

REPORT OF COMPLIANCE SAMPLING INSPECTION (CSI)

AT
Milk Specialties Global
805 W. Omaha Ave
Norfolk, NE 68701

NPDES NO: NE-0000965

September 9-12, 2024

BY
U. S. ENVIRONMENTAL PROTECTION AGENCY
Region 7
Enforcement and Compliance Assurance Division (ECAD)

INTRODUCTION

I performed a Compliance Sampling Inspection (CSI) at the Milk Specialties Global (MSG) in Norfolk, Nebraska from September 9, 2024, through September 12, 2023. The inspection was authorized by Section 308(a) of the Federal Water Pollution Control Act, as amended. This narrative report presents the findings of the inspection.

PARTICIPANTS

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PROCEDURES

On September 9, 2024, I arrived at the MSG facility unannounced at approximately 1:00 p.m. and asked to speak with Mr. Mason and Mr. Olfert. I introduced myself to Mr. Mason and Mr. Olfert, presented my credentials, and explained the purpose and procedures of the inspection. These procedures included completing a comprehensive Wastewater Treatment Facility (WWTF) inspection which would include a facility walk-through with photos (attachment 1), a check of the self-monitoring records, and the collection of samples from Outfall 003, and an exit interview.

From September 9, 2024, through September 12, 2024, I used an ISCO model 3710 automatic composite sampler to collect a 24-hour composite sample of process wastewater before it is discharged to the City of Norfolk's sanitary sewer system. I utilized the suspended length of Tygon tubing previously used by the facility. I connected the other end to the sampler pump and programmed it to collect evenly spaced aliquots every 30 minutes into a clean Nalgene bottle, which was packed in ice. I returned each day to service the sampler. I removed the bottle, agitated its contents, and poured them into clean, pre-labeled containers for the analysis of Biochemical Oxygen Demand (BOD), Non-Filterable Solids (NFS), Ammonia, Total Kjeldahl Nitrogen (TKN), Nitrate+Nitrite, Total Nitrogen (by calculation), and Total Phosphorus (TP). I measured the pH and temperature in a separate grab sample using a field meter. Each day I also used the sampling equipment to obtain a single grab sample for Oil and Grease.

On September 10, 2024, I placed the samples I collected on ice in an ice chest, sealed the container and shipped it overnight to the EPA Region 7 Science and Technology Center (STC) for analysis. Samples shipped on September 10, 2024, did not arrive to the STC until Friday, September 13, 2024, due to shipping delays. On September 11 and 12, 2024, I placed the samples I collected on ice in an ice chest sealed the container and hand delivered the samples to the EPA Region 7 STC for analysis. I followed Region 7's LSASD standard operating procedures in the collection, packaging, transportation, and handling of the samples. Field Sheets and Chain of Custody forms were electronically submitted each day following Region 7 procedures.

FACILITY DESCRIPTION

The facility is on the east side of Norfolk, Nebraska, on Omaha Street (Highway 275). The facility's physical address is 805 W. Omaha, Norfolk, Nebraska. The facility has a corporate mailing address which is 7500 Flying Cloud Drive, Eden Prairie, Minnesota 55344. The legal description of the facility is the NE ¼, NW ¼, of Section 34, Township 24 North, Range 1 West, in Madison County Nebraska.

MSG is a milk processing facility, which extracts proteins from various milk products for human and animal consumption. The facility process processes 1.2 – 1.4 million pounds of milk per day. Mr. Olfert stated that the facility has approximately 117 employees and that the facility runs 24 hours a day 6 days per week. See attachment 2 for the facility layout.

Outfall 001: Consists of non-contact cooling water from ammonia shell tube condensers and cooling tower blowdown. Non-contact cooling water is currently being recycled throughout the plant is not being discharged at the time of the inspection.

Outfall 002: Consists of pretreatment process and non-process wastewater from the Clean in Place (CIP) system, lactose system, cream bay, and Reverse Osmosis (RO) water. The pretreatment wastewater was designed to be discharged to the City Norfolk WWTF or the Publicly Owned Treatment Works (POTW). Recent changes to the facility included the construction of a lift station near the Outfall 002 sampling location. The lift station pumps process wastewater from the lift station around the east side of the facility and into a wet well of the newly constructed lift station near the Outfall 003 sampling point. The facility currently still has the capability to discharge to the sanitary sewer system on an emergency basis.

