Permit Fact Sheet

General Information

Permit Number	WI-0063207-04-0
Permittee Name and Address	Grande Cheese Company - Juda N2607 CTH S, Juda, WI 53550
Permitted Facility Name and Address	Grande Cheese Company - Juda N2607 CTH S
Permit Term	August 01, 2026 to June 30, 2031
Discharge Location	Where effluent ditch meets North Fork of Juda Branch (42.593731, -89.508508)
Receiving Water	North Fork of Juda Branch Creek in Lower Sugar River Watershed of Sugar - Pecatonica River Basin in Green County
Stream Flow ($Q_{7,10}$)	7-Q10 = 0.58 cfs (cubic feet per second) 7-Q2 = 0.89 cfs
Stream Classification	Warm Water Sport Fish (WWSF) community, non-public water supply
Discharge Type	Existing, Continuous

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7-Q_{10} (cfs)	0.71	0.70	0.97	1.10	0.97	0.76	0.68	0.67	0.66	0.78	0.88	0.76
7-Q_2 (cfs)	1.1	1.1	1.5	1.7	1.5	1.3	1.1	1.1	1.0	1.2	1.3	1.2

Facility Description

Grande Cheese-Juda produces mozzarella cheese, ricotta cheese, protein whey powder, and lactose whey powder. Milk permeate and whey from the cheese making process is condensed and dried to make the protein whey powder and lactose whey powder. Prior to 2007, the wastewater generated by the Grande cheese processing plant was sent to the neighboring whey processing plant's wastewater treatment plant (WWTP) (owned by Proteint, Inc. at the time) for treatment. In 2007, the Grande cheese processing plant constructed its own WWTP. On August 16, 2013, Grande purchased the neighboring whey plant. Despite being owned by the same company (the Grande Cheese Company), the cheese processing and whey processing plants were regulated under two separate WPDES permits (WI-00063207-02 for the cheese plant and WI-0046957-04 for the whey plant). In 2017, Grande requested their two separate WPDES permits be revoked and reissued under one WPDES permit, and the whey permit (WI-0046957) was terminated upon reissuance of the cheese permit (WI-00063207-03).

Wastes generated by off-site sources (limited to food and dairy processing) may be hauled to the permittee's centralized digester to increase the chemical oxygen demand (COD) feed resulting in greater energy outputs of biogas. Off-sites sources of waste are limited to food and dairy processing wastes and are subject to the conditions included in the WPDES permit.

In 2018, Grande constructed two anaerobic reactors which integrated the operations of the cheese and whey WWTPs, which were historically operated separately. High strength waste streams from the cheese and whey plants are mixed during anaerobic treatment and are then routed to either the cheese or whey wastewater treatment process. Once wastewater enters the cheese or whey treatment process, it remains within that specific plant's treatment system. The Cheese WWTP consists of an oxidation ditch, clarifier, and post aeration and the Whey WWTP consists of three aeration

basins in parallel, clarifier, and sand filter. Upon completion of treatment, effluent from the cheese and whey WWTPs combine at Sample Point 001 before the effluent mixture is split and discharged between the two historical outfall locations (The whey processing plant historically discharged to a drainage channel on the north side of Hwy 81 and flowed under the highway through a culvert where it was joined by the effluent from the cheese processing plant.) Once the combined wastewater from the cheese and whey WWTPs discharges to the drainage channel, it flows 200 feet before reaching the North Fork of the Juda Branch in the Lower Sugar River (SP 11) Watershed in the Sugar Pecatonica River Basin.

Substantial Compliance Determination

Enforcement During Last Permit:

The permittee previously had repeated violations of effluent limitation exceedances, failure to haul or reduce activity, unpermitted wastewater discharge, and failure to properly operate wastewater treatment facility. From 2019 through the present, Grande Cheese Juda has received 7 Notice of Noncompliance (NONs) and 3 Notice of Violations (NOVs) for various violations as indicated above. Grande Cheese Juda has addressed previous issues as required, performed needed infrastructure repairs and replacements, and continued communication and cooperation with the department, such that the facility is in substantial compliance. Additionally, a tank inspection schedule has been included as part of this permit in response to the previous violations.

After a desk top review of all discharge monitoring reports, land app reports, compliance schedule items, and a site visit on **March 5, 2025**, this facility has been found to be in substantial compliance with their current permit.

Compliance determination made by Kenzie Ostien on May 15, 2026.

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)**
702	No off-site waste accepted during last permit term	Monitoring of influent wastes from off-site sources to feed the anaerobic digester. Influent flows shall be monitored at the whey diversion valve hub before entering the high strength waste tank
001	0.78 MGD (2020-2025 - DMRs)	[EFFLUENT] Representative samples shall be collected from the manhole where the Cheese WWTP effluent and Whey WWTP effluent combine before being redistributed to the existing two effluent pipes that discharge to the North Fork Juda Branch River.
002	Land Applied: 0.94 MG Hauled Off-Site: 1.5 MG (2025 – 52/55 Form)	Land application of off-spec wastewater from the whey WWTP storage pond. Regulated as an industrial liquid waste. Representative samples shall be collected from the whey off-spec wastewater storage pond loadout pipe.
003	Land Applied: 4.6 MG Hauled Off-Site: 4.3 MG (2025 – 52/55 Form)	Land application of DAF thickened phosphorus sludge and waste activated sludge (WAS) from the Whey WWTP. Regulated as an industrial liquid sludge. Representative samples shall be collected from the 568,000 gallon sludge storage tank loadout pipe.
004	Land Applied: 1.3 MG Hauled Off-Site: 0.99 MG (2025 – 52/55 Form)	Land application of clarifier phosphorus sludge and gravity belt thickened waste activated sludge (TWAS) from the cheese WWTP. Regulated as an industrial liquid sludge. Representative samples

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)**
		shall be collected from the two 38,000 gallon or 68,200 gallon sludge storage tank loadout pipes.
005	Land Applied: 3.0 MG Hauled Off-Site: 2.9 MG (2025 – 52/55 Form)	Land application of high strength wastewater from both the whey and cheese plant. Regulated as an industrial liquid waste. Representative samples shall be collected from the 447,000 gallon high strength waste storage tank loadout pipe.
007	No solids removed during last permit term	Land application of anaerobic reactor solids. Regulated as an industrial liquid sludge. Representative samples shall be collected from the 30,000 gallon anaerobic reactor solids storage tank loadout pipe.
008	0.386 MG (2025 – 52/55 Forms)	Land application of brine approved for beneficial reuse as road deicer. Regulated as an industrial liquid waste and as a conditionally approved low hazard solid waste. Representative samples shall be collected from the 11,000 gallon brine storage tank loadout pipe.

Permit Requirements

1 Influent – Monitoring Requirements

1.1 Sample Point Number: 702- Off-Site Wastes to Digester

Monitoring Requirements					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Volume		gal	Daily	Measure	

1.1.1 Changes from Previous Permit:

Influent limitations and monitoring requirements were evaluated for this permit term and no changes were required in this permit section.

1.1.2 Explanation of Monitoring Requirements

The permit limits acceptance of off-site wastes to food and dairy processing wastes. Waste streams outside of food and dairy processing may subject the permittee to Centralized Waste Treatment requirements contained in 40 CFR Part 437. Certain wastes are specifically excluded because it would require an additional permit modification to include the applicable requirements (i.e. may need pathogen reduction requirements if accepting domestic waste streams). The permit is set up to allow for the addition or removal of off-site sources without the need for permit modification. The permit includes record keeping requirements which allow both the Department and permittee to track contents of off-site waste sources.

2 Surface Water - Monitoring and Limitations

2.1 Sample Point Number: 001- Cheese + Whey Combined Eff

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
BOD5, Total	Weekly Avg	10 mg/L	3/Week	24-Hr Flow Prop Comp	Effective annually May through October.
BOD5, Total	Weekly Avg	12 mg/L	3/Week	24-Hr Flow Prop Comp	Effective annually November through April.
BOD5, Total	Daily Max	202 lbs/day	3/Week	Calculated	
BOD5, Total	Monthly Avg	101 lbs/day	3/Week	Calculated	
Suspended Solids, Total	Daily Max	30 mg/L	3/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Monthly Avg	20 mg/L	3/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Daily Max	280 lbs/day	3/Week	Calculated	
Suspended Solids, Total	Monthly Avg	140 lbs/day	3/Week	Calculated	
Dissolved Oxygen	Daily Min	7.0 mg/L	Daily	Grab	
pH Field	Daily Max	9.0 su	Daily	Grab	
pH Field	Daily Min	6.0 su	Daily	Grab	
Nitrogen, Ammonia Variable Limit		mg/L	3/Week	See Table	Using the daily effluent pH result, look up the daily maximum variable ammonia limit from the pH Dependent Table for Outfall 001. Report the variable limit in the Nitrogen, Ammonia Variable Limit column of the DMR.
Nitrogen, Ammonia (NH3-N) Total	Daily Max - Variable	mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective year-round. Enter the ammonia result and compare to Nitrogen, Ammonia Variable Limit to determine compliance.

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	3.2 mg/L	3/Week	24-Hr Flow Prop Comp	Effective annually May through September.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	8.1 mg/L	3/Week	24-Hr Flow Prop Comp	Effective annually in October.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	10 mg/L	3/Week	24-Hr Flow Prop Comp	Effective annually in November.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	9.7 mg/L	3/Week	24-Hr Flow Prop Comp	Effective annually in December.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	11 mg/L	3/Week	24-Hr Flow Prop Comp	Effective annually January through March.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	6.8 mg/L	3/Week	24-Hr Flow Prop Comp	Effective annually in April.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	1.5 mg/L	3/Week	24-Hr Flow Prop Comp	Effective annually May through September.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	3.6 mg/L	3/Week	24-Hr Flow Prop Comp	Effective annually in October.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	4.5 mg/L	3/Week	24-Hr Flow Prop Comp	Effective annually in November.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	4.4 mg/L	3/Week	24-Hr Flow Prop Comp	Effective annually in December.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	4.6 mg/L	3/Week	24-Hr Flow Prop Comp	Effective annually January through March.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	2.8 mg/L	3/Week	24-Hr Flow Prop Comp	Effective annually in April.
Phosphorus, Total	Monthly Avg	0.8 mg/L	3/Week	24-Hr Flow Prop Comp	This is an interim MDV limit effective until June 30, 2028. See the MDV/Phosphorus subsections and phosphorus schedules.
Phosphorus, Total	Monthly Avg	0.6 mg/L	3/Week	24-Hr Flow Prop Comp	This is an interim MDV limit effective on July 1, 2028. See the MDV/Phosphorus subsections and phosphorus schedules.
Phosphorus, Total		lbs/month	Monthly	Calculated	Report the total monthly phosphorus discharged in

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					lbs/month on the last day of the month.
Phosphorus, Total		lbs/yr	Annual	Calculated	Report the sum of the total monthly discharges (for the months that the MDV is in effect) for the calendar year on the Annual DMR.
Chlorine, Total Residual	Daily Max	26 ug/L	Daily	Grab	
Chlorine, Total Residual	Monthly Avg	11 ug/L	Daily	Grab	
Chlorine, Total Residual	Weekly Avg	11 ug/L	Daily	Grab	
Temperature Maximum	Weekly Avg	75 deg F	Daily	Continuous	Effective annually in January and March.
Temperature Maximum	Weekly Avg	70 deg F	Daily	Continuous	Effective annually in February and December.
Temperature Maximum	Weekly Avg	80 deg F	Daily	Continuous	Effective annually in April and October.
Temperature Maximum	Weekly Avg	82 deg F	Daily	Continuous	Effective annually in May.
Temperature Maximum	Weekly Avg	86 deg F	Daily	Continuous	Effective annually in June.
Temperature Maximum	Weekly Avg	88 deg F	Daily	Continuous	Effective annually in September.
Temperature Maximum	Weekly Avg	77 deg F	Daily	Continuous	Effective annually in November.
Chloride		mg/L	4/Month	24-Hr Flow Prop Comp	Samples shall be completed on four consecutive days in the month.
Nitrogen, Total Kjeldahl		mg/L	Quarterly	24-Hr Flow Prop Comp	
Nitrogen, Nitrite + Nitrate Total		mg/L	Quarterly	24-Hr Flow Prop Comp	
Nitrogen, Total		mg/L	Quarterly	Calculated	Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					Total Nitrite + Nitrate Nitrogen.
Acute WET		TUa	See Listed Qtr(s)	24-Hr Flow Prop Comp	Sample annually in rotating quarters. See WET section below.
Chronic WET	Monthly Avg	1.4 TUc	See Listed Qtr(s)	24-Hr Flow Prop Comp	Sample twice annually in rotating quarters. See WET section below.

2.1.1 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.

- **pH and DO:** Sample frequency has been increased from 3/week to daily.
- **Nitrogen, Ammonia:** Weekly average limitations have been updated.
- **Phosphorus, Total (MDV):** The permittee has applied for a multi-discharger variance (MDV) for phosphorus for this permit term and the application has been approved by the Department. An MDV interim limit of 0.6 mg/L has been added that goes into effect per a compliance schedule. The permittee is required to report the total amount of phosphorus discharged in lbs/month and lbs/year. By March 1 of each year the permittee shall make a payment(s) to participating county(s) of $68.40 per pound of phosphorus discharged during the previous year in excess of the target value of 0.2 mg/L.
- **Chlorine, Total Residual:** Daily maximum, weekly average, and monthly average limitations have been added.
- **Chloride:** Monitoring throughout the duration of the permit term has been added.
- **Total Nitrogen Monitoring (TKN, N02+N03 and Total N):** Quarterly monitoring was added to the proposed permit.
- **WET Testing:** Monthly average limitation has decreased.

2.1.2 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 June 12, 2025 and prepared by Sarah Luck.

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. pH and DO sample frequencies have increased from 3/week to daily.

Expression of Limits- In accordance with the federal regulation 40 CFR 122.45(d) and s. NR 205.065, Wis. Adm. Code, limits in this permit are to be expressed as daily maximum and monthly average limits whenever practicable.

