

DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: Scheduled Inspection

N208547366

FACILITY: Leprino Foods Co.		SRN / ID: N2085
LOCATION: 4700 RICH ST, ALLENDALE		DISTRICT: Grand Rapids
CITY: ALLENDALE		COUNTY: OTTAWA
CONTACT: Eric Schroeder, Engineering Manager		ACTIVITY DATE: 12/14/2018
STAFF: Tyler Salamasick	COMPLIANCE STATUS: Compliance	
SUBJECT: FY 2019 Unannounced inspection		SOURCE CLASS: MINOR
RESOLVED COMPLAINTS:		

*Clean Air Act Inspection report for Leprino Foods Company (Leprino), Allendale, Michigan*

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### ***Facility Background***

Leprino Foods Company is a cheese manufacturer. The facility specializes in the manufacturing of mozzarella with an emphasis on cheese production for the food service industry. In addition to cheese, Leprino produces dried whey product for use in animal feed.

Leprino is not subject to the Title V program, which is discussed below, in the regulatory analysis section of this report.

### ***Compliance History***

The facility has not received any violation notices from the AQD in the past five years. The facility was last inspected in Fiscal Year 2012 and was found to be in compliance with the applicable air quality rules and regulations at that time.

### ***Location***

Leprino Foods Company is located at 4700 Rich Street, Allendale, Michigan. This area is a primarily light industrial area with surrounding residential and rural areas. The nearest residential structure is approximately 430 feet to the south of the facility. There is dense residential property located approximately 1000 feet to both the west and south of the facility as well as some dense residential property located approximately 1800 feet to the north east of the facility.

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### ***Introduction and purpose of inspection***

On December 14, 2018 Tyler Salamasick, Environmental Quality Analyst of the Michigan Department of Environmental Quality, Air Quality Division conducted an unannounced, scheduled inspection of Leprino Foods Company. The MDEQ inspected the facility located at 4700 Rich Street, Allendale, Michigan.

The purpose of the inspection was to determine the facility's compliance with the requirements of the federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451); the Air Pollution Control Rules; and PTI Numbers 202-05, 1-04, 195-89A, 195-89 and 169-89. PTI 195-89 and PTI 195-89A are both active and this will be discussed in further detail below.

### ***Observations and facility processes***

AQD staff met with Eric Schroeder, Plant Engineering Manager, and Kevin Leitner, Plant Manager,

presented MDEQ photo identification and informed the representative of the intent of the inspection. The facility representative agreed to show the AQD the facility and its processes.

During the inspection AQD staff observed the facility's processes. The process begins at the receiving bay. Milk is brought in via tanker trucks. Upon arrival the milk is tested. Once the testing is complete the milk is pumped into a storage silo. The facility pasteurizes the milk with heat from the facility boilers. Once the milk is heated to the correct temperature it is cooled with a chiller. The chiller utilizes anhydrous ammonia refrigeration. Eric informed me that the facility has between 80,000 lbs and 85,000 lbs of anhydrous ammonia stored on site within vessels and throughout the anhydrous ammonia cooling system. This system is not permitted by the MDEQ AQD but is instead operated under a historic exemption excluding it from requiring an air permit.

The milk is centrifuged and separated into a cream and a standardized milk. The cream is stored and sold separately. The standardized milk is then sent to the separating tanks. Enzymes are added to the tanks and the milk is separated into curds and whey. The curd is in solid form and the whey is retained in the liquid. The facility separates the products with a filtering system.

The curds are dewatered and sent through a series of mixers and extruders. This process combines and folds the curds into a long, extruded blocks of mozzarella. During the inspection, this process was not being operated due to cleaning. The cheese is then conveyed into a cooling brine solution which brings the cheese to near freezing temperatures. The brine solution is cooled with the anhydrous ammonia refrigeration system.

Once cooled the cheese can be frozen and/or shredded and then packaged. The frozen cheese is stored in a large freezer, which is also cooled with the anhydrous ammonia refrigeration system. Eric mentioned that the freezer had recently been installed but did not require additional capacity to be added to the anhydrous ammonia refrigeration system. I indicated to Eric that the MDEQ recently updated the MDEQ 201 permit requirements to now only exempt anhydrous ammonia tanks under 500-gallon capacity (approximately 2850lbs at -28F). When Leprino originally installed the anhydrous ammonia system all refrigeration equipment was exempt from requiring a permit.