Outfall 003: Consists of pretreatment process and non-process wastewater from BK floor drains, filtration area drains, receiving bay drains, and sanitary wastewater. The process wastewater is discharged to the City of Norfolk WWTF. Flows through this outfall are approximately 0.600 Million Gallons per Day (MGD)

The facility recently implemented a pretreatment system before process wastewater is discharged to the Norfolk WWTF. The following are components of the pretreatment system.

Three Lift Stations (North, Middle, and West)
Aerated Equalization tank (pH neutralization)
Calamity Tank (not in operation at time of the inspection)
High Strength Waste Silos (not in operation at time of the inspection)

The facility has a Nebraska Pretreatment Permit (NE000965) that was issued on July 1, 2013 (attachment 3) and expired on June 30, 2018. The permit has been administratively extended by the NDEE until further notice.

The facility entered into an agreement with the City of Norfolk to discharge process wastewater and domestic wastewater to the city's sanitary sewer system on April 5, 2010 (attachment 4). The agreement limits the amount of BOD to 6,000 pounds per day (lbs/day), TSS to 1,300 lbs/day, Nitrogen as measured by TKN to 150 milligrams per day (mg/day). The agreement also limits the volume discharged to the sanitary sewer to 250,000 gallons per day.

FINDINGS AND OBSERVATIONS

The following findings were noted during the facility and record review. These findings were discussed with MSG during the exit meeting.

Self-Monitoring Data Review:

I obtained a spreadsheet of the NetDMR data for the MSG facility from January 2021, through August 2024, and reviewed the data. During the inspection, I obtained electronic copies of a spreadsheet, provided by the city noting all sampling conducted by the city on behalf of the facility from 2021 through 2024 (attachment 5).

The table below represents violations of pH that were reported by the facility.

Table 1: pH violations reported for all Outfalls from January 2021 – August 2024

Year	Outfall 001	Outfall 002	Outfall 003	pH Limits
2021				5.5-9.5
March		3.34	9.86	
2022				
March		4.05		
December			5.2	
2023				
September		3.95		
December		3.95		
2024				
March	9.43			
June	9.43	11.23	3.24	

During the inspection, Mr. Lackey stated that the facility relies on the city for its regulatory sampling that includes pH. He stated that they use the pH data provided by the city and then reports the high and low pH readings for each quarter.

I spoke with Mr. Huntley and requested the sampling data from 2021 through 2024. After the completion of the inspection, Mr. Huntley provided the requested information, and I reviewed it. During my review, I noted that until February 2024, the city was averaging the pH for both outfalls 002 and 003 then providing the facility one pH result that would be reported. I then noted that pH for both outfalls 002 and 003 were reported separately starting in February 2024. I spoke with Mr. Huntley, and he stated that this was an oversight by the city, and it has since been corrected.

While reviewing the pH data provided by the city, I noted that many of the data points were different from what was being reported by the facility. I looked at the pH data provided by the city for years 2023 and 2024 for outfalls 002 and 003. I then compared it to the pH numbers that were reported by MSG.

Tables 2 and 3 illustrates the inconsistencies in pH data for outfalls 002 and 003 provided by the city compared to what was reported by MSG.

Table 2: Comparison of pH violations reported for Outfall 002 & 003 for 2023.

		pH 2023		
		Outfall 002		
	City		Facility	
1st Quarter	5.72/10.27		6.7/7.03	
2nd Quarter	1.71/10.52		6.2/7.7	
3rd Quarter	3.22/9.97		3.95/7.6	
4th Quarter	2.90/12.10		3.95/3.95	
		Outfall 003		
1st Quarter	5.72/10.27		6.13/7.03	
2nd Quarter	1.71/10.52		6.2/7.7	
3rd Quarter	3.22/9.97		6.3/7.8	
4th Quarter	2.90/12.10		6.63/6.63	

Table 3: Comparison of pH violations reported for Outfall 002 & 003 for 2024.

