)]$$

Chronic WET Limit Parameters

TU _c (maximum) 100/IC ₂₅	B (multiplication factor from s. NR 106.08(6)(c), Wis. Adm. Code, Table 4)	IWC
100/24.3 = 4.1	2.3 Based on 5 detects	66%

$$[(TU_c \text{ effluent}) (B)(IWC)] = 6.2 > 1.0$$

Therefore, reasonable potential is shown for chronic WET limits using the procedures in s. NR 106.08(6) and representative data from 02/23/2021 – 10/24/2023.

Expression of WET limits

Chronic WET limit = $[100/IWC] TU_c = 1.5 TU_c$ expressed as a monthly average

A minimum of annual chronic monitoring is required because a chronic WET limit is required. Federal regulations in 40 CFR Part 122.44(i) require that monitoring occur at least once per year when a limit is present.

Final Limits Recommendations

Parameter	Daily Maximum	Weekly Average	Monthly Average	Annual Total	Footnotes
Chloride	740 mg/L	600 mg/L	600 mg/L		

Parameter	Daily Maximum	Weekly Average	Monthly Average	Annual Total	Footnotes
Phosphorus			1.0 mg/L	217 lbs/year	
WET			1.5 TUc		1

Footnotes:

1. Annual chronic testing is recommended. The IWC for chronic WET testing is 66%.