In addition to viewing the cheese processing line, Eric showed me the whey processing equipment. Whey is a common by-product of the cheese manufacturing process. The liquid whey is converted to a dry product prior to being sold. Drying the whey involves a three-step process. First the whey is concentrated. The facility uses the boilers to heat the liquid and drive off some moisture, resulting in a concentrated liquid. The moisture that is driven off is recondensed and used in the facility, not emitted into the ambient air. Next the liquid concentrate is sprayed through atomizers into a large heating chamber. This heating chamber uses natural gas to generate heat. The hot air flows concurrently with the concentrated whey liquid. As the hot air blends with the atomized whey liquid it drives off the moisture and allows the solid whey to drop out of the air. The evaporated moisture is emitted through a stack on the roof. Once the bulk of the moisture is driven off the whey powder settles out onto a filter. The powder is dried, and the whey is pneumatically conveyed to be stored into a silo where it can then be loaded into trucks for sale as animal grade feed additives.

While inspecting the whey production area we went to the roof and observed the emission points. The roof appeared to have a black material on it. It looked consistent with either soot or mold. By just observing it visually, I could not determine what it was or what had caused it. I also observed some white powder build up near an exhaust stack on the roof next to the main whey drying emission stack.

The stack was not vertically exhausted, but instead was “j” shaped pointing down toward the roof. I reviewed the facility records further after returning to the office and discovered that this exhaust point may have been identified in the original permit application for the whey dryer but was not included in the permit to install. In addition to the “j” stack I did observe some brown larger debris near the large whey exhaust stack, which Kevin indicated looked like caulk, though this could not be confirmed. I asked Kevin and Eric to evaluate the facility and determine where the “j” exhaust was coming from, and if there was malfunction leading to the emission of particulate material. If the “j” stack is associated with the whey dryer permit, it may need to be modified to emit vertically and unobstructed.

After viewing the roof, I inspected the boiler area and the large anhydrous ammonia tank storage area. The facility has three boilers, two of which have been retrofitted with low NOx (nitrous oxides) burners and one original boiler. The two retrofitted boilers are each permitted under individual general permits, as well as the original PTI 169-89. This permitting overlap will be discussed in the Regulatory Analysis section of the report.

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### ***Regulatory analysis and compliance evaluation***

#### ***Facility emission category***

Leprino Foods Company is a minor source of oxides of nitrogen (NOx), oxides of sulfur (SOx), carbon monoxide (CO) and particulate matter (PM). The facility is currently permitted under PTI Numbers 202-05, 1-04, 195-89A, 195-89 and 169-89.

PTI 169-89 covers the three existing boilers. Two of the existing boilers have retrofitted low NOx burners. The changes in the burners is reflected in PTI 202-05 and PTI 1-04. Leprino did not modify PTI 169-89 to reflect the modification of the burners. This technically means that the two modified boilers are covered by their individual general permit as well as the original three boiler permit PTI 169-89. I discussed this with the representatives at Leprino. PTI 169-89 should be voided once the final boiler is retrofitted to a low NOx burner and covered under its own separate permit. Until then, the original permit does not appear to share many duplicative requirements other than limiting the type of fuel used and general conditions. If Leprino chooses to clarify PTI No. 169-89, they could modify the permit to only include the existing, unmodified boiler. This would remove the two boilers already covered by the general permits and leave just the one boiler permitted by PTI 169-89.

The facility also has PTI 195-89 and PTI 195-89A. Normally when a PTI has a letter at the end of the permit number it indicates the new permit is a modification of an existing permit. It is also normal that once the new permit becomes effective the existing PTI is voided. Per procedure PTI 195-89 was voided upon issuance of 195-89A. This original permit was reinstated once it was discovered that PTI 195-89 and 195-89A did not cover the same equipment. The associated emission unit in 195-89 was not replace, but was instead added to, and the permit did not reflect this change. The permit application for 195-89A indicates that the facility was seeking to add to the existing dryer system, not replace it. As it is corrected, PTI 189-89A permits truck whey loading and PTI 189-89 permits the whey dryer system.

#### ***Federal Regulations***

There are three small industrial boilers on site. The boilers were permitted in April of 1989 and predate NSPS Subpart Dc (June 9, 1989). They are not subject to the regulation. Two of the boilers have low NOx burners (permitted in 2005 and 2004). The installation of the low NOx burners decreases NOx emissions and does not appear to meet the definition of a modification as defined by 40 CFR Part 60

Subpart A. The CFR defines a modification as ... “any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted.”

*Permits to install (PTIs)*

PTI 169-89

This permit covers the original installation of (3) three boilers, each with a capacity of 38 MMBtu. Two of the boilers were retrofitted with low NOx which increase their capacity to 41 MMBtu and decreased their NOx emissions. The original permit restricts the facility from substituting any fuel as described in the permit (natural gas). The permit also restricts the facility from having any visible emissions from the natural gas fired boilers. During my inspection, Eric informed me that the boilers only fire natural gas. This was consistent with my observations. While on the roof we observed boiler stacks and did not observe any visible emissions other than what appeared to be water vapor. Only one of the boilers was being operated at that time, so the visible emissions requirement was only observed for one boiler.