		2024		
		Outfall 002		
	City		Facility	
January	3.29/10.11			
February	5.44/11.59			
March	2.86/11.73		6.35/6.35	
April	5.83/9.68			
May	6.49/11.23			
June	6.44/9.48		5.83/11.23	
July	6.18/11.30			
		Outfall 003		
January	3.29/10.11			
February	4.88/12.13			
March	6.41/12.49		7.44/7.44	
April	3.41/8.89			
May	6.3/9.24			
June	6.28/8.50		3.41/9.24	
July	6.48/9.22			

Based on the review of the DMRs submitted, and the data provided by the city, the facility violated the effluent limits for pH in years 2021 – 2024. At the conclusion of the inspection, I issued a Notice of Preliminary Findings (NOPF #1) for the effluent violations noted during 2021 through 2024 (attachment 6).

Sample Results

The analytical results from the inspection were received on October 10, 2024, from the Region 7 STC laboratory. This data was not discussed during the exit interview. The analytical results for BOD, NFS, TKN, Ammonia, Oil and Grease, pH, and temperature of the samples I collected are presented in Table 4. See attachment 7 for the analytical data packet.

Table 4: Analytical Results for Effluent Samples Collected During Inspection

Parameter	(September 10) Sample # 2400367-01	(September 11) Sample# 2400368-01	(September 12) Sample # 2400369-01	Concentration Permit Limits
BOD5 (lbs/day)¹	Not Analyzed**	9,357 J ³	5,960 J ³	NA
NFS (lbs/day)	1,713	3,528	509	NA
Ammonia (lbs/day)	470	342	360	NA
TKN (lbs/day)	725	550	509	NA
Phosphorous (lbs/day)	303	153	230	NA
Nitrate +Nitrite – N (lbs/day)	0.65	0.53	0.45	NA
Total Nitrogen (lbs/day)	725	550	509	NA
Oil and Grease (lbs/day)	961	1,286	780	NA
Temperature (°C)²	29.1	23.6	20.1	N/A
pH²	7.22	6.64	6.98	5.5-9.5
Flow in MGD	0.644	0.600	0.581	N/A

**Due to shipping issues, BOD was not analyzed for Sample 2400367-01

¹mg/L = milligrams per liter.

²°C = degrees Celsius, pH is not to be averaged, pH was measured in the field.

³The quantitation is an estimate (J-coded) due to the dilution water quality check exceeding the quality limit of 0.20 mg/L. The actual concentration for this analyte may be higher than the reported value.

Based on the sampling data, the facility did not violate the effluent limits set forth in the NPP permit during the inspection, however the sample results did exceed the local agreement limits for BOD on September 11, 2024, and the TSS limits on September 10 and 11, 2024. The facility also exceeded the flow limits for all three days sampled as set in the local agreement.

Laboratory

MSG utilizes the City of Norfolk, Nebraska for all its regulatory analysis. Composite samples owned by the city are located at Outfalls 002 and 003. According to Mr. Robert Huntley, the

wastewater superintendent for the city, the city runs a composite sample of the MSG effluent seven days per week. The city analyzes each sample collected daily for Chemical Oxygen Demand (COD), TSS, Nitrogen, and pH. The city also analyzes one sample per week for BOD. The city utilizes a calculation of sixty percent of the daily COD to determine the daily BOD. During the inspection, the city provided me with copies of their monthly spreadsheets from 2021 through 2024. According to Mr. Lackey, the city collects the sample and splits it with the facility on a weekly basis. Mr. Lackey stated that they use a contract laboratory (Pace Analytical) for their spilt sampling. All sampling conducted by the City of Norfolk and Pace Analytical appears to be in accordance with the conditions of the permit. All sample analysis performed by the City of Norfolk and Pace Analytical appears to conform with the NPDES permit and Chapter 40 Part 136 of the Federal Code of Regulations.

Operational Issues and Observations

During the inspection, I observed the new equalization tank. Mr. Olfert stated that the tank was put into operation in mid-August. He stated that the basin has the capacity to hold 1 million gallons. He also stated that it has an automatic pH adjustment system that utilizes caustic soda and sulfuric acid to adjust the pH. During my observations, I noted that the aeration system was not operating correctly at the time of the inspection. Mr. Olfert stated that it was a custom-made aeration system, and it appears that the north side of the system is not receiving air. Due to this, the basin was very turbulent on the south half of the basin. Mr. Olfert stated that they would have to work with the city for the excess flow as they release the contents of the basin to fix the aeration system.