BOD5 and Total Suspended Solids: Chapter NR 240, Wis. Adm. Code, specifies effluent guidelines for discharges from dairy product categories of point sources and subcategories. Grande Cheese Juda discharges a combination of wastewater from the Cottage cheese, Natural Cheese, Condensed Whey, and Dry Whey subcategories. Technology based effluent limits (TBEL) were recalculated based on levels of production for each subcategory provided by the facility with their permit application, on a conference call on December 10, 2024, and email communication on July 30, 2025. A comparison of the updated TBELs with the effective TBELs in the current permit show the TBELs in the current permit are more stringent. Therefore, the current TBELs are recommended to continue during the reissued permit term. Detailed discussions of limits can be found in the attached technology based effluent limit memo.

DO and pH: WQBELs for DO and pH are carried over from the previous permit and are not subject to change at this time because the receiving water characteristics have not changed. DO limits of 7.0 mg/L are for situations where WQBELs for BOD are 10 mg/L or less to ensure that the DO criteria of 5.0 mg/L for WWSF classification are met.

Ammonia: Current acute and chronic ammonia toxicity criteria for the protection of aquatic life are included in Tables 2C and 4B of ch. NR 105, Wis. Adm. Code. Subchapter IV of ch. NR 106, Wis. Adm. Code establishes the procedure for calculating water quality based effluent limitations (WQBELs) for ammonia. Statistics based upon ammonia data reported from July 2019 to July 2024 were calculated, with those results being compared to the calculated limits to determine the need to include ammonia limits in Grande Cheese Juda's permit for the respective month ranges. Due to an increased effluent flow rate from 0.75 MGD to 0.82 MGD, several months resulted in lower limits than in the current permit (October, November, and December). Grande Cheese – Juda is able to meet the limit based on the statistics, so no compliance schedule was included.

Phosphorus – Phosphorus rules became effective December 1, 2010 per NR 217, Wis. Adm. Code, that required the permittee to comply with water quality based effluent limits (WQBELs) for total phosphorous. The final phosphorus WQBELs are 0.225 mg/L as a monthly average and 0.075 mg/L (0.47 lbs/day) as a 6-month average and were to become effective as scheduled unless a variance was granted. For this permit term, the permittee has applied for the Multi-Discharger Variance (MDV) for phosphorus as provided for in s. 283.16, Wis. Stats., and approved by USEPA on September 3, 2025 for a 10-year duration. The permittee qualifies for the MDV because it is an existing source and a major facility upgrade is needed to comply with the applicable phosphorus WQBELs, thereby creating a financial burden. The interim effluent limit for total phosphorus is 0.6 mg/L as an average monthly limit.

Conditions of the MDV require the permittee to optimize phosphorus removal throughout the proposed permit term, comply with interim limits and make annual payments to participating county(s) by March 1 of each year based on the pounds of phosphorus discharged during the previous year in excess of the specified target value.

The "price per pound" value is $50.00 adjusted for CPI annually as defined by s. 283.16(8)(a)2, Wis. Stats and takes effect for reissued permits with effective dates starting April 1. This may differ from the "price per pound" that is public noticed; however, the "price per pound" is set upon reissuance and is applicable for the entire permit term. The participating county(s) uses these payments to implement nonpoint source phosphorus control strategies at the watershed level.

Temperature: Grande Cheese – Juda submitted a report in December 2022 requesting that the current thermal alternative effluent limitations (AEL), based on a study conducted in 2018, continue. After review of the available data, the department reapproved the existing AELs. See the attached Reapproval Thermal AEL memo dated April 3, 2026 and prepared by Emma Lorenzen.

Chlorine: Grande Cheese – Juda reported using an additive containing chlorine for filament control. Since chlorine is added, daily maximum and weekly average effluent limitations are included. Due to the expression of limits, monthly average limitations are also included.

Chloride: Considering available effluent data from the current permit term (2019-2024), both the 1-day P99 and 4-day P99 values were less than the calculated chloride WQBELs; therefore, effluent limits are not needed. Continued monitoring is included in the permit.

Total Nitrogen Monitoring (NO2+NO3, TKN and Total N): The Department has included effluent monitoring for Total Nitrogen in the permit through the authority under §§ 283.55(1)(e), Wis. Stats., which allows the department to require the permittee to submit information necessary to identify the type and quantity of any pollutants discharged from the point source, and through s. NR 200.065(1)(h), Wis. Adm. Code, which allows for this monitoring to be collected during the permit term. Quarterly effluent monitoring for Total Nitrogen is included in the permit because of the potential for higher nitrogen loading resulting from higher flows (major facilities), higher concentrations, or both. More information on the justification to include total nitrogen monitoring in wastewater permits can be found in the "Guidance for Total Nitrogen Monitoring in Wastewater Permits" dated October 1, 2019.

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. The chronic WET limit was recalculated for Grande Cheese – Juda and is more restrictive since the maximum annual effluent flow rate increased from 0.75 MGD to 0.82 MGD. This new WET limit (1.4 TU_c) is effective upon permit reissuance.

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

3.1 Sample Point Number: 002- Whey Off-Spec WW; 005- High Strength WW

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		gpd	Daily	Total Daily	
Solids, Total		Percent	Monthly	Grab	
Chloride		mg/L	Monthly	Grab	
Nitrogen, Ammonia (NH3-N) Total		mg/L	Monthly	Grab	
Nitrogen, Total Kjeldahl		mg/L	Monthly	Grab	
Phosphorus, Total		mg/L	Quarterly	Grab	
Phosphorus, Water Extractable		% of Tot P	Quarterly	Grab	
Potassium, Total Recoverable		mg/L	Quarterly	Grab	
BOD5, Total		mg/L	Annual	Grab	
pH Field		su	Annual	Grab	

3.1.1 Changes from Previous Permit:

Landspreading limitations and monitoring requirements for industrial liquid wastewater 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.

- **Flow Rate:** Monitoring added on a daily basis.

- **Solids, Total:** Monitoring added on a monthly basis.
- **Phosphorus, Total:** Sample frequency increased from annual to quarterly.
- **Phosphorus, Water Extractable:** Sample frequency increased from annual to quarterly.
- **Potassium, Total Recoverable:** Sample frequency increased from annual to quarterly.

3.1.2 Explanation of Limits and Monitoring Requirements

Requirements for land application of industrial sludge are determined in accordance with ch. NR 214 Wis. Adm. Code. Parameters and sampling frequency at a minimum, correspond with the 'Landspreading of Industrial Sludge' General Permit WI-0057657-07.

3.2 Sample Point Number: 003- Whey WWTP Sludge; 004- Cheese WWTP Sludge; 007- Anaerobic Reactor Solids

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		gpd	Daily	Total Daily	
Solids, Total		Percent	Monthly	Grab Comp	
Chloride		Percent	Monthly	Grab Comp	
Nitrogen, Ammonia (NH3-N) Total		Percent	Monthly	Grab Comp	
Nitrogen, Total Kjeldahl		Percent	Monthly	Grab Comp	
Nitrogen, Organic Total		Percent	Monthly	Grab Comp	
Phosphorus, Total		Percent	Quarterly	Grab Comp	
Phosphorus, Water Extractable		% of Tot P	Quarterly	Grab Comp	
Potassium, Total Recoverable		Percent	Quarterly	Grab Comp	
pH Field		su	Quarterly	Grab	
Lead Dry Wt		mg/kg	Once	Grab Comp	Monitoring once in 2028.
Zinc Dry Wt		mg/kg	Once	Grab Comp	Monitoring once in 2028.
Copper Dry Wt		mg/kg	Once	Grab Comp	Monitoring once in 2028.
Nickel Dry Wt		mg/kg	Once	Grab Comp	Monitoring once in 2028.
Cadmium Dry Wt		mg/kg	Once	Grab Comp	Monitoring once in 2028.
PCB Total Dry Wt		mg/kg	Once	Grab Comp	Monitoring once in 2028.

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
PFOA + PFOS		ug/kg	Annual	Calculated	Report the sum of PFOA and PFOS. See PFAS Permit Sections for more information.
PFAS Dry Wt			Annual	Grab Comp	Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS Permit Sections for more information.

3.2.1 Changes from Previous Permit:

Landspreading limitations and monitoring requirements for industrial sludge 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.

- **Flow Rate:** Monitoring added on a daily basis.
- **Sample Type:** Updated from grab to grab composite for all parameters except for pH.
- **Nitrogen, Ammonia:** Monitoring added to replace nitrogen, ammonium on a monthly basis.
- **Nitrogen, Organic Total:** Monitoring added on a monthly basis.
- **Phosphorus, Total:** Sample frequency increased from annual to quarterly.
- **Phosphorus, Water Extractable:** Sample frequency increased from annual to quarterly.
- **Potassium, Total Recoverable:** Sample frequency increased from annual to quarterly.
- **Lead, Zinc, Copper, Nickel, Cadmium, & PCB Dry Wt:** Once during the permit term monitoring added.
- **PFAS:** Monitoring is required annually pursuant to s. NR 214.18(5)(b), Wis. Adm. Code.

3.2.2 Explanation of Limits and Monitoring Requirements

Requirements for land application of industrial sludge are determined in accordance with ch. NR 214 Wis. Adm. Code. Parameters and sampling frequency at a minimum correspond with the 'Landspreading of Industrial Sludge' General Permit WI-0057657-07.

Metals: The cumulative amount of cadmium, copper, lead, nickel, and zinc spread on any site may not exceed the cumulative amounts specified in the permit. The maximum cumulative loading of cadmium, copper, lead, nickel, and zinc are based on Table 4 in ch. NR 214.18(4)(g), Wis. Adm. Code. One time monitoring during the permit term will assist Grand Cheese – Juda in determining compliance with this requirement.

PCB: PCB landspreading requirements are found in s. NR 214.18(4)(g), Wis. Adm. Code. One time monitoring during the permit term will assist Grand Cheese – Juda in determining compliance with this requirement.

PFAS: The presence and fate of PFAS in municipal and industrial sludges is an emerging public health concern. EPA has developed a draft risk assessment to determine future land application rates and released this risk assessment in January of

2025. The department is evaluating this new information. Until a decision is made, the "Interim Strategy for Land Application of Biosolids and Industrial Sludges Containing PFAS" should be followed.

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

3.3 Sample Point Number: 008- Beneficial Reuse of Brine

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Volume		gal	Annual	Measure	
BOD5, Total		mg/L	Annual	Grab	
Chloride		mg/L	Annual	Grab	
Nitrogen, Total Kjeldahl		mg/L	Annual	Grab	
pH Field		su	Annual	Grab	

3.3.1 Changes from Previous Permit:

No changes from the current permit.

3.3.2 Explanation of Limits and Monitoring Requirements

Grande received a five-year conditional approval from the Department's Solid Waste Program on December 21, 2023 for a low hazard waste exemption under s. 289.43(8)(b), Wis. Stats for use of salt brine as a highway deicing additive.

Volume: Volume monitoring is required to track the volume of brine distributed to governmental highway agencies and to properly record the name of the entity receiving the brine.

BOD, TKN, Chloride: These three parameters were analyzed by the Department's Solid Waste Program when granting the low hazard waste exemption. Annual monitoring is proposed to ensure BOD stays within the conditional approval and that data is available on these parameters for the Department's Solid Waste Program to re-approve.

4 Schedules

4.1 Phosphorus Multi-Discharger Variance Interim Limit (0.6 mg/L)

This compliance schedule requires the permittee to achieve compliance with the specified MDV interim effluent limit in accordance with s. 283.16(6), Wis. Stats., by the due date.

Required Action	Due Date
Report on Effluent Discharges: Submit a report on effluent discharges of phosphorus with conclusions regarding compliance.	12/31/2026
Action Plan: Submit an action plan for complying with the specified interim effluent limit. If construction is required, include plans and specifications with the submittal.	06/30/2027

Initiate Actions: Initiate actions identified in the plan.	12/31/2027
Complete Actions: Complete actions identified in the plan and achieve compliance with the specified interim effluent limit.	06/30/2028

4.1.1 Explanation of Schedule

Interim Limit: Subsection 283.16(6), Wis. Stats., establishes required interim phosphorus effluent limits that must be met for multi-discharger variance (MDV) eligibility. The schedule above provides the permittee with two years to comply with that limit.

4.2 Phosphorus Schedule - Optimization and Compliance Planning

The permittee is required to optimize performance and undertake compliance planning to control phosphorus discharges per the following schedule.

Required Action	Due Date
Optimization and Compliance Alternatives: The permittee shall implement a phosphorus discharge optimization plan to control phosphorus discharges to the greatest extent practicable. Submit a progress report that summarizes the approach to phosphorus removal at the facility, the resulting concentration and mass loading for the last 12-month period, and any changes that were or are needed to optimize removal of phosphorus by the due date. The permittee shall also evaluate alternative phosphorus compliance options such as water quality trading and adaptive management. The progress report submitted on the date due shall also detail any outreach activities undertaken to evaluate these options, any communications with credit generators, brokers/clearinghouse, and any potential water quality trading or adaptive management projects that may lead to compliance with phosphorus WQBELs. Financial alternatives evaluation: If the permittee intends to seek a renewed variance at the end of this permit term, the permittee may complete a financial evaluation to support ongoing variance eligibility. The report must evaluate financial mechanisms that have the potential to make compliance with phosphorus WQBELs economically feasible.	06/30/2027
Progress Report #2: Submit a progress report per the above for the prior calendar year.	06/30/2028
Progress Report #3: Submit a progress report per the above for the prior calendar year.	06/30/2029
Progress Report #4: Submit a progress report per the above for the prior calendar year.	06/30/2030
Final MDV Optimization and Compliance Alternatives Report: Submit a progress report per the above for the prior calendar year. If water quality trading or adaptive management will be used to comply with phosphorus limitations during the next permit term, submit a draft water quality trading plan, adaptive management plan, or executed clearinghouse credit purchase agreement. The financial alternatives evaluation as described above must be submitted by the date due if the facility chooses to seek renewal of the variance.	12/31/2030

4.2.1 Explanation of Schedule

Optimization and Compliance Planning: Per s. 283.16(6)(a), Wis. Stats. the Department may include a requirement that the permittee optimize the performance of a point source in controlling phosphorus discharges, which may be necessary to achieve compliance with applicable effluent limits. This compliance schedule requires the permittee to prepare an optimization plan with a schedule for implementation and submit it for Department approval. The schedule also includes a

compliance planning element focused on economically feasible solutions to low-level phosphorus effluent limits such as water quality trading or adaptive management. The permittee shall take the steps called for in the optimization plan and submit annual progress reports on optimizing the removal of phosphorus and establishing a water quality trade or adaptive management project. Should the permittee intend to reapply for a subsequent term of variance coverage, a financial alternatives analysis will need to be completed. Report elements are listed in the schedule, and more information can be found in EPA's March 2024 Financial Capabilities Assessment Guidance, Appendix C.