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PTI 1-04 and PTI 202-05

Each permit covers one low NOx burner modification to boilers permitted by PTI 169-89. The 1-04 and 202-05 permits are general permits for natural gas fired boilers with a capacity less than 100 MMBtu. Together they cover boilers one and two from the original permit 169-89. As discussed above, it is not common to have a single emission unit covered under two permits.

*Permit limits*

The following limits apply to both PTI 1-04 and PTI 202-05. The facility is only permitted to burn natural gas or propane in boiler 1 and boiler 2. As discussed above (under PTI 169-89) the facility only burns natural gas in the boilers.

*Emission-* The boilers are limited to not exceed 0.05 lbs of NOx per MMBtu. The boilers are rated to emit 0.0425 lbs of NOx per MMBtu.

*Material Usage Limit-* The facility is limited to 1,400 million standard cubic feet per 12 month rolling time period. The facility's highest reported 12 month rolling fuel usage in the past three years was 395.6 million standard cubic feet.

*Monitoring and record keeping-* The facility is required to monitor and record the boiler fuel usage on a daily basis. Eric later provided me with a daily record of fuel usage as well as a monthly and 12 month rolling total.

*Reporting-* Leprino was required to notify the MDEQ upon the commencement of construction of each boiler and the MDEQ has a record of the notification in the file.

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PTI 195-89

This permit covers the whey drying process. The whey dryer permit includes the one Damrow Company three stage spray drying system.

*Emission limits* – The particulate emissions from the whey dryer are limited to 0.017 lbs per 1,000

pounds of exhaust gas. The emission rate is based upon an existing stack test that was conducted in Wisconsin (see file). The testing indicated an emission rate of 5.5 lbs per hour which then is calculated to 0.017 lbs per 1000 lbs of exhaust gas. If the equipment were operated continuously the emissions would total 24.09 tons of particulate matter (PM) per year. The equipment has a 20% opacity limit which is used to ensure compliance with the emission rate. During the time of the inspection I observed the emission stack and did not detect any opacity.

*Design and equipment parameters-* The permit requires that the equipment uses a fabric filter system with an associated cyclone. The listed control equipment is an integrated system within the dryer. During the inspection I was unable to observe the interior of this equipment because it was in operation. These control devices are used to recover product therefore it is in the best interest of the company to ensure the whey is captured.

*Testing and sampling-* The permit states that verification of the emission rate may be required. The MDEQ does not appear to have a record of testing and may require a test be conducted in the future. Based upon opacity observations, the MDEQ is not currently requesting that Leprino verify the emission rate at this time.

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#### PTI 195-89A

This permit covers the truck whey loading process. The permit application originally referenced the above permit PTI 195-89 as being an addition. PTI 195-89A actually functions as a completely separate permit. The permit application implied that the equipment would be vented out of the side of the building. While inspecting the whey loading equipment we climbed to the top section of the whey loading silo. I observed a side vent at the top of the building, but it appeared to be designed to blow into the building, not out. The top of the silo had what appeared to be a fabric filter that exhausted inside. This process appears to emit inside, and not out, which was also apparent from the inside of the building. The walls, stairs and hand rails were all coated in a thick layer of sticky white powder, which was presumably dried whey powder. The permit requires the facility not emit particulate matter in excess of 0.2 lbs per hour nor 0.3 tons per year. If the equipment does not emit outside it would appear to not only meet this requirement, but also not be a source of air contaminants, therefore not subject to Rule 201 permitting requirements. Leprino should do an engineering analysis as well as review any modifications and confirm if the equipment has been modified to only emit indoors.

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#### *Discussion*

**Concerns:** During the inspection I indicated to both Eric and Kevin that they should further evaluate the “j” shaped exhaust on the top of the whey dryer building. It is possible that this stack is the stack originally discussed in the permit application. They should also check that the build up on the roof is not the result of a malfunction. It is possible that the build up observed is the accumulation of the permitted amount of air contaminants. Eric provided an emailed response indicating the “j” stack (or “candy cane stack”) is associated with the loading of whey powder and it passes through a filter prior to being emitted.

In addition to the “j” stack, Leprino should investigate to see if the original design of the whey loading operation has changed to vent the equipment indoors. The original permit application indicates that the equipment was vented externally through a side vent in the building. The side vent observed in that

section of the plant appeared to be designed to draw air into the building, not out. Eric also responded in an email indicating that this process is only emitted indoors and does not have an external vent connection. If the equipment is not a source of air contaminants, then the process might not be subject to Rule 201.

Finally, Leprino should consider modifying PTI 19-89 to convey the changes/repermitting of the boilers covered by PTI 1-04 and 202-05.

**Compliance statement:** It appears that Leprino is in compliance with the requirements of the federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451); the Air Pollution Control Rules; and PTIs 202-05, 1-04, 195-89A, 195-89 and 169-89

NAME 

DATE 1/7/19

SUPERVISOR 