

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

B561972354

FACILITY: KOREX CORP	SRN / ID: B5619
LOCATION: 50000 PONTIAC TRAIL, WIXOM	DISTRICT: Warren
CITY: WIXOM	COUNTY: OAKLAND
CONTACT: Collin Rankin , Quality Assurance Manager	ACTIVITY DATE: 06/20/2024
STAFF: Noshin Khan	COMPLIANCE STATUS: Non Compliance
SUBJECT: scheduled on-site inspection	SOURCE CLASS: SM OPT OUT
RESOLVED COMPLAINTS:	

On Thursday, June 20, 2024, I, Noshin Khan, Michigan Department of Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) staff, performed a scheduled, on-site inspection of Korex Corporation located at 50000 Pontiac Trail, Wixom, Michigan 48393 (SRN: B5619). The purpose of the inspection was to determine the facility's compliance status with the requirements of the federal Clean Air Act; Article II, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 Public Act 451, as amended (Act 451); the AQD administrative rules, and the conditions of Permit to Install (PTI) Number 539-96.

I arrived at the facility at 1PM and met with Collin Rankin, Quality Assurance Manager, to discuss the facility's operations. Collin also introduced me to Neelam Jagani, who he said will be taking over environmental compliance work for the site. Collin said that the facility typically operates Monday through Friday but also operates on weekends if demand requires it. Operating hours are 6AM-3AM-- the first shift is 6AM to 4:30PM and the second shift is 4:30AM to 3AM. There are about 106 full time employees and 30 part time employees.

Korex produces powder and liquid detergents that are formulated, packaged, and labeled as specified by the customer/brand. The detergents are produced through batch systems which draw raw materials from silos on the roof. According to Collin, these raw materials are largely salt, sodium sulfate, and soda ash. As raw material is conveyed through a system, surfactants and other components are added, and the product is processed through equipment including mixers and grinders. After all components are added, the product is dried in a fluid bed dryer before being conveyed to powder packing lines in the main building or liquid packing lines located in two other buildings.

Systems 1, 2, and 3 are batch production lines that feed into powder packing lines T, U, and V. The facility previously also operated powder packing line 4, for which a Rule 201 violation was issued for operation of a new emission unit without a permit. Korex had a pre-application meeting with AQD Permit Section staff but ultimately did not submit a complete permit application. Line 4 was decommissioned around November 2023. Because Line 4 is no longer capable of operation, I will request that this 201 violation be resolved. Packing lines 1, 2, 3, and 5 are liquid packing lines. Line 5 was constructed and tested in 2021 as a liquid packing line but was not operated afterwards. During the inspection Collin informed me that this line will begin operating soon. Since this line packs non-volatile liquid products, it is not expected to be a source of air pollutant emissions and does not require a permit.

System 1 is no longer operated and is not capable of operation. System 2 produces powdered dish washing detergent that exclusively feeds to packing line T. System 3 produces laundry detergent and other detergents that feed into packing lines U and V.

We began the facility walkthrough on the first floor of the main building ("Building 1"), where we observed the packaging lines for dry powder detergents. Manual palletizing is also done in this area and packed products are moved to the warehouse in the east building ("Building 2") for storage. During my inspection, System 2 and 3 and their associated packing lines were operating.

Next, we walked to the south building ("the annex"). Line 1 is located here and is a packing line for enzymatic dish gel. Collin said that the gel is made in Building 2 and carried in tankers to the annex for packing. Besides the liquid packing line I observed product storage here. Korex leases a portion of this building and the rest is occupied by Lynn Medical.

Next, we walked to Building 2. Here, powder detergent base from Building 1 is mixed with deionized water and other liquid components in mixing tanks and transferred to batch storage tanks. Liquid detergent is conveyed from these tanks into filling and packing lines. Collin showed me liquid product packing lines 2 and 3, which produce toilet bowl cleaner and glass cleaner, respectively. Line 3 was not operating, and Collin said it is down indefinitely. Line 4 was located in this building, and I observed that it was disassembled. Collin also pointed out Line 5 which has not begun operation. Besides the operation of lines 2, 3, and 5, the building is used for warehousing. Fragranced materials are also stored in this area, and I observed that all containers were tightly closed, and some were additionally wrapped in plastic.

From here, we walked to the control room. I observed the magnehelic pressure differential gauges for dust collectors that control particulate emissions from various parts of the process including material silos and the fluid bed dryers. Collin pointed out gauges associated with equipment for Systems 2 and 3. I observed that the readings on these gauges were within the marked bounds, which indicates that the bag filters for the dust collectors were operating properly.

We then stopped in the office of Bill Kleine, Plant Manager, to meet with Tori Patterson, Process and Manufacturing Engineer. Tori joined Korex recently and has put together a spreadsheet tracking preventative maintenance for various process equipment. I looked over the spreadsheet during the inspection and had Collin send me a copy afterwards.

Three existing boilers are located in Building 1, each with heat input rating of 3.5 MMBtu/hr, which are used to heat the fluid bed dryers. These boilers are included as part of the original potential to emit calculations in the AQD files for the permit, and NO_x and CO emission limits are included in the permit for the operation of these boilers. I discuss compliance with these emission limits in the permit compliance evaluation section.