4.3 Phosphorus Payment per Pound to County

The permittee is required to make annual payments for phosphorus reductions to the participating county or counties in accordance with s. 283.16(8), Wis. Stats, and the following schedule. The price per pound will be set at the time of permit reissuance and will apply for the duration of the permit.

Required Action	Due Date
Annual Verification of Phosphorus Payment to County: The permittee shall make a total payment to the participating county or counties approved by the Department by March 1 of each calendar year. The amount due is equal to the following: [(lbs of phosphorus discharged minus the permittee's target value) times ($68.40 per pound)] or $640,000, whichever is less. See the payment calculation steps in the Surface Water section. The permittee shall submit Form 3200-151 to the Department by March 1 of each calendar year indicating total amount remitted to the participating counties to verify that the correct payment was made. The first payment verification form is due by the specified Due Date. Note: The applicable Target Value is 0.2 mg/L as defined by s. 283.16(1)(h), Wis. Stats. The "per pound" value is $50.00 adjusted for CPI.	03/01/2027
Annual Verification of Payment #2: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2028
Annual Verification of Payment #3: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2029
Annual Verification of Payment #4: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2030
Annual Verification of Payment #5: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/31/2031
Continued Coverage: If the permittee intends to seek a renewed variance, an application for the MDV (Multi Discharger Variance) shall be submitted as part of the application for permit reissuance in accordance with s. 283.16(4)(b), Wis. Stats.	
Annual Verification of Payment After Permit Expiration: In the event that this permit is not reissued prior to the expiration date, the permittee shall continue to submit Form 3200-151 to the Department indicating total amount remitted to the participating counties by March 1 each year.	

4.3.1 Explanation of Schedule

County Payment: Subsection 283.16(6)(b), Wis. Stats., requires permittees that have received approval for the multi-discharger variance (MDV) to implement a watershed project that is designed to reduce nonpoint sources of phosphorus within the HUC 8 watershed in which the permittee is located. The permittee has selected the "Payment to Counties" watershed option described in s. 283.16(8), Wis. Stats. Under this option the permittee shall make annual payment(s) to participating county(s) that are calculated based on the amount of phosphorus actually discharged during a calendar year in pounds per year less the amount of phosphorus that would have been discharged had the permittee discharged

phosphorus at a target value **0.2 mg/L.** The pounds of phosphorus discharged in excess of the target value is multiplied by a per pound phosphorus charge that will equal $**68.40** per pound. This schedule requires the permittee to submit Form 3200-151 to the Department indicating the total amount remitted to the participating county(s).

4.4 Land Application Management Plan

A management plan is required for the land application system.

Required Action	Due Date
Land Application Management Plan: Submit an update to the management plan to optimize the land application system performance and demonstrate compliance with Wisconsin Administrative Code NR 214.	03/31/2027

4.4.1 Explanation of Schedule

Land Application Management Plan: An up-to-date Land Application Management plan is a standard requirement in reissued industrial permits per s. NR 214.17(6)(c), Wis. Adm. Code.

4.5 Tank Inspection Annual Report

Required Action	Due Date
Annual Tank Inspection Report: Submit an annual tank inspection report that shall cover the first year of the permit term. The Tank Inspection Report shall include: a summary of the findings of the inspections performed during the previous year on all storage tanks including but is not limited to; coatings evaluation, both interior and exterior, as well as lead and chromium content if applicable, structure evaluation (i.e. corrosion and holes), any and all modifications and repairs identified and/or completed with timelines, if applicable, and any and all photographs taken and checklists or forms utilized during inspections.	12/31/2026
Annual Tank Inspection Report #2: Submit an annual tank inspection report that shall cover the previous year.	12/31/2027
Annual Tank Inspection Report #3: Submit an annual tank inspection report that shall cover the previous year.	12/31/2028
Annual Tank Inspection Report #4: Submit the 4th annual tank inspection report.	12/31/2029
Annual Tank Inspection Report #5: Submit the 5th annual tank inspection report.	12/31/2030
Annual Tank Inspection 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 tank inspection reports by December 31 each year covering the summary of the findings of the inspections performed during the previous year on all storage tanks including but is not limited to; coatings evaluation, both interior and exterior, as well as lead and chromium content if applicable, structure evaluation (i.e. corrosion and holes), any and all modifications and repairs identified and/or completed with timelines, if applicable, and any and all photographs taken and checklists or forms utilized during inspections.	

4.5.1 Explanation of Schedule

Tank Annual Report: As part of previous enforcement, Grande Cheese Juda performed needed infrastructure repairs and replacements. Additionally, annual tank inspections were added into their preventative maintenance program. These annual reports shall be submitted summarizing the findings and outcomes of those inspections.

Other Comments

None

Attachments

Categorical Limits Calculations

Water Quality Based Effluent Limits

Thermal AEL Reapproval

Justification Of Any Waivers From Permit Application Requirements

No waivers requested or granted as part of this permit reissuance

Prepared By: Amy Garbe, P.E. **Wastewater Engineer** **Date:** June 11, 2026

Attachment 1: Technology Based Effluent Limits (TBEL)

PART 1 – BACKGROUND INFORMATION

Grande Cheese-Juda produces mozzarella cheese, ricotta cheese, protein whey powder, and lactose whey powder. Milk permeate and whey from the cheese making process is condensed and dried to make the protein whey powder and lactose whey powder. Prior to 2007, the wastewater generated by the Grande cheese processing plant was sent to the neighboring whey processing plant's wastewater treatment plant (WWTP) (owned by Proteint, Inc. at the time) for treatment. In 2007, the Grande cheese processing plant constructed its own WWTP. On August 16, 2013, Grande purchased the neighboring whey plant. Despite being owned by the same company (the Grande Cheese Company), the cheese processing and whey processing plants were regulated under two separate WPDES permits (WI-00063207-02 for the cheese plant and WI-0046957-04 for the whey plant). In 2017, Grande requested their two separate WPDES permits be revoked and reissued under one WPDES permit, and the whey permit (WI-0046957) was terminated upon reissuance of the cheese permit (WI-00063207-03).

In 2018, Grande constructed two anaerobic reactors which integrated the operations of the cheese and whey WWTPs, which were historically operated separately. High strength waste streams from the cheese and whey plants are mixed during anaerobic treatment and are then routed to either the cheese or whey wastewater treatment process. Once wastewater enters the cheese or whey treatment process, it remains within that specific plant's treatment system. Upon completion of treatment, effluent from the cheese and whey WWTPs combine at Sample Point 001 before the effluent mixture is split and discharged between the two historical outfall locations (The whey processing plant historically discharged to a drainage channel on the north side of Hwy 81 and flowed under the highway through a culvert where it was joined by the effluent from the cheese processing plant.) Once the combined wastewater from the cheese and whey WWTPs discharges to the drainage channel, it flows 200 feet before reaching the North Fork of the Juda Branch in the Lower Sugar River (SP 11) Watershed in the Sugar Pecatonica River Basin.

The effective compliance date for technology based effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology (BPT) currently available is July 1, 1977.

PART 2 – INDUSTRIAL CATEGORIES

Chapter NR 240, Wis. Adm. Code, specifies effluent guidelines for discharges from dairy product categories of point sources and subcategories. Grande Cheese Juda discharges a combination of wastewater from the Cottage cheese, Natural Cheese, Condensed Whey, and Dry Whey subcategories.

Chapter NR 240, Wis. Adm. Code is based on federal effluent guidelines in 40 CFR Part 405 Subparts E, F, K, and L. The permittee must meet the applicable effluent limit guidelines as described in this chapter. These effluent limit guidelines include:

- Effluent limitations representing the degree of effluent reduction attainable by the application of the BPT in s. NR 240.10, Wis. Adm. Code.
- Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT) in s. NR 240.11, Wis. Adm. Code.
- If determined to be a new source, new source performance standards (NSPS) in s. NR 240.12, Wis. Adm. Code.

If the calculated limits are less than or equal to the limits in the current permit, then the limits would be set equal to the recalculated limits. If the recalculated limits are less restrictive than the limits from the current permit, they

cannot be increased unless the antidegradation and anti-backsliding provisions of ch. NR 207, Wis. Adm. Code, are met.

Section NR 220.13, Wis. Adm. Code, includes provisions that address cases where federal and state rules differ. Section 283.11, Wis. Stats., addresses compliance with federal standards. In this case, the state rules are consistent with federal rules with a few exceptions. In such cases, the permit will in all cases be based on the state rule notwithstanding the federal regulations. The omissions are described below.

- Neither state nor federal rules specify a date for the definition for a new source. Therefore, it is necessary to review available federal guidance. The Boornazian memo (September 28, 2006) specifies a new source date for 40 CFR Part 405 Subparts A – L of May 28, 1974. The Department relies on the Boornazian memo to establish date of applicability for NSPS.
- State rules incorrectly list BAT standards for BOD, TSS, and pH. BAT applies to priority pollutants and nonconventional pollutants and does not apply to BOD, TSS or pH.
- The federal standard rule lists revised BCT standards requirements. All BCT limitations are set to be the same as the best practicable control technology (BPT) standards. State rules in ch. NR 240, Wis. Adm. Code, do not list standards for BCT.

PART 3 – LEVELS OF CONTROL

Each of the facility's processes started after May 28, 1974, and are therefore subject to new source performance standards (NSPS) found in table 4 of ch. NR 240, Wis. Adm. Code. and 40 CFR Part 405 Subparts E, F, K, and L. Since NSPS are more stringent (or equal to) BPT standards, only NSPS categorical limitations need to be calculated.

PART 4 – APPLICABLE PRODUCTION LEVELS

The levels of production for each subcategory are based on data provided by the facility with their permit application, on a conference call on December 10, 2024, and email communication on July 30, 2025. The facility uses 3.4 million lbs/day of milk to make mozzarella; 9,072 lb/day of cream, 422,400 lbs/day of whey, and 180,000 lbs/day of milk to make ricotta; 2,680,737 lbs/day of 19% solids whey is sent to the ultrafiltration/microfiltration to make condensed whey; 1,052,658 lbs/day of permeate are sent to an evaporator to further condense whey; 907,917 lbs/day of 60% solids whey is sent to a crystallizer and refiner; 181,583 lbs/day of refined dry whey is sent to a dryer; 144,740 lbs/day of 25% solids whey is used to make dried protein whey, and 89,286 lbs/day of 80% solids whey is used to make dried lactose whey.

PART 5 – TBEL CALCULATIONS

The BOD5 input is the 5-day biochemical oxygen demand of raw materials that enter the process. The current production levels are converted to BOD input equivalents by multiplying the amount of raw material by BOD factors specified in s. NR 240.03(1), Wis. Adm. Code, or s. NR 240.07, Wis. Adm. Code and 40 CFR Part 405.

pH

Any discharge subject to BAT, BPT, BCT, or NSPS limitations or standards in this part must remain within the pH range of 6.0 s.u. to 9.0 s.u.

BOD and TSS

For each subcategory, to calculate the adjusted Total BOD Input for each product's raw material, multiply the lbs/day of raw material by the BOD factor and divide by 100. To calculate the Monthly Average limits, divide

the Adjusted Total BOD Input by 1,000 and multiply it by the Monthly Average Factor. To calculate the Daily Max limits, divide the Adjusted Total BOD Input by 1,000 and multiply it by the Daily Max Factor.

COTTAGE AND CREAM CHEESE CATEGORY

Cottage Cheese and Cream Cheese BOD input calculations:

Product	Material Used	lbs/day	BOD Factor (lbs/100 lbs)	Adjusted Total BOD Input (lbs/day)
Cottage Cheese- Ricotta	Raw Milk	180,000	10.39	**18,702**
Cottage Cheese- Ricotta	Cream	9,072	16.89	**1,532**
Cottage Cheese- Ricotta	Whey	422,400	4.72	**19,937**
Total cottage cheese and cream cheese				**40,171**

Grande Cheese-Juda has a BOD input greater than 2,600 pounds per day for ricotta production, it is considered a Class A facility for cottage cheese and cream cheese production.

Cottage Cheese Limit Calculation:

Adjusted Total BOD Input (lbs/day)	BOD		TSS		BOD		TSS	
	Monthly Average Factor	Daily Max Factor	Monthly Average Factor	Daily Max Factor	Monthly Average Limit (lbs/day)	Daily Max Limit (lbs/day)	Monthly Average Limit (lbs/day)	Daily Max Limit (lbs/day)
40,171	0.74	1.48	0.93	1.85	**30**	**59**	**37**	**74**

NATURAL CHEESE SUBCATEGORY

Natural Cheese BOD Input Calculations:

Product	Material Used	lbs/day	BOD Factor (lbs/100 lbs)	Adjusted Total BOD Input (lbs/day)
Natural Cheese-mozzarella	Raw Milk	3,400,000	10.39	**353,260**
Total natural cheese and processed cheese				**353,260**

Grande Cheese-Juda has a BOD input greater than 10,390 pounds per day for mozzarella production, it is considered a Class A facility for natural cheese and processed cheese production.

Natural Cheese Limit Calculation:

Adjusted Total BOD Input (lbs/day)	BOD		TSS		BOD		TSS	
	Monthly Average Factor	Daily Max Factor	Monthly Average Factor	Daily Max Factor	Monthly Average Limit (lbs/day)	Daily Max Limit (lbs/day)	Monthly Average Limit (lbs/day)	Daily Max Limit (lbs/day)
353,260	0.08	0.16	0.1	0.2	**28**	**57**	**35**	**71**

CONDENSED WHEY SUBCATEGORY

Condensed Whey BOD input calculations:

Product	Material Used	lbs/day	BOD Factor (lbs/100 lbs)[1]	Adjusted Total BOD Input (lbs/day)
UF/MF Liquid Whey	19% (fluid) solids whey	2,680,737	4.26	**114,199**
Condensed Whey	Liquid whey	1,052,658	4.26	**281,165**
Lactose Liquid Whey	Condensed whey	907,917	4.26	**38,677**
Permeate Evaporator	12% (fluid) solids whey	907,917	4.26	**38,677**
Refined Condensed Whey	60% solids whey	181,583	26.71	**48,501**
Total Condensed Whey				**521,219**

Grande Cheese-Juda has a BOD input greater than 14,160 pounds per day for condensed whey production, it is considered a Class A facility for condensed whey production.