During the inspection, I observed the new calamity tank and two new silos that are designed to hold what the facility termed “high strength waste”. Mr. Olfert stated that these tanks and silos were not in operation at the time of the inspection. Mr. Olfert explained what the “high strength waste” consisted of. He stated this was process wastewater from the facility’s first flush and washing of the equipment at the facility. The facility responded to the inspection on October 3, 2024, and stated the high strength waste was called “liquid reclaim product” (LRP) and is used as an animal feed supplement. The current NPP requires that “Solid wastes generated at the facility are subject to a hazardous waste determination pursuant to Title 128 -Nebraska Hazardous Waste Regulations, Chapter 4, 002. You must have Departmental approval prior to land applying any waste.” During the inspection, I asked if a hazardous waste determination on the LRP has been conducted. Mr. Lackey stated that they were waiting on sample results for LRP that has been stored in frack tanks or in totes on site. During the exit briefing, I issued a NOPF for not making a hazardous waste determination on the LRP (NOPF #3). MSG responded to the NOPF on October 3, 2024, and provided the determinations for the LRP stored and shipped off site.

Section III. Part E. 4. of the current NPP (attachment 3 page 6 of 33), requires that discharges to the POTW “not cause interference or process upset at the treatment facility including slug loads.” I had a discussion with Mr. Huntley on what he would consider a “slug load.” He stated

that he would consider any load over 15,000 lbs/day of BOD to be a “slug load.” I reviewed the city data and determined the MSG has “slug loaded” the facility on a regular basis from 2021-2024. Table 5 below represents the number of days that MSG has discharged a BOD loading of 15,000 lbs/day or higher from 2021 through 2024.

Table 5: Number of days MSG has discharged over 15,000lbs/day of BOD from 2021-2024

	BOD			
	2021	2022	2023	2024
	# of Days	# of Days	# of Days	# of Days
January	1	1	1	5
February	1	1	0	6
March	1	2	0	8
April	0	2	1	0
May	1	2	3	1
June	1	0	1	0
July	0	3	5	4
August	0	2	2	
September	2	0	3	
October	0	0	7	
November	0	0	3	
December	3	0	2	
Total	10	13	28	24

During the exit briefing with the facility, I issued a NOPF for the “slug loads” of BOD that MSG has discharged to the sanitary sewer system (NOPF #2).

Appendix A of the NPP requires that MSG notify the city and NDEE of any volume or loading changes occurs at the facility. During the inspection, I requested documentation that MSG had properly notified both the city and NDEE of the volume and loading changes that have occurred over the past several years. Mr. Olfert stated that there was not a formal notification of the changes to the volume or loading rates to the sanitary sewer system. During the exit briefing, I issued a NOPF to MSG for not properly or formally notifying the city or NDEE of all changes to volumes or loadings to the sanitary sewer system (NOPF #4).

As previously mentioned, MSG has entered into an agreement with the City of Norfolk to limit the loadings and flow from the facility to the sanitary sewer system. As noted in the agreement, BOD loadings are limited to 6,000 lbs/day, TSS is limited to 1,300 lbs/day, and flow is limited to 250,000 gallons per day. During the inspection, I reviewed data from 2023 and 2024 provided by the city and noted that BOD loading rates were exceeded on 172 of 285 days, TSS loading was exceeded 128 of 285 days, and flow was exceeded on 256 of 285 days reviewed. During the exit briefing, I issued a NOPF (NOPF #5) for the exceedances of the local city limits agreed to by MSG. After the completion of the inspection, I also reviewed data from 2021 and 2022 provided by the city and noted that BOD loadings rates were exceeded on 85 of 180 days, TSS was exceeded 43 of 180 days and flow was exceeded 178 of 178 days reviewed.

Summary

During the inspection, I issued a NOPF for the following reasons:

- Effluent violations for pH since 2021
- Slug loading the city of Norfolk WWTF
- Lack of documentation for hazardous waste determinations for the LRP
- Lack of documentation for notifying the city and NDEE of any changes to loadings or volumes to the WWTF.
- Exceedances to the BOD, TSS, and Flow limits set in the agreement between the city and MSG.

JOSEPH
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Nicole Moran
Section Supervisor

Attachments:

1. Digital Photographs with Photo Log (16 pages)
2. Facility Satellite Photos/Maps (1 page)
3. Nebraska Pretreatment Permit issued on July 1, 2013 (33 pages)
4. City Permit Issued on April 4, 2010 (1 page)
5. MSG discharge data provided by city (45 pages)
6. NOPF and facility response (5 pages)
7. Analytical Results for Activity JAH2423 (18 pages)