The facility also has a cold cleaner located in the maintenance shop which has an air/vapor interface of less than 10 square feet. According to maintenance staff, the cold cleaner is rarely used and I observed that the lid is kept closed. The cold cleaner is exempt from permit requirements per Rule 281(2)(h).

Permit Compliance Evaluation

The records I received are available on the AQD shared drive at the following address: S:\Air Quality Division\STAFF\Noshin Khan\FY24\B5619 Korex Corporation.

PTI 539-96 Special Condition (S.C.) 1 lists particulate emission limits for various equipment including dust collectors limited to 0.01 lb particulate/1000 exhaust gases. However, according to Korex staff, many of the units listed no longer operate or exist at the facility. Staff have only maintained emissions calculations for any equipment associated with Systems 2 and 3. I have advised Korex staff that a permit modification to remove equipment no longer operating and having the permit updated to current operations would be appropriate. The AQD has not requested testing to verify emission rates from existing equipment.

Per S.C. 2, the particulate emissions from the facility shall not exceed 16.9 lbs per hour nor 56.8 tons per year based on a rolling 12-month sum. The emissions calculations provided by the facility assume that the facility dust collectors emit 0.01 lbs particulate per 1000 lbs of exhaust gas. I asked Collin about how these emission factors were determined and he said that the previous Quality Assurance Manager had prepared the calculations spreadsheet and determined the emissions factors, and that operating parameters at the plant haven't changed since then.

For Systems 2 and 3, the facility maintains 12-month rolling operating hours and 12-month rolling PM emissions in tons per year, calculated each month. The calculations indicate that from July 2023 through May 2024, the highest 12-month rolling particulate emissions were 0.516 tons as calculated in July and August 2023. This is below the limit of 56.8 tons.

Per S.C. 3, there shall be no visible emissions from the system. During my visit, I did not observe any visible emissions.

Per S.C. 6, the facility is required to monitor and record the pressure drop across all fabric filter collectors daily, keep readings on file for a period of at least two years, and make these records available to the AQD upon request. During the inspection, I observed that the facility maintains daily logs recording the pressure drop across all fabric filter collectors and maintains these records in the control room. The facility is in compliance with this requirement.

Per S.C. 8, the facility shall not operate all equipment for more than 560 hours per month based on a rolling 12-month average and records for hours of operation shall be kept on file for a period of at least 2 years. The facility currently maintains records of hours of runtime for both Systems 2 and 3. From July 2023 through May 2024, the highest 12-month average operating hours for System 2 was 154.4 hours as calculated in July 2023. The highest for System 3 was 198 hours as calculated in December 2023. This is below the limit.

Per S.C. 9, the facility is required to follow the maintenance program attached in the permit. As a result of the last few inspections, the facility received violations for not maintaining maintenance logs or implementing the maintenance schedule in their permit. According to Collin, general maintenance is performed weekly on Fridays and/or Saturdays and includes cleaning and greasing bearings and gears, and other maintenance activities as needed.

As discussed previously, Tori Patterson recently joined Korex and has begun organizing a maintenance schedule for equipment at the facility in a spreadsheet. The spreadsheet provided lists issues identified and scheduled maintenance for various equipment including mixers, hoppers, silos, and the fluid bed. It also notes the date of maintenance. However, it does not include daily, weekly, monthly, and annual inspections listed in the permit. During the inspection, Collin said that other maintenance listed in the permit schedule is logged by maintenance staff, but I did not receive records for these activities by the time I submitted this report. Therefore, I'm unable to verify that the facility is following the preventative maintenance program in the permit.

The facility continues to be in violation of S.C. 9 for not implementing the preventative maintenance program in the permit.

Per S.C. 10, the heater and boilers shall not exceed the following emission limits: for NO_x, 4.4 lb/hr, and 15.0 tpy based on a rolling 12-month sum; for CO, 1.2 lb/hr, and 4.0 tpy based on a rolling 12-month sum. The calculations provided seem to assume operation of the boilers 24 hours a day for 30 days a month. The facility is limited to operation of 560 hours a month, based on a 12-month rolling average, so the assumption made seems to be inaccurate. NO_x and CO emission factors of 100 lb/MMscf and 84 lb/MMscf, respectively, are noted but some calculations use 1.0 lb/MMscf and 8.4 lb/MMscf. Calculations have not been maintained for 2024. I was unable to verify compliance with this condition and the calculations should be corrected by the facility.

As discussed, the 3 existing boilers at the facility are rated at 3.5 MMBtu/hr. The facility's boilers may be subject to 40 CFR Part 63, Subpart JJJJJJ. Compliance with this rule was not evaluated since the AQD has not accepted delegation to implement or enforce the rule for area sources. Since the boilers are rated at less than 10 MMBtu/hr, they are not subject to NSPS Subpart Dc.

Based on my on-site inspection and records review, the facility is in violation of Special Conditions 9 and 10 of PTI 539-96 for inadequate NO_x and CO emissions calculations and not implementing the preventative maintenance schedule in the permit.

NAME 

DATE 08/13/2024

SUPERVISOR 