[1]BOD Input factor calculated using the process defined in s. NR 240.03(1), Wis. Adm. Code and specific data for the liquid whey (Fat % = 0.05, Protein % = 0.6, and Carbs = 5.2%) provided by the facility as part of the previous permit reissuance on October 13, 2017.

Condensed Whey Limit Calculation:

Adjusted Total BOD Input (lbs/day)	BOD		TSS		BOD		TSS	
	Monthly Average Factor	Daily Max Factor	Monthly Average Factor	Daily Max Factor	Monthly Average Limit (lbs/day)	Daily Max Limit (lbs/day)	Monthly Average Limit (lbs/day)	Daily Max Limit (lbs/day)
521,219	0.11	0.22	0.14	0.28	**57**	**115**	**73**	**146**

DRY WHEY SUBCATEGORY

Dry Whey Powder BOD input calculations:

Product	Material Used	lbs/day	BOD Factor (lbs/100 lbs)[2]	Adjusted Total BOD Input (lbs/day)
Protein Whey Powder	25% solids Whey	144,740	26.71	**38,660**
Lactose Whey Powder	80% solids Whey	89,286	26.71	**23,848**
Total Dry Whey				**62,508**

Grande Cheese-Juda has a BOD input greater than 15,620 pounds per day for dry whey production, it is considered a Class A facility for dry whey production.

Dry Whey Powder Limit Calculation:

Adjusted Total BOD Input (lbs/day)	BOD		TSS		BOD		TSS	
	Monthly Average Factor	Daily Max Factor	Monthly Average Factor	Daily Max Factor[3]	Monthly Average Limit (lbs/day)	Daily Max Limit (lbs/day)	Monthly Average Limit (lbs/day)	Daily Max Limit (lbs/day)
38,660	0.11	0.22	0.14	0.23	**4**	**9**	**5**	**9**
23,848	0.11	0.22	0.14	0.23	**3**	**5**	**3**	**5**

[2] BOD Input factor calculated using the process defined in s. NR 240.03(1), Wis. Adm. Code.

[3] The federal standards of performance for new sources in the dry whey subcategory, 40 CFR §405.125, has a more stringent TSS maximum limit of 0.23 per 1,000 lb of BOD5 input than the one contained in s. NR 140.12, Wis. Adm. Code which is 0.28 per 1,000 lb of BOD5 input. Pursuant ss. NR 220.13, Wis. Adm. Code, federal standards will be used to calculate the maximum TSS limit as it is the more stringent number.

PART 6 – FINAL CALCULATED LIMITS

Per s. NR 240.06(3), Wis. Adm. Code, the total discharge limits shall be the total of the amounts calculated from the BOD input in the final product subcategory and all of the other subcategories with intermediate products in Part 5 of this memo.

Subcategory	Monthly average BOD (lbs/day)	Daily maximum BOD (lbs/day)	Monthly average TSS (lbs/day)	Daily maximum TSS (lbs/day)
Natural Cheese	28	57	35	71
Cottage Cheese	30	59	37	74
Condensed Whey	57	115	73	146
Protein Whey	4	9	5	9
Lactose Whey	3	5	3	5
Total	**122**	**245**	**153**	**305**

Current Permit Effluent Limitations			
Parameter and Units	**Daily Maximum**	**Daily Minimum**	**Monthly Average**
BOD_5 (lbs/day)	202	N/A	101
TSS (lbs/day)	280	N/A	140
pH s.u.	9.0	6.0	N/A

A comparison of the updated TBELs with the effective TBELs in the current permit show the TBELs in the current permit are more stringent. Therefore, the current TBELs are recommended to continue during the reissued permit term. Any concentration and mass-based limits for BOD5 and TSS recommended in the WQBEL memo (June 2025) are also recommended to be included in the reissued permit along with the mass-based limits recommended in this evaluation.

Final Calculated Effluent Limitations			
Parameter and Units	**Daily Maximum**	**Daily Minimum**	**Monthly Average**
BOD_5 (lbs/day)	202	N/A	101
TSS (lbs/day)	280	N/A	140
pH s.u.	9.0	6.0	N/A

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: June 12, 2025

TO: Amy Garbe – WY/3

FROM: Sarah Luck – SCR/Fitchburg

SUBJECT: Water Quality-Based Effluent Limitations for Grande Cheese Company – Juda
WPDES Permit No. WI-0063207-04-0

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 the Grande Cheese Company – Juda in Green County. This industrial facility discharges to North Fork Juda Branch via a drainage ditch, located in the Lower Sugar Watershed in the Sugar Pecatonica River Basin. 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 Sampling Point (Outfall) 001 - Cheese + Whey Combined Eff:

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Flow Rate						1,3
BOD_5 May – October November – April			 10 mg/L 12 mg/L			2
TSS	30 mg/L			20 mg/L		2
pH	9.0 s.u.	6.0 s.u.				3
Dissolved Oxygen		7.0 mg/L				3
Ammonia Nitrogen April May – September October November December January - March	 Variable Variable Variable Variable Variable Variable		 6.8 mg/L 3.2 mg/L 8.1 mg/L 10 mg/L 9.7 mg/L 11 mg/L	 2.8 mg/L 1.5 mg/L 3.6 mg/L 4.5 mg/L 4.4 mg/L 4.6 mg/L		4
Chlorine, Total Residual	26 µg/L		11 µg/L	**11 µg/L**		5
Chloride						1,3
Phosphorus LCA Interim Limit HAC Interim Limit Final WQBEL				 0.80 mg/L 0.60 mg/L 0.225 mg/L	 0.075 mg/L 0.47 lbs/day	6
Temperature Maximum						7
TKN, Nitrate+Nitrite, and Total Nitrogen						1,8
Acute WET						9,11

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Chronic WET				1.4 TU_c		10,11

Footnotes:

1. Monitoring only.
2. In addition to the concentration limits, categorical mass limits based on current production levels are required in accordance with ch. NR 240, Wis. Adm. Code. These limits are addressed outside of this memo.
3. No changes from the current permit.
4. The variable daily maximum ammonia nitrogen limit table corresponding to various effluent pH values may be included in the permit in place of the single limit. These limits apply year-round.

Effluent pH (s.u.)	**NH_3-N Limit (mg/L)**	**Effluent pH (s.u.)**	**NH_3-N Limit (mg/L)**	**Effluent pH (s.u.)**	**NH_3-N Limit (mg/L)**
$6.0 < pH \leq 6.1$	63	$7.0 < pH \leq 7.1$	41	$8.0 < pH \leq 8.1$	9.6
$6.1 < pH \leq 6.2$	62	$7.1 < pH \leq 7.2$	37	$8.1 < pH \leq 8.2$	7.9
$6.2 < pH \leq 6.3$	61	$7.2 < pH \leq 7.3$	34	$8.2 < pH \leq 8.3$	6.5
$6.3 < pH \leq 6.4$	59	$7.3 < pH \leq 7.4$	30	$8.3 < pH \leq 8.4$	5.4
$6.4 < pH \leq 6.5$	57	$7.4 < pH \leq 7.5$	26	$8.4 < pH \leq 8.5$	4.4
$6.5 < pH \leq 6.6$	56	$7.5 < pH \leq 7.6$	23	$8.5 < pH \leq 8.6$	3.6
$6.6 < pH \leq 6.7$	53	$7.6 < pH \leq 7.7$	19	$8.6 < pH \leq 8.7$	3.0
$6.7 < pH \leq 6.8$	51	$7.7 < pH \leq 7.8$	16	$8.7 < pH \leq 8.8$	2.5
$6.8 < pH \leq 6.9$	48	$7.8 < pH \leq 7.9$	14	$8.8 < pH \leq 8.9$	2.1
$6.9 < pH \leq 7.0$	45	$7.9 < pH \leq 8.0$	12	$8.9 < pH \leq 9.0$	1.8

5. Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Code, are included in bold.
6. If approved for the phosphorus MDV, a level currently achievable (LCA) interim limit of 0.80 mg/L should be effective upon permit reissuance. A compliance schedule may be included in the permit until the highest attainable condition (HAC) limit of 0.60 mg/L can be met. The final WQBELs are 0.225 mg/L as a monthly average and 0.075 mg/L and 0.51 lbs/day as a six-month average.
7. The current permit has alternative effluent limits (AELs) for temperature. Re-approval of the AEL study and applicable limits are outside the scope of this memo. The AELs may be included in the reissued permit in lieu of the WQBELs shown below.

Month	**Weekly Average Limit (°F)**	**Month**	**Weekly Average Limit (°F)**
January	58	July	87
February	59	August	88
March	62	September	79
April	61	October	68
May	70	November	55
June	82	December	57

8. As recommended in the Department's October 1, 2019 *Guidance for Total Nitrogen Monitoring in Wastewater Permits*, quarterly total nitrogen monitoring is recommended for all Class A cheese plants and since total nitrogen was greater than 40 mg/L on the permit application. Sections 283.37(5) and 283.55(1)(e), Wis. Stats, and ss. NR 200.065(1)(g) and NR 200.065(1)(h), Wis. Adm. Code, provide the authority to request this monitoring during the permit term. Total Nitrogen is the sum of nitrate (NO_3), nitrite (NO_2), and total Kjeldahl nitrogen (TKN) (all expressed as N).

9. Annual acute WET tests are recommended. 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.
10. Twice annual chronic WET testing is recommended. The Instream Waste Concentration (IWC) to assess chronic test results is 69%. According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), chronic testing shall be performed using a dilution series of 100%, 75%, 50%, 25% & 12.5%, and the dilution water used in WET tests conducted on Outfall 001 shall be a grab sample collected from the North Fork Juda Branch.
11. Sampling WET concurrently with any chemical-specific toxic substances is recommended. Tests should be done in rotating quarters, to collect seasonal information about this discharge and should continue after the permit expiration date (until the permit is reissued).

Please consult the attached report for details regarding the above recommendations. If there are any questions or comments, please contact Sarah Luck (Sarah.Luck@wisconsin.gov) or Diane Figiel (Diane.Figiel@wisconsin.gov).

Attachments (3) – Narrative, Site Map, and Thermal Table

PREPARED BY: Sarah Luck _____ Date: June 12, 2025

Sarah Luck
Water Resources Engineer

E-cc: Kenzie Ostien, Wastewater Engineer – SCR/Fitchburg
Diane Figiel, Water Resources Engineer – WY/3
Kari Fleming, Wastewater Permits Section Manager/WET Program Coordinator – WY/3
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Attachment #1

Water Quality-Based Effluent Limitations for
Grande Cheese Company – Juda

WPDES Permit No. WI-0063207-04-0

PART 1 – BACKGROUND INFORMATION

Facility Description

Grande Cheese Company – Juda operates a cheese and whey production facility in Juda, WI. Process wastewater from each production plant is treated on site in separate wastewater treatment systems before combining and discharging to the North Fork Juda Branch via a drainage ditch along Highway 80. Grande selected to add anaerobic reactors to treat the increased flow from the expanded cheese production while at the same time reducing the amount of high strength waste (HSW) hauled away for landspreading. The addition of the anaerobic reactors also allowed Grande to integrate the operations of the cheese and whey treatment plants. The Department approved plans and specifications for the upgrade December 9, 2016 under Project Number S-2016-0597. The anaerobic reactors were placed into operation in May 2018.

Previously, the cheese and whey plants were regulated under two separate WPDES permits (00063207-02 for the cheese plant and 0046957-04 for the whey plant). The whey permit, WPDES Permit No. WI-0046957, was terminated upon the reissuance of WPDES Permit No. WI-00063207-03.

Historically, the cheese and whey plants operated and discharged separately with the cheese processing plant discharging treated effluent to a drainage channel on the south side of HWY 81. The cheese plant discharge then flowed into the North Fork Juda Branch. The whey processing plant discharged to a drainage channel on the north side of Hwy 81 where the effluent flows under the highway through a culvert where it was joined by the effluent from the cheese processing plant. The combined wastewater from both the cheese and whey plants then flows 250 feet in a drainage channel before reaching the North Fork Juda Branch. In previous limit calculations, the combined discharge from the cheese and whey plants was considered in the calculation of effluent limits, but the need for limits was based on each individual plant's effluent data.

In 2018, Grande Cheese Company – Juda constructed an anaerobic reactor which integrated the operations of the cheese and whey facilities which were historically operated separately. High strength waste streams from the cheese and whey plants are mixed during anaerobic treatment and are then routed to either the cheese or whey wastewater treatment process. The cheese and whey wastewater treatment facilities are only integrated through the anaerobic treatment process. Once wastewater enters the cheese or whey treatment process, it remains within that specific plant's treatment system (either cheese or whey). Upon completion of treatment, effluents from both the cheese and whey plants combine at Sample Point 001 before the effluent mixture is split and discharged between the two historical outfall locations. In summary, Grande Cheese Company – Juda discharges a mixture of whey and cheese effluent that is sampled at combined Outfall 001. The combined effluent is then split equally between the two existing discharge locations. Grande Cheese Company – Juda requested their two separate WPDES permits (00063207-02 for cheese plant and 0046957-04 for whey plant) be revoked and reissued under one WPDES permit (WPDES Permit No. WI-00063207).

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

Existing Permit Limitations

The current permit, which expired on June 30, 2023, includes the following effluent limitations and monitoring requirements.

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Flow Rate						1
BOD_5						2
May – October	202 lbs/day		10 mg/L	101 lbs/day		
November – April	202 lbs/day		12 mg/L	101 lbs/day		
TSS	30 mg/L 280 lbs/day			20 mg/L 140 lbs/day		2
pH	9.0 s.u.	6.0 s.u.				3
Dissolved Oxygen		7.0 mg/L				3
Ammonia Nitrogen						4
April	Variable		6.8 mg/L	2.8 mg/L		
May – September	Variable		3.2 mg/L	1.5 mg/L		
October	Variable		8.4 mg/L	3.7 mg/L		
December	Variable		10 mg/L	4.5 mg/L		
Nov, Jan - March	Variable		11 mg/L	4.6 mg/L		
Phosphorus						5
LCA				1.0 mg/L		
HAC				0.8 mg/L		
WQBELs				0.225 mg/L	0.075 mg/L 0.47 lbs/day	
Chloride						1
Temperature						6
Acute WET	1.0 TU_a					7
Chronic WET				1.5 TU_c		7

Footnotes:

1. Monitoring only.
2. The mass limits are categorical limits based on ch. NR 240, Wis. Adm. Code.
3. These limitations are not being evaluated as part of this review since the water quality criteria (WQC) and receiving water characteristics have not changed.
4. The variable daily maximum ammonia nitrogen limit table corresponding to various effluent pH values was included in the permit in place of the single limit. These limits apply year-round.

Effluent pH (s.u.)	**NH_3-N Limit (mg/L)**	**Effluent pH (s.u.)**	**NH_3-N Limit (mg/L)**	**Effluent pH (s.u.)**	**NH_3-N Limit (mg/L)**
$6.0 < pH \leq 6.1$	63	$7.0 < pH \leq 7.1$	41	$8.0 < pH \leq 8.1$	9.6
$6.1 < pH \leq 6.2$	62	$7.1 < pH \leq 7.2$	37	$8.1 < pH \leq 8.2$	7.9
$6.2 < pH \leq 6.3$	61	$7.2 < pH \leq 7.3$	34	$8.2 < pH \leq 8.3$	6.5
$6.3 < pH \leq 6.4$	59	$7.3 < pH \leq 7.4$	30	$8.3 < pH \leq 8.4$	5.4
$6.4 < pH \leq 6.5$	57	$7.4 < pH \leq 7.5$	26	$8.4 < pH \leq 8.5$	4.4

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Effluent pH (s.u.)	NH_3-N Limit (mg/L)	Effluent pH (s.u.)	NH_3-N Limit (mg/L)	Effluent pH (s.u.)	NH_3-N Limit (mg/L)
6.5 < pH ≤ 6.6	56	7.5 < pH ≤ 7.6	23	8.5 < pH ≤ 8.6	3.6
6.6 < pH ≤ 6.7	53	7.6 < pH ≤ 7.7	19	8.6 < pH ≤ 8.7	3.0
6.7 < pH ≤ 6.8	51	7.7 < pH ≤ 7.8	16	8.7 < pH ≤ 8.8	2.5
6.8 < pH ≤ 6.9	48	7.8 < pH ≤ 7.9	14	8.8 < pH ≤ 8.9	2.1
6.9 < pH ≤ 7.0	45	7.9 < pH ≤ 8.0	12	8.9 < pH ≤ 9.0	1.8

5. The facility was covered under the multi-discharger variance (MDV) with a level currently achievable (LCA) interim limit of 1.0 mg/L and a highest attainable condition (HAC) limit of 0.8 mg/L (which went into effect July 1, 2020).
6. The following thermal limits apply:

Month	Weekly Average Limit (°F)	Month	Weekly Average Limit (°F)
January	75 (AEL)	July	No Limit
February	70 (AEL)	August	No Limit
March	75 (AEL)	September	88 (AEL)
April	80 (AEL)	October	80 (AEL)
May	82 (AEL)	November	77 (AEL)
June	86 (AEL)	December	70 (AEL)

7. Quarterly acute and chronic WET tests were required during the first year and then annually after. The IWC for chronic WET was 67%.

Receiving Water Information

- Name: North Fork Juda Branch via a drainage ditch for approximately 250 feet
- Waterbody Identification Code (WBIC): 877700
- Classification used in accordance with chs. NR 102 and 104, Wis. Adm. Code: Warm Water Sport Fish (WWSF) community, non-public water supply. Approximately five (5) miles downstream, the Sylvester Branch is classified as an Exceptional Resource Water. Limits should be protective of the immediate receiving water which is a drainage ditch. A department biologist should conduct a review of stream classification, and limits may change in the future as a result of the review.
- Low flows used in accordance with chs. NR 106 and 217, Wis. Adm. Code: The following 7-Q_{10} and 7-Q_2 values are from USGS at Juda, approximately 150 feet south of Hwy 11/81 in Juda Community Park on the north side of Juda, approximately 1500 feet west of Hwy S. (approximate USGS station # 05436538). The updated low flows were provided by USGS in a letter dated 5/14/2012.

  7-Q_{10} = 0.58 cfs (cubic feet per second)

  7-Q_2 = 0.89 cfs

  Harmonic Mean Flow = 1.3 cfs using a drainage area of 2.94 mi^2

  The Harmonic Mean has been estimated based on average flow and the 7-Q_{10} using an equation from U.S. EPA's *Technical Support Document for Water Quality-Based Toxics Control* (March 1991, EPA/505/2-90-001, pgs. 88-89).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7-Q_{10} (cfs)	0.71	0.70	0.97	1.10	0.97	0.76	0.68	0.67	0.66	0.78	0.88	0.76
7-Q_2 (cfs)	1.1	1.1	1.5	1.7	1.5	1.3	1.1	1.1	1.0	1.2	1.3	1.2

- Hardness = 368 mg/L as $CaCO_3$. This value represents the geometric mean of data (n=10) from WET testing conducted by Grande Cheese – Jude between August 2019 through September 2023.
- % of low flow used to calculate limits in accordance with s. NR 106.06(4)(c)5., Wis. Adm. Code: 100%. A mixing zone study for consideration of 100% of the stream flow was approved by the Department in a letter dated January 29, 2014.
- Source of background concentration data: Metals data from Richland Creek in Green County is used for this evaluation because there is no data available for the Honey Creek. Richland Creek is within the same ecological landscape so ambient water quality characteristics are expected to be similar. The numerical values are shown in the tables below. 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: None.
- Impaired water status: North Fork Juda Branch is impaired by low dissolved oxygen due to biochemical oxygen demand (BOD) and total phosphorus. It was added to the Impaired Waters List during the 1998 cycle.

Effluent Information

- Flow rate:
  Maximum annual average = 0.82 MGD (Million Gallons per Day)
  For reference, the actual average flow from July 2019 through July 2024 was 0.78 MGD.
- Hardness = 341 mg/L as $CaCO_3$. This value represents the geometric mean of data (n=4) from November 2022 reported on the permit application.
- 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: Water supply is from private wells.
- Additives: 1 biocide and 10 water quality conditioners. See Part 8 for more information.
- 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.

Copper Effluent Data

Sample Date	Copper (µg/L)
11/03/22	4.8
11/06/22	4.5
11/09/22	4.5
11/12/22	4.7
Average	4.6

Chloride Effluent Data

	Chloride (mg/L)
1-day P_{99}	582
4-day P_{99}	513

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	Chloride (mg/L)
30-day P_{99}	473
Mean	451
Std	51
Sample size	529
Range	140 - 660

The following table presents the average concentrations and loadings at Outfall 001 from July 2019 through July 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	Average Mass Discharged
BOD_5	4 mg/L*	26 lbs/day
TSS	4 mg/L*	26 lbs/day
pH field	7.4 s.u.	
Phosphorus	0.6 mg/L	
Ammonia Nitrogen	0.70 mg/L*	
Dissolved Oxygen	7.9 mg/L	
Temperature	76.4°F	

*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)

Acute Limits based on 1-Q_{10}

Daily maximum effluent limitations for toxic substances are based on the acute toxicity criteria (ATC), listed in ch. NR 105, Wis. Adm. Code. Previously daily maximum limits for toxic substances were calculated as two times the ATC. However, changes to ch. NR 106, Wis. Code, (September 1, 2016) require the Department to calculate acute limitations using the same mass balance equation as used for other limits along with the 1-Q_{10} receiving water low flow to determine if more restrictive effluent limitations are needed to protect the receiving stream from discharges which may cause or contribute to an exceedance of the acute water quality standards. The mass balance equation is provided below.

$$\text{Limitation} = \frac{(WQC)\,(Qs + (1-f)\,Qe) - (Qs - f\,Qe)\,(Cs)}{Qe}$$

Where:

WQC =Acute toxicity criterion or secondary acute value according to ch. NR 105, Wis. Adm. Code.

Qs = average minimum 1-day flow which occurs once in 10 years (1-day Q_{10}) if the 1-day Q_{10} flow data is not available = 80% of the average minimum 7-day flow which occurs once in 10 years (7-day Q_{10}).

Qe = Effluent flow (in units of volume per unit time) as specified in s. NR 106.06(4)(d), Wis. Adm. Code.

f = Fraction of the effluent flow that is withdrawn from the receiving water, and

Cs = Background concentration of the substance (in units of mass per unit volume) as specified in s. NR 106.06(4)(e), Wis. Adm. Code.

If the receiving water is effluent dominated under low stream flow conditions, the 1-Q_{10} method of limit calculation produces the most stringent daily maximum limitations and should be used while making reasonable potential determinations.

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).

Daily Maximum Limits based on Acute Toxicity Criteria (ATC)

RECEIVING WATER FLOW = 0.58 cfs, (1-Q_{10} (100% of 7-Q_{10})), as specified in s. NR 106.06(3)(bm), Wis. Adm. Code.

SUBSTANCE	REF. HARD.* mg/L	ATC	MAX. EFFL. LIMIT**	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	1-day P_{99}	1-day MAX. CONC.
Chlorine		19.0	26.0	5.20			
Arsenic		152.2	222	44.4	<4.2		
Cadmium	175	3.82	5.57	1.1	<0.97		
Chromium	301	325.75	475	94.9	<4.4		
Copper	341	49.4	67.5	13.5	4.6		
Lead	341	350	477.2	95.4	<2.6		
Nickel	268	1080	1475.4	295	13.1		
Zinc	333	345	467.8	93.6	73		
Chloride (mg/L)		757	1033.8			582	660

* 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.

* * Per the changes to s. NR 106.07(3), Wis. Adm. Code, effective 09/01/2016 consideration of ambient concentrations and 1-Q_{10} flow rates yields a more restrictive limit than the 2 × ATC method of limit calculation.

Weekly Average Limits based on Chronic Toxicity Criteria (CTC)

RECEIVING WATER FLOW = 0.58 cfs (100% of the 7-Q_{10}), as specified in s. NR 106.06(4)(c), Wis. Adm. Code

SUBSTANCE	REF. HARD.* mg/L	CTC	MEAN BACK-GRD.	WEEKLY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	4-day P_{99}
Chlorine		7.28		10.61	2.12		
Arsenic		152.2		222	44.4	<4.2	
Cadmium	175	3.82		5.57	1.1	<0.97	
Chromium	301	325.75		475	94.9	<4.4	
Copper	368	31.54		46.0	9.19	4.6	
Lead	356	95.51	1.9	138.3	27.7	<2.6	
Nickel	268	120.18		175	35.0	13.1	
Zinc	333	344.68	7.9	499	99.7	73	
Chloride (mg/L)		395		576			513

* 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)

RECEIVING WATER FLOW = 1.3 cfs (100% of Harmonic Mean), as specified in s. NR 106.06(4), Wis. Adm. Code.

SUBSTANCE	HTC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.
Cadmium	370		752	150.5	<0.97
Chromium (+3)	3818000		7763247	1552649	<4.4
Lead	140	1.9	283	56.5	<2.6
Nickel	43000		87433	17487	13.1

Monthly Average Limits based on Human Cancer Criteria (HCC)

RECEIVING WATER FLOW = 1.3 cfs (100% of Harmonic Mean), as specified in s. NR 106.06(4), Wis. Adm. Code.

SUBSTANCE	HCC	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.
Arsenic	13.3	27.0	5.41	<4.2

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 for total residual chlorine are required.**

Total Residual Chlorine – Grande Cheese Company – Juda reported using an additive containing chlorine for filament control. Since chlorine is added, effluent limitations are recommended. Specifically, **a daily maximum limit of 26 µg/L and a weekly average limit of 11 µg/L are required.**

Expression of Limits

Revisions to ch. NR 106, Wis. Adm. Code, align Wisconsin's water quality-based effluent limitations with 40 CFR 122.45(d), which requires WPDES permits for industrial discharges contain daily maximum and monthly average limitations, 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:

Whenever a weekly average limitation is determined necessary to protect water quality:

- 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.

Therefore**, a monthly average chlorine limit of 11 µg/L is also required**.

Chloride **–** Considering available effluent data from the current permit term (July 2019 through July 2024), the 1-day P_{99} chloride concentration is 582 mg/L, and the 4-day P_{99} of effluent data is 513 mg/L. These effluent concentrations are below the calculated WQBELs for chloride; therefore, **no effluent limits are needed. Continued chloride monitoring is recommended**.

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, **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 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR BOD_5, DO, AND TSS

Biochemical Oxygen Demand and Dissolved Oxygen

In establishing Biochemical Oxygen Demand (BOD_5) limitations, the primary intent is to prevent a lowering of dissolved oxygen (DO) levels in the receiving water below water quality standards as specified in s. NR 102.04(4)(e), Wis. Adm. Code. The 26-lb method is the most frequently used approach for calculating BOD_5 limits when resources are not available to develop a detailed water quality model.

New BOD_5 limits were calculated using the monthly low flows in a memo dated April 27, 2018. However, the concentration limits already in effect were more restrictive and so were continued. Given the increase in effluent flow rate, the BOD_5 limits were recalculated, but **current concentration limits are recommended to continue** since the Department typically does not impose limits more restrictive than 10 mg/L for industrial facilities. **A minimum DO limit of 7.0 mg/L is also recommended to continue year-round.**

In addition to the concentration limits, categorical BOD_5 mass limits based on current production levels are required in accordance with ch. NR 240, Wis. Adm. Code. These limits are addressed outside of this memo.

Total Suspended Solids

Total Suspended Solids (TSS) limitations are primarily given to maintain or improve water clarity and are not water-quality based.

Historically (going back to at least 1998), TSS concentration limits were given based on a limited forage fish classification of the receiving water as well as best available technology. However, North Fork Juda Branch is not explicitly designated as a limited forage fishery in ch. NR 104, Wis. Adm. Code. In order to be consistent with other limits given to be protective of the warm water sport fish community, the Department is evaluating what TSS limits would be appropriate, and TSS concentration limits may change in the future. For now, however, **the current daily maximum and monthly average TSS concentration limits of 30 mg/L and 20 mg/L, respectively, are recommended to continue.**

For informational purposes, TSS effluent data from July 2019 through July 2024 is presented below.

TSS Effluent Data

	TSS (mg/L)
1-day P_{99}	19
4-day P_{99}	11
30-day P_{99}	6
Mean*	4
Std	3.9
Sample size	800 (109 ND)
Range	<0 - 53

*"<" means that the pollutant was not detected at the indicated level of detection. The mean concentration was calculated using zero in place of the non-detected (ND) result.

In addition to the concentration limits, categorical TSS mass limits based on current production levels are required in accordance with ch. NR 240, Wis. Adm. Code. These limits are addressed outside of this memo.

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. The current permit has daily maximum, weekly average, and monthly average limits.

Daily Maximum Limits based on Acute Toxicity Criteria (ATC)

Daily maximum limitations are based on acute toxicity criteria in ch. NR 105, Wis. Adm. Code, which are a function of the effluent pH and the receiving water classification. The acute toxicity criterion (ATC) for ammonia is calculated using the following equation:

$$ATC \text{ in mg/L} = [A \div (1 + 10^{(7.204 - pH)})] + [B \div (1 + 10^{(pH - 7.204)})]$$

Where:

A = 0.411 and B = 58.4 for a Warm Water Sport fishery, and
pH (s.u.) = that characteristic of the effluent.

The effluent pH data was examined as part of this evaluation. A total of 811 sample results were reported from July 2019 through July 2024. The maximum reported value was 8.0 s.u. (Standard pH Units). The effluent pH was 7.9 s.u. or less 99% of the time. The 1-day P_{99}, calculated in accordance with s. NR 106.05(5), Wis. Adm. Code, is 7.9 s.u. The mean plus the standard deviation multiplied by a factor of 2.33, an estimate of the upper ninety ninth percentile for a normally distributed dataset, is 7.8 s.u. Therefore, a value of 7.9 s.u. is believed to represent the maximum reasonably expected pH, and therefore most appropriate for determining daily maximum limitations for ammonia nitrogen. Substituting a value of 7.9 s.u. into the equation above yields an ATC = 10.13 mg/L.

Daily Maximum Ammonia Nitrogen Effluent Limitations Calculation Method

In accordance with s. NR 106.32(2), Wis. Adm. Code, daily maximum ammonia limitations are calculated using the the 1-Q_{10} receiving water low flow if it is determined that the previous method of acute ammonia limit calculation (2×ATC) is not sufficiently protective of the fish and aquatic life. The more restrictive calculated limits shall apply.

The calculated daily maximum ammonia nitrogen effluent limits using the mass balance approach with the 1-Q_{10} (estimated as 80 % of 7-Q_{10}) and the 2×ATC approach are shown below.

Daily Maximum Ammonia Nitrogen Determination

	Ammonia Nitrogen Limit mg/L
2×ATC	20
1-Q_{10}	14

The 1-Q_{10} method yields the most stringent limits for Grande Cheese Company – Juda.

The current permit has variable daily maximum effluent limits based on effluent pH, presented below.

Daily Maximum Ammonia Nitrogen Limits – WWSF

Effluent pH (s.u.)	NH_3-N Limit (mg/L)	Effluent pH (s.u.)	NH_3-N Limit (mg/L)	Effluent pH (s.u.)	NH_3-N Limit (mg/L)
6.0 < pH ≤ 6.1	63	7.0 < pH ≤ 7.1	41	8.0 < pH ≤ 8.1	9.6
6.1 < pH ≤ 6.2	62	7.1 < pH ≤ 7.2	37	8.1 < pH ≤ 8.2	7.9
6.2 < pH ≤ 6.3	61	7.2 < pH ≤ 7.3	34	8.2 < pH ≤ 8.3	6.5
6.3 < pH ≤ 6.4	59	7.3 < pH ≤ 7.4	30	8.3 < pH ≤ 8.4	5.4
6.4 < pH ≤ 6.5	57	7.4 < pH ≤ 7.5	26	8.4 < pH ≤ 8.5	4.4
6.5 < pH ≤ 6.6	56	7.5 < pH ≤ 7.6	23	8.5 < pH ≤ 8.6	3.6
6.6 < pH ≤ 6.7	53	7.6 < pH ≤ 7.7	19	8.6 < pH ≤ 8.7	3.0
6.7 < pH ≤ 6.8	51	7.7 < pH ≤ 7.8	16	8.7 < pH ≤ 8.8	2.5
6.8 < pH ≤ 6.9	48	7.8 < pH ≤ 7.9	14	8.8 < pH ≤ 8.9	2.1
6.9 < pH ≤ 7.0	45	7.9 < pH ≤ 8.0	12	8.9 < pH ≤ 9.0	1.8

Weekly and Monthly Average Limits based on Chronic Toxicity Criteria (CTC)

Weekly and monthly average limits were last calculated in the WQBEL memo dated April 27, 2018. However, since the flow rate of the facility has increased, weekly and monthly average limits ammonia limits are recalculated since these limits relate to the assimilative capacity of the receiving water.

Weekly average and monthly average limits for Ammonia Nitrogen are based on chronic toxicity criteria. The 30-day chronic toxicity criterion (CTC) for ammonia in waters classified as a Warmwater sport fishery is calculated by the following equation.

$$CTC = E \times \{[0.0676 \div (1 + 10^{(7.688 - pH)})] + [2.912 \div (1 + 10^{(pH - 7.688)})]\} \times C$$

Where:

pH = the pH (s.u.) of the receiving water,
E = 0.854,
C = the minimum of 2.85 or $1.45 \times 10^{(0.028 \times (25 - T))}$ – (Early Life Stages Present), or
$C = 1.45 \times 10^{(0.028 \times (25 - T))}$ – (Early Life Stages Absent), and
T = the temperature (ºC) of the receiving water – (Early Life Stages Present), or
T = the maximum of the actual temperature (ºC) and 7 - (Early Life Stages Absent)

The 4-day criterion is simply equal to the 30-day criterion multiplied by 2.5. The 4-day criteria are used in a mass-balance equation with the 7-Q_{10} (4-Q_3, if available) to derive weekly average limitations. And the 30-day criteria are used with the 30-Q_5 (estimated as 85% of the 7-Q_2 if the 30-Q_5 is not available) to derive monthly average limitations. The stream flow value is further adjusted to temperature; 100% of the flow is used if the Temperature ≥ 16 ºC, 25% of the flow is used if the Temperature < 11 ºC, and 50% of the flow is used if the Temperature ≥ 11 ºC but < 16 ºC.

The rules provide a mechanism for less stringent weekly average and monthly average effluent limitations when early life stages (ELS) of critical organisms are absent from the receiving water. This applies only when the water temperature is less than 14.5 ºC, during the winter and spring months. Burbot, an early spawning species, are not believed to be present in the North Fork Juda Branch, based on conversations with local fisheries biologists. So "ELS Absent" criteria apply from October through March, and "ELS Present" criteria will apply from April through September for a warm water sport fish waterbody.

Monthly ammonia limits were calculated to reflect monthly $Q_{7,10}$ values calculated by USGS along with updated effluent flow from the facility (0.82 MGD) and 100% mixing. The table below outlines limits from the existing permit and limits calculated with the full assimilative capacity of the stream.

		Jan	Feb	Mar	Apr	May	Jun
Background Information	7-Q_{10} (cfs)	0.71	0.70	0.97	1.10	0.97	0.76
	7-Q_2 (cfs)	1.1	1.1	1.5	1.7	1.5	1.3
	Ammonia (mg/L)	0.19	0.19	0.19	0.07	0.07	0.07
	Temperature (°C)	0.56	1.11	3.33	8.89	14.44	18.89
	pH (s.u.)	8.14	8.14	8.14	8.26	8.26	8.26
	% of Flow used	100	100	100	100	100	100
	Reference Weekly Flow (cfs)	0.71	0.70	0.97	1.10	0.97	0.76
	Reference Monthly Flow (cfs)	0.94	0.94	1.28	1.45	1.28	1.11
	4-Day Chronic						
	Early Life Stages Present	4.93	4.93	4.93	4.07	4.07	3.07

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		Jan	Feb	Mar	Apr	May	Jun
Criteria mg/L	Early Life Stages Absent	8.00	8.00	8.00	5.85	4.09	3.07
	30-Day Chronic						
	Early Life Stages Present	1.97	1.97	1.97	1.63	1.63	1.23
	Early Life Stages Absent	3.20	3.20	3.20	2.34	1.64	1.23
Effluent Limitations mg/L	Weekly Average						
	Early Life Stages Present				7.5	7.1	4.9
	Early Life Stages Absent	12.4	12.3	14.0			
	Monthly Average						
	Early Life Stages Present				3.4	3.2	2.2
	Early Life Stages Absent	5.4	5.4	6.2			
Current Permit Limits	Weekly Average	11	11	11	6.8	3.2	3.2
	Monthly Average	4.6	4.6	4.6	2.8	1.5	1.5
Recommended Limits	Weekly Average	11	11	11	6.8	3.2	3.2
	Monthly Average	4.6	4.6	4.6	2.8	1.5	1.5

		Jul	Aug	Sept	Oct	Nov	Dec
Background Information	7-Q_{10} (cfs)	0.68	0.67	0.66	0.78	0.88	0.76
	7-Q_2 (cfs)	1.1	1.1	1.0	1.2	1.3	1.2
	Ammonia (mg/L)	0.06	0.06	0.06	0.05	0.05	0.05
	Temperature (°C)	20.56	19.44	15.56	10.00	4.44	1.67
	pH (s.u.)	8.34	8.34	8.34	8.31	8.31	8.31
	% of Flow used	100	100	100	100	100	100
	Reference Weekly Flow (cfs)	0.68	0.67	0.66	0.78	0.88	0.76
	Reference Monthly Flow (cfs)	0.94	0.94	0.85	1.02	1.11	1.02
Criteria mg/L	4-Day Chronic						
	Early Life Stages Present	2.42	2.60	3.33	3.75	3.75	3.75
	Early Life Stages Absent	2.42	2.60	3.33	5.01	6.08	6.08
	30-Day Chronic						
	Early Life Stages Present	0.97	1.04	1.33	1.50	1.50	1.50
	Early Life Stages Absent	0.97	1.04	1.33	2.01	2.43	2.43
Effluent Limitations mg/L	Weekly Average						
	Early Life Stages Present	3.7	3.9	5.0			
	Early Life Stages Absent				**8.1**	**10.3**	**9.7**
	Monthly Average						
	Early Life Stages Present	1.6	1.8	2.2			
	Early Life Stages Absent				**3.6**	**4.5**	**4.4**
Current Permit Limits	Weekly Average	3.2	3.2	3.2	8.4	11	10
	Monthly Average	1.5	1.5	1.5	3.7	4.6	4.5
Recommended Limits	Weekly Average	3.2	3.2	3.2	**8.1**	**10**	**9.7**
	Monthly Average	1.5	1.5	1.5	**3.6**	**4.5**	**4.4**

Bold text indicates that the calculated limit, based on the effluent flow rate of 0.82 MGD, is more restrictive than the current effluent limit.

Effluent Data

The following table evaluates the statistics based upon ammonia data reported from July 2019 through July 2024.

Ammonia Nitrogen Effluent Data

Ammonia Nitrogen (mg/L)	April	May - September	October	November	December	January - March
1-day P_{99}	10.5	9.0	5.2	3.1	3.3	6.8
4-day P_{99}	5.9	5.2	3.2	1.8	1.8	4.0
30-day P_{99}	2.5	2.2	1.3	0.8	0.9	1.7
Mean*	1.1	0.81	0.48	0.32	0.50	0.66
Std	2.78	2.67	1.43	0.83	0.72	1.86
Sample size	62 (18 ND)	334 (125 ND)	63 (9 ND)	66 (17 ND)	65 (3 ND)	192 (44 ND)
Range	<0.1 - 11.4	<0.1 - 14.2	<0.1 - 7.9	<0.1 - 3.7	<0.1 - 4.9	<0.1 - 18.6

*"<" means that the pollutant was not detected at the indicated level of detection. The mean concentration was calculated using zero in place of the non-detected (ND) result.

Reasonable Potential

The need to include ammonia limits in Grande Cheese Company – Juda's permit is determined by calculating 99th upper percentile (or P_{99}) values for ammonia and comparing those to the calculated limits. Based on this comparison, **weekly and monthly average limits are required during May – September.** Additionally, since the permit currently has daily maximum limits year-round and weekly and monthly average limits from October through April, **the limits must be retained regardless of reasonable potential**, consistent with s. NR 106.33(1)(b), Wis. Adm. Code:

> (b) If a permittee is subject to an ammonia limitation in an existing permit, the limitation shall be included in any reissued permit. Ammonia limitations shall be included in the permit if the permitted facility will be providing treatment for ammonia discharges.

Conclusions and Recommendations

In summary, after rounding to two significant figures, the following ammonia nitrogen limitations are recommended. No mass limitations are recommended in accordance with s. NR 106.32(5), Wis. Adm Code.

Final Ammonia Nitrogen Limits

	Daily Maximum (mg/L)	Weekly Average (mg/L)	Monthly Average (mg/L)
April	Variable	6.8	2.8
May – September	Variable	3.2	1.5
October	Variable	8.1*	3.6*
November	Variable	10*	4.5*
December	Variable	9.7*	4.4*
January – March	Variable	11	4.6

**This limit is lower than the current permit limit due to the increased effluent flow rate.*

PART 5 – PHOSPHORUS

Technology-Based Effluent Limit
Since Grande Cheese Company – Juda has phosphorus limits in effect that are more stringent than 1.0 mg/L, the need for a TBEL will not be considered further.

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(3)(a), Wis. Adm. Code, specifically names river segments for which a phosphorus criterion of 0.100 mg/L applies. For other stream segments that are not specified in s. NR 102.06(3)(a), Wis. Adm. Code, s. NR 102.06(3)(b), Wis. Adm. Code, specifies a phosphorus criterion of 0.075 mg/L. The phosphorus criterion of 0.075 mg/L applies for the North Fork Juda Branch.

The conservation of mass equation is described in s. NR 217.13(2)(a), Wis. Adm. Code, for phosphorus WQBELs and includes variables of water quality criterion (WQC), receiving water flow rate (Qs), effluent flow rate (Qe), and upstream phosphorus concentrations (Cs) provided below.

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

Where:

WQC = 0.075 mg/L for North Fork Juda Branch
Qs = 100% of the 7-Q_2 of 0.89 cfs
Cs = background concentration of phosphorus in the receiving water pursuant to s. NR 217.13(2)(d), Wis. Adm. Code
Qe = effluent flow rate = 0.82 MGD = 1.27 cfs
f = the fraction of effluent withdrawn from the receiving water = 0

Section NR 217.13(2)(d), Wis. Adm. Code, specifies that the background phosphorus concentration used in the limit calculation formula shall be calculated as a median using the procedures specified in s. NR 102.07(1)(b) to (c), Wis. Code. All representative data from the most recent 5 years shall be used, but data from the most recent 10 years may be used if representative of current conditions.

A previous evaluation resulted in a WQBEL of 0.075 mg/L using a background concentration of 0.124 mg/L. Section NR 217.13(2)(d), Wis. Adm. Code, states that the determination of upstream concentrations shall be evaluated at each permit reissuance. No additional data were available for consideration in estimating the background phosphorus concentration.

Substituting a background concentration above criteria into the limit calculation equation above would result in a calculated limit that is less than the applicable criterion of 0.075 mg/L. However, s. NR 217.13(7), Wis. Adm. Code, specifies that "if the WQBEL calculated pursuant to the procedures in this section is less than the phosphorus criterion specified in s. NR 102.06, Wis. Adm. Code, for the water body, the effluent limit shall be set equal to the criterion."

The impaired water listing of North Fork Juda Branch at the discharge location also points towards the notion that effluent phosphorus limits equal to the water quality criterion are needed to prevent the discharge from contributing to further impairment of the receiving water. *The Guidance for Implementing Wisconsin's Phosphorus Water Quality Standards for Point Source Discharges (2020)* suggests setting effluent limits equal to the criterion in the absence of an EPA approved total maximum daily load for discharges of phosphorus to phosphorus-impaired waters.

Effluent Data
The following table summarizes effluent total phosphorus monitoring data from July 2019 through July 2024.

Total Phosphorus Effluent Data

	Phosphorus (mg/L)
1-day P_{99}	1.9
4-day P_{99}	1.2
30-day P_{99}	0.76
Mean	0.59
Std	0.37
Sample size	799
Range	0.1 - 4.2

Reasonable Potential Determination
The discharge has reasonable potential to cause or contribute to an exceedance of the water quality criterion because the 30-day P_{99} of reported effluent total phosphorus data is greater than the calculated WQBEL**.** Therefore, **a WQBEL is required.**

Limit Expression
According to s. NR 217.14(2), Wis. Adm. Code, because the calculated WQBEL is less than or equal to 0.3 mg/L, the effluent limit of 0.075 mg/L may be expressed as a six-month average. If a concentration limitation expressed as a six-month average is included in the permit, a monthly average concentration limitation of 0.225 mg/L, equal to three times the WQBEL calculated under s. NR 217.13, Wis. Adm. Code, shall also be included in the permit. The six-month average should be averaged during the months of May – October and November – April.

Mass Limits
A mass limit is also required, pursuant to s. NR 217.14(1)(a), Wis. Adm. Code, because the discharge is to a surface water that impaired for total phosphorus and since Sylvester Creek, approximately five miles downstream, is listed in ch. NR 102 as an exceptional resource water (s. NR 217.14(1)(a), Wis. Adm. Code). This final mass limit shall be 0.075 mg/L × 8.34 × 0.82 MGD = 0.51 lbs/day expressed as a six-month average. However, this mass limit is greater than the previously calculated mass limit of 0.47 lbs/day. Without a demonstration of need for a higher limit in accordance with s. NR 207.04, Wis. Adm. Code, **the current limit of 0.47 lbs/day should be continued** in the reissued permit.

Multi-Discharge Variance Interim Limit
Grande Cheese Company – Juda was covered under the phosphorus multi-discharger variance (MDV) during the previous permit term. If Grande Cheese Company – Juda pursues and is approved for the MDV

again, conditions of the phosphorus MDV require the facility to comply with an interim phosphorus limit in lieu of meeting the final WQBELs. The recommended interim limit during the second permit under MDV approval pursuant to s. 283.16 (6) (a), Wis. Stats., is 0.60 mg/L as a monthly average. A review of effluent phosphorus data indicates that Grande Cheese Company – Juda may need a compliance schedule to meet this interim limit, but **compliance with 0.60 mg/L shall be no later than the end of the reissued permit.**

The current permit had a compliance schedule to meet the limit of 0.80 mg/L by July 1, 2020. **Therefore, 0.80 mg/L is the level currently achievable (LCA) for the discharge.** A limit of 0.80 mg/L as a monthly average should not be exceeded during the compliance schedule.

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.

In accordance with s. NR 106.53(2)(b), Wis. Adm. Code, the highest daily maximum flow rate for a calendar month is used to determine the acute (daily maximum) effluent limitation. In accordance with s. NR 106.53(2)(c), Wis. Adm. Code, the highest 7-day rolling average flow rate for a calendar month is used to determine the sub-lethal (weekly average) effluent limitation. These values were based off actual flow reported from July 2019 through July 2024.

The table below summarizes the maximum temperatures reported during monitoring from July 2019 through July 2024.

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	70	73	**58**	98
FEB	72	75	**59**	97
MAR	75	75	**62**	104
APR	78	80	**61**	103
MAY	84	86	**70**	97
JUN	87	89	**82**	94
JUL	91	92	**87**	92
AUG	90	91	**88**	92
SEP	85	90	**79**	93
OCT	83	85	**68**	96

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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)
NOV	77	79	**55**	101
DEC	74	77	**57**	98

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

Comparing the representative highest effluent temperature to the calculated effluent limits determines the reasonable potential of exceeding the effluent limits. The months in which limitations are recommended are shown in bold. Based on this analysis, **weekly average temperature maximum limits are necessary year-round.** The complete thermal table may be found in Attachment #4.

However, Grande Cheese Company – Juda submitted a report in December 2022 requesting that the current thermal alternative effluent limitations (AEL), based on a study conducted in 2018, continue. **Review of any updated information in the 2022 AEL request and continued approval of AELs is beyond the scope of this WQBEL memo**. Therefore, **no recommendation related to the AEL request is provided in this memo. No changes to the effluent temperature monitoring requirements are recommended.**

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 69%**, 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:

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

Where:

Q_e = annual average flow = 0.82 MGD = 1.27 cfs

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

Q_s = 100% of the 7-Q_{10} = 0.58 cfs

A mixing zone study for consideration of 100% of the stream flow was approved by the Department in a letter dated January 29, 2014. Review of use of the 100% mixing may be re-evaluated in the future.

- The IWC calculated above is greater than the current IWC of 67% since the maximum annual effluent flow rate increased from 0.75 MGD to 0.82 MGD.

- 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.

- Shown below is a tabulation of all available WET data for Outfall 001. Efforts are made to ensure that decisions about WET monitoring and limits are made based on representative data, as specified in s. NR 106.08(3), Wis. Adm Code. Data which is not believed to be representative of the discharge was not included in reasonable potential calculations. The table below differentiates between tests used and not used when making WET determinations.

  Tests conducted prior to 2005 are not presented in the tables below due to significant changes that were made to WET test methods in 2004. These changes were assumed to be fully implemented by certified labs by no later than June 2005. Data collected before July 1, 2005 is not the only data that is available. Additionally, tests conducted by S-F Analytical from July 2008 through March 2011 were

also not included because the Department has reason to believe that these WET tests were not performed using proper test methods. Therefore, WET data from this lab during this period has been disqualified and was not included in the analysis.

WET Data History

Grande Cheese

Date Test Initiated	Acute Results LC_{50} % (% survival in 100% effluent)				Chronic Results IC_{25} %				Footnotes or Comments
	C. dubia	Fathead minnow	Pass or Fail?	Used in RP?	*C. dubia*	Fathead Minnow	Pass or Fail?	Use in RP?	
03/08/11	>100	>100	Pass	No	89	>100	Pass	No	1
10/25/11	-	-	-	-	56		Fail	No	1
06/03/14	>100	>100	Pass	No	-	-	-	-	1
11/18/14	>100	>100	Pass	No	62.3	>100	Pass	No	1
02/17/15	-	-	-	-	52.2	>100	Fail	No	1
06/02/15	-	-	-	-	80.1	>100	Pass	No	1
07/07/15	-	-	-	-	62.4	83.7	Pass	No	1
10/20/15	-	-	-	-	67.8	73.2	Pass	No	1
03/15/16	-	-	-	-	76.7	>100	Pass	No	1
06/21/16	-	-	-	-	51.1	>100	Fail	No	1

Grande Whey (formerly PGP)

Date Test Initiated	Acute Results LC_{50} % (% survival in 100% effluent)				Chronic Results IC_{25} %				Footnotes or Comments
	C. dubia	Fathead minnow	Pass or Fail?	Used in RP?	*C. dubia*	Fathead Minnow	Pass or Fail?	Use in RP?	
03/08/11	>100	>100	Pass	No	61	>100	Fail	No	1
10/25/11	-	-	-	-	52		Fail	No	1
11/18/14	>100	>100	Pass	No	76.2	>100	Pass	No	1
02/17/15	-	-	-	-	92.2	>100	Pass	No	1
01/26/16	-	-	-	-	76	>100	Pass	No	1
06/14/16	-	-	-	-	59.9	>100	Fail	No	1
07/19/16	-	-	-	-	76.2	>100	Pass	No	1
11/15/16	-	-	-	-	93.5	>100	Pass	No	1

Footnote:

1. *Data Not Representative.* Changes were made in 2018 (addition of anaerobic digestors and combined discharge) that makes these tests unrepresentative of current operating conditions, and they are therefore not used in determining reasonable potential. However, they are presented here to illustrate WET history. There was a change in acute toxicity (no more failures) so an acute WET limit is no longer required. Chronic toxicity is still present, but the generally higher IC25s suggest the changes made in 2018 may have helped.

Combined Discharge

Date Test Initiated	Acute Results LC_{50} %				Chronic Results IC_{25} %				Footnotes or Comments
	C. dubia	Fathead minnow	Pass or Fail?	Used in RP?	*C. dubia*	Fathead Minnow	Pass or Fail?	Use in RP?	
08/13/2019	>100	>100	Pass	Yes	79.3	>100	Pass	Yes	

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Date Test Initiated	Acute Results LC_{50} %				Chronic Results IC_{25} %				Footnotes or Comments
	C. dubia	Fathead minnow	Pass or Fail?	Used in RP?	*C. dubia*	Fathead Minnow	Pass or Fail?	Use in RP?	
01/21/2020	>100	>100	Pass	Yes	78.0	>100	Pass	Yes	
03/24/2020	>100	>100	Pass	Yes	81.4	>100	Pass	Yes	
06/09/2020	>100	>100	Pass	Yes	68.2	>100	Pass	Yes	1
03/09/2021	-	-	-	-	82.3	>100	Pass	Yes	
04/27/2021	-	-	-	-	76.2	>100	Pass	Yes	
09/22/2021	>100	>100	Pass	Yes	-	-	-	-	
09/20/2022	-	-	-	-	78.9	>100	Pass	Yes	
10/25/2022	>100	>100	Pass	Yes	>100	>100	Pass	Yes	
03/21/2023	>100	>100	Pass	Yes	61.2	>100	Fail	Yes	
05/16/2023	-	-	-	-	>100	>100	Pass	Yes	Retest
06/20/2023	-	-	-	-	86.8	>100	Pass	Yes	Retest
09/05/2023	-	-	-	-	83.0	>100	Pass	Yes	

Footnote:

1. The IWC has been recalculated and has increased; therefore, this test would have failed based on the new IWC.

- 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.**

Acute toxicity appears to have been reduced since the discharge was combined such that **an acute limit is no longer required**. Chronic toxicity has continued and therefore **a chronic WET limit is still required** in the next permit term.

Chronic WET limit = [100/IWC] TU_c = [100/69] TU_c = **1.4 TU_c expressed as a monthly average**

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 on the next page. 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 Program Guidance Document*: https://dnr.wisconsin.gov/topic/Wastewater/WET.html.

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WET Checklist Summary

	Acute	Chronic
AMZ/IWC	Not Applicable. **0 Points**	IWC = 69% **15 Points**
Historical Data	No tests failed. **0 Points**	Two tests failed (based on updated IWC). **0 Points**
Effluent Variability	Variability, permit violations, and several spills. **5 Points**	Same as Acute. **5 Points**
Receiving Water Classification	WWSF **5 Points**	Same as Acute. **5 Points**
Chemical-Specific Data	No reasonable potential for limits based on ATC. Ammonia nitrogen limit carried over from the current permit. Chloride, copper, nickel, and zinc detected. Additional Compounds of Concern: None. **3 Points**	Reasonable potential for ammonia limits. Chloride, copper, nickel, and zinc detected. Additional Compounds of Concern: None. **8 Points**
Additives	1 biocide (Sani-King) and 8 Water Quality Conditioners added. Permittee has proper P chemical SOPs in place. **11 Points**	All additives used more than once per 4 days. **11 Points**
Discharge Category	Dairy Facility **20 Points**	Same as Acute. **20 Points**
Wastewater Treatment	Secondary or better. **0 Points**	Same as Acute. **0 Points**
Downstream Impacts	No impacts known. **0 Points**	Same as Acute. **0 Points**
Total Checklist Points:	**44 Points**	**64 Points**
Recommended Monitoring Frequency (from Checklist):	1x yearly	2x yearly
Limit Required?	No	Limit = 1.4 TU_c
TRE Recommended? (from Checklist)	No	No

- After consideration of the guidance provided in the Department's *WET Program Guidance Document* (2022) and other information described above, **annual acute tests and twice annual chronic WET tests are recommended** in the reissued permit. Tests should be done in rotating quarters to collect seasonal information about this discharge. WET testing should continue after the permit expiration date (until the permit is reissued).

- According to the requirements specified in s. NR 106.08, Wis. Adm. Code, a chronic WET limit is required. **The chronic WET limit shall be expressed as 1.4 TUc as a monthly average** in the effluent limits table of the permit. Federal regulations in 40 CFR Part 122.44(i) require that monitoring occur at least once per year when a limit is present.

Attachment #1

PART 8 – ADDITIVE REVIEW

Unlike the metals and toxic substances evaluated in Part 2, most additives have not undergone the amount of toxicity testing needed to calculate water quality criteria. Instead, in cases where the minimum data requirements necessary to calculate a WQC are not met, a secondary value can be used to regulate the substance, according to s. NR 105.05, Wis. Adm. Code. Whenever an additive is discharged directly into a surface water without receiving treatment or an additive is used in the treatment process and is not expected to be removed before discharge, a review of the additive is needed. Secondary values should be derived according to s. NR 105.05, Wis. Adm. Code. More information about additives, including guidance related to conducting an additive review, can be found at https://dnr.wisconsin.gov/topic/Wastewater/Additives.html.

Additive Parameters

Additive Name (Manufacturer)	Purpose of Additive	Intermittent or Continuous Feed	Frequency of Use (months per year /days per week	Maximum Quantity Used (gal/day)	Average Quantity Used (gal/day)	Estimated Max Concentration at the Outfall (mg/L)	Potential Use Restriction (mg/L)	Footnotes
Hydriclear 1003 (alum) (Hydrite Chemical, Inc)	Phosphorus removal	Continuous	12/7	550	450	0	SOP	1
Hydriclear 1007 (Hydrite Chemical, Inc)	Nutrient	Continuous	12/7	5	3	0	Not expected in discharge	2
Hydriclear 1050 (Hydrite Chemical, Inc) (sodium hydroxide)	pH	Intermittent	12/7	50	30	0	pH WQBELs; Toxicity documented/ understood	3
Hydrite QD 1630 (Hydrite Chemical, Inc)	*Quat block additive*	N/A	N/A	N/A	N/A	N/A	No longer used	4
Hydrifloc 9880 (Hydrite Chemical, Inc)	Coagulent	Continuous	12/7	10	8	0	Not expected in discharge	2
Hydrifloc 9059 (Hydrite Chemical, Inc)	*Coagulent*	N/A	N/A	N/A	N/A	N/A	No longer used	5

Attachment #1

Additive Name (Manufacturer)	Purpose of Additive	Intermittent or Continuous Feed	Frequency of Use (months per year /days per week	Maximum Quantity Used (gal/day)	Average Quantity Used (gal/day)	Estimated Max Concentration at the Outfall (mg/L)	Potential Use Restriction (mg/L)	Footnotes
Ferric Sulfate (Hawkins)	Phosphorus removal	Continuous	12/7	225	200	0	SOP	1
Met Source AN (Chemtron River Bend)	Nutrient for digesters	Continuous	12/7	8	6	0	Not expected in discharge	6
Granular Maid (Chemtron River Bend)	Granulation Aid	Continuous	12/7	4	2	0	Not expected in discharge	6
Sani-King (Hydrite Chemical, Inc)	Filament Control	Intermittent	1/7	200	200	0	Chlorine WQBELs	3
Quik-Zyme L (Aquafix Inc)	Fog Treat	Continuous	12/7	4	4	0	None – below calculated secondary acute and secondary chronic values	7

Footnotes:

1. Evaluation is not necessary for this additive since the expected concentration at the surface water outfall is zero. A Standard Operating Procedure (SOP) document was received and approved by the Department in June 2023 (a single document for both alum and ferric sulfate). **It is strongly recommended this document be reviewed and updated to include procedures in case a spill or overdosing occurs and also to include how dosing is determined. It is also recommended that, as stated in the document, a phosphate continuous monitor analyzer be installed to prevent overdosing. If any changes are made to the SOP, please submit the updated SOP to the Department.**
2. Per the facility, in an email dated 5/5/25, "They attach to solids that are subsequently removed by the DAF system as sludge, meaning little to no residual is expected to be discharged."
3. Evaluation is not necessary for additives that have active ingredients consisting only of chlorine, caustic soda (sodium hydroxide), hypochlorite, sulfuric acid, hydrochloric acid. WQBELs are given to regulate.
4. Per the facility, in emails dated 5/5/25 and 6/10/25, "Hydrite QD 1630 has not been used nor purchased in 2024-25" and so the chemical is removed from approval. **Use of Hydrite QD 1630 is not allowed unless prior written approval is received from the Department.**

5. Per the facility, in an email dated 5/5/25, "Hydrifloc 9059 (Cationic Polymer): Not purchased in 2024 or 2025 due to the transition to Hydrifloc 9880." **Use of Hydrifloc 9059 is not allowed unless prior written approval is received from the Department.**
6. Per the facility, in an email dated 5/5/25, "Used…in the anaerobic digesters as biological micronutrients." Nutrients are expected to be fully consumed when used at the appropriate dosing rate.
7. Quik-Zyme L is a naturally occurring concentration of enzymes and some functional bacteria that excel in fats, oils, and greases degradation. The composition includes protein complexes to aid in enzymatic functions and product stabilization. It contains natural sources of bacterial strains noted for fat degradation.

   Grande Cheese Company – Juda has requested the use of this additive at a maximum dosage rate of 4.0 gal/day. Assuming none of the additive is lost to the environment from the application point to Outfall 001, an effluent flow of 0.82 MGD, and an additive density of 1.0 g/cm^3, the equivalent effluent concentration is approximately 4.9 mg/L.

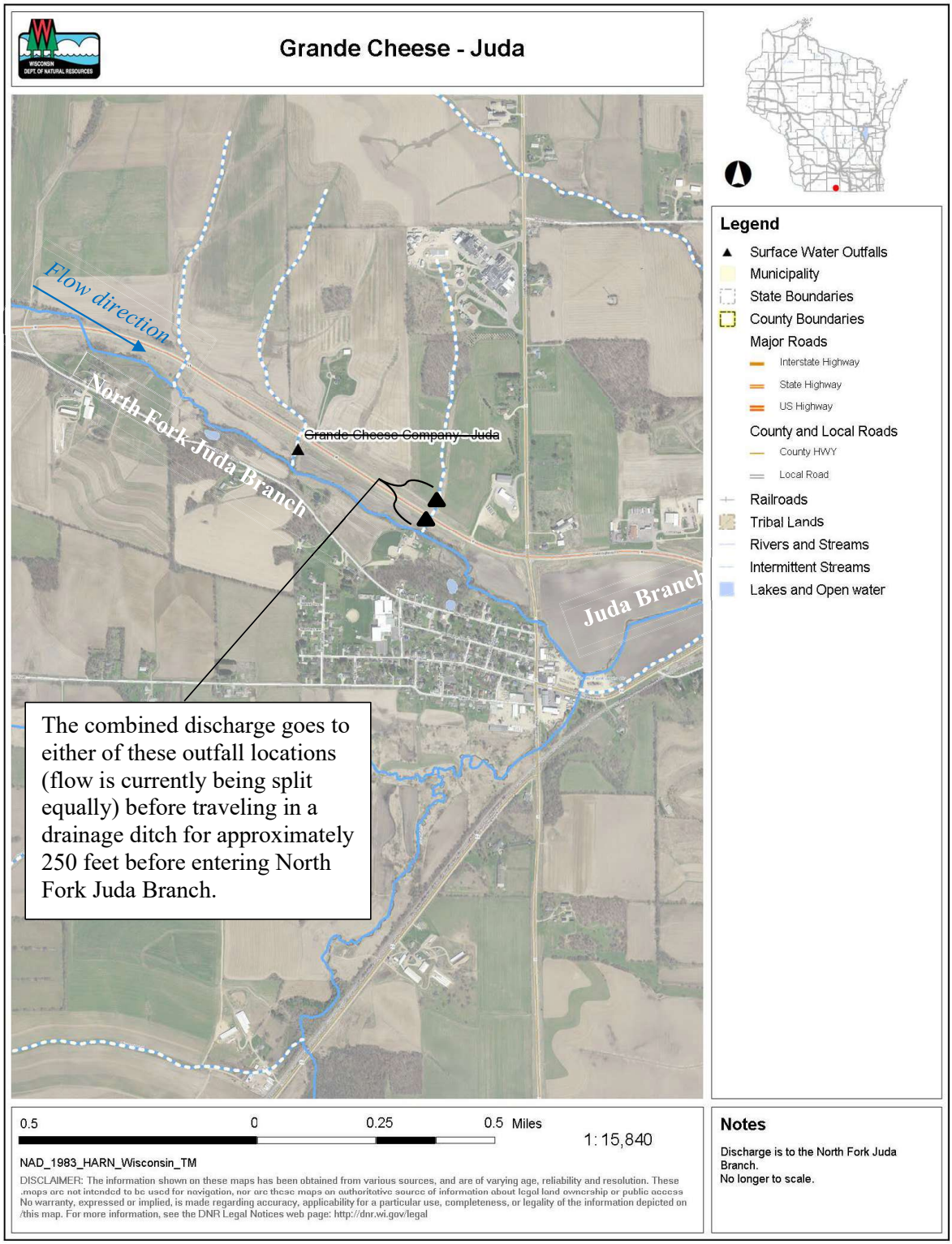
   Secondary acute and chronic values are determined based on acute toxicity test data provided in the Safety Data Sheet. The secondary acute value is 2,547 mg/L, and the secondary chronic value is 141 mg/L and is based on the default secondary acute to chronic ratio of 18 using the same conservation of mass equation as with toxic substances in Part 2 of this evaluation.

   The equivalent effluent concentration of 4.9 mg/L is below the calculated secondary acute and chronic values. **Therefore, this additive is approved at the requested maximum dosage rate of 4.0 gal/day.**

The Department should be notified if the facility wishes to use any new additive, any approved additive at a greater dosage rate(s) or use frequency(ies) than currently approved, or if updated toxicity information for an additive is available from the chemical manufacturer. An additional additive review evaluation will be needed in any case.

Attachment #2

Site Map



Attachment #3

Temperature limits for receiving waters with unidirectional flow

(calculation using default ambient temperature data)

						Temp Dates	Flow Dates
Facility:	Grande Cheese Co - Juda	**7-Q_{10}:**	0.58	cfs			
Outfall(s):	001	**Dilution:**	100%		**Start:**	07/01/19	07/01/19
Date Prepared:	9/23/2024	**f:**	0		**End:**	07/31/24	07/31/24
Design Flow (Qe):	0.82 MGD	**Stream type:**	Small warm water sport or forage fis				
Storm Sewer Dist.	0 ft	**Qs:Qe ratio:**	0.5	:1			
		Calculation Needed?	YES				

Month	Water Quality Criteria			Receiving Water Flow Rate (Qs)	Representative Highest Effluent Flow Rate (Qe)		f	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)	(cfs)	(MGD)	(MGD)		(°F)	(°F)	(°F)	(°F)
JAN	33	49	76	0.71	0.836	0.878	0	70	73	**58**	98
FEB	34	50	76	0.70	0.846	0.885	0	72	75	**59**	97
MAR	38	52	77	0.97	0.862	0.890	0	75	75	**62**	104
APR	48	55	79	1.10	0.857	0.900	0	78	80	**61**	103
MAY	58	65	82	0.97	0.881	0.980	0	84	86	**70**	97
JUN	66	76	84	0.76	0.884	0.928	0	87	89	**82**	94
JUL	69	81	85	0.68	0.909	0.954	0	91	92	**87**	92
AUG	67	81	84	0.67	0.867	0.908	0	90	91	**88**	92
SEP	60	73	82	0.66	0.863	0.887	0	85	90	**79**	93
OCT	50	61	80	0.78	0.834	0.928	0	83	85	**68**	96
NOV	40	49	77	0.88	0.837	0.860	0	77	79	**55**	101
DEC	35	49	76	0.76	0.864	0.909	0	74	77	**57**	98

CORRESPONDENCE / MEMORANDUM State of Wisconsin

DATE: April 3, 2026
TO: Permit File
FROM: Emma Lorenzen - CO

SUBJECT: Reapproval of the alternative effluent temperature limit for Grande Cheese Company - Juda (WI-0063207)

The Grande Cheese Inc - Juda facility is an existing facility pursuant to s. NR 106.71(3), Wis. Adm. Code, and discharges heat and other pollutants to the North Fork of Juda Branch Creek which flows into the Juda Branch Creek in Juda, Wisconsin. In order to protect fish and aquatic life in the North Fork of Juda Branch Creek, temperature limits were calculated for Grande-Juda pursuant to ch. NR 106 Subchapter V, Wis. Adm. Code. This evaluation, using the protocols specified in Subchapter V, determined that Grande-Juda has reasonable potential to contribute to exceedances of sub-lethal thermal water quality standards during the months of January, February, March, April, May, June, September, October, November, and December, necessitating inclusion of temperature limits in the permit. In accordance with Ch. NR 106 -Subchapter VI, 40 CFR Part 125, and Section 316(a) of the federal Clean Water Act, Grande-Juda requested alternative effluent limitations (AEL) for the sublethal temperature limits based on a demonstration that the calculated effluent temperature limits are more stringent than necessary to protect fish and aquatic life. This was granted on January 18, 2019, with conditions for further demonstration that it was protective of fish and aquatic life.

To continue to have the alternative effluent limits for temperature a report, *Thermal Alternative Effluent Limitation Reques*t, was prepared by the Probst Group and submitted to the Department of Natural Resources as part of the permit application. Rather than submitting a new study, the report documented that conditions at the facility had substantially remained the same since the initial AEL was granted and that the assumption made in the previous approval remained appropriate. The department believes that this report successfully demonstrated that there have not been significant changes in either flow or temperature of the effluent that would make the previous decision invalid and that the continued use of the previously approved alternative effluent limits is appropriate.

In conclusion, the department agrees that a discharge with a continuation of the existing AEL limits is protective of fish and aquatic life in the North Fork of Juda Branch Creek. This decision will be re-evaluated by the department upon permit reissuance. Additional data should be submitted with the next permit application to continue to justify an alternative effluent limit to the department.

If there are any questions or comments, please contact Emma Lorenzen at (608)-400-2765 or at Emma.Lorenzen@wisconsin.gov.