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

B167855308

FACILITY: GRAPHIC PACKAGING INTERNATIONAL LLC		**SRN / ID:** B1678
LOCATION: 1500 N. PITCHER ST., KALAMAZOO		**DISTRICT:** Kalamazoo
CITY: KALAMAZOO		**COUNTY:** KALAMAZOO
CONTACT: Donald Krug , EHS Manager - Mill		**ACTIVITY DATE:** 08/28/2020
STAFF: Monica Brothers	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Announced scheduled inspection		
RESOLVED COMPLAINTS:		

Staff, Monica Brothers and Rex Lane, arrived at the facility at about 8:15 am. Because this facility has had many odor complaints and confirmed Rule 901 violations in the past, we decided to assess odors in the area first before going inside the plant. Winds were out of the southwest at about 8 mph at that time. Rex brought with him the AQD Jerome H_2S monitor to take some samples both outside and inside the facility boundaries. We first went to the parking lot of the Fraternal Order of Police on Riverview Drive. We could smell some papermill odors at this location, but they were light and varied with the wind. Rex took an H_2S reading here, but none was detected by the monitor. We then drove north along Riverview Drive and stopped in the parking lot of the Kalamazoo Township Police Department. We again smelled papermill odors at this location, along with light odors from the Kalamazoo Wastewater Treatment Plant. We took another sample with the Jerome monitor here, but, again, none was detected. Our third and final stop was the Riverside Cemetery. We drove along the cemetery road that runs parallel and closest to Riverview Drive. Here we smelled stronger papermill odors, but still did not get any H_2S detected on the monitor.

We arrived at the facility at about 9:00 am and first met with Don Krug, the EHS Manager for the Mill. Don then took us to a conference room where we met with Greg France, Senior Manufacturing Manager, Andy Black, Operations Manager for the Kalamazoo Mill, Gregg Lanternier, Engineering Manager for the Kalamazoo Mill, and Tom Olstad, Resident Mill Manager. We briefly discussed what we wanted to see during the facility tour and explained that we would be using the Jerome monitor to take some H_2S samples around the various wastewater treatment equipment on-site. Don and Spencer Macko, the EHS Manager for the Carton Plant, had already sent me the required recordkeeping documents, electronically, prior to the facility walk-through that day, so no records were viewed on-site.

Graphic Packaging is a paper mill that makes a few thicknesses of paperboard for things like cereal boxes and tissue boxes. The facility also prints on, cuts, folds, and glues this paperboard to create final products. The facility is located in a populated area in downtown Kalamazoo, and this plays a major role in why there have been many odor complaints and violations in the recent past. The facility operates 24/7. Graphic Packaging began operations at this location in 2000, although this facility was active as a papermill before bought by GPI. They are currently operating under MI-ROP-B1678-2015. There are two sections to this ROP, the Mill Section, and the Carton Plant Section.

The facility recently received a new PTI to expand production, which included a new boiler and a new paper machine. Construction is currently underway, but the equipment in this PTI is not yet functional. There was one change to existing equipment under this new PTI, which was to eliminate the use of fuel oil in the boilers. The facility no longer burns fuel oil in their boilers and uses only natural gas. In 2019, AQD escalated enforcement against Graphic Packaging because of a number of unresolved odor violations. The enforcement case was then put on hold to allow the facility to conduct and odor study. The facility was still in the sampling period of the odor study at the time of this inspection.

Gregg Lanternier and Don Krug accompanied us on the facility tour. The first place we went during the tour was the clarifier and associated wastewater treatment equipment that Graphic Packaging uses to pre-treat water that they discharge to the city and to recycle in their plant processes. Gregg Lanternier was able to point out all of the nine locations where they took bag samples for the required odor study.

These locations were the following: downwind of the clarifier, the AES room, K3 paper machine dryer, K1 dry end near the coating area, B Lot by the junction box, North of Plant 10, stock prep by the news pulper, the sludge pile, and the drum filter outlet pipe.

We observed the sludge pile, which consists of the solids that are left over after dewatering with either the drum filter or screw press. The pile is hauled off-site to be landfilled once daily. Sometimes it is difficult for them to get someone to haul it away on Sundays, so the pile may sit longer in those cases. We took an H_2S sample downwind of the sludge pile, but the monitor indicated that no H_2S was present. Gregg told us that about 5/6 of the water they use is recycled, and about 1/5 is sent to the city after pre-treatment by Graphic Packaging. We took another H_2S sample with the Jerome monitor at the 54-inch intake to the city. The reading was 27 ppb at this location, which is the highest reading we got that day.

We took another sample downwind of the clarifier, and the monitor indicated 11ppb at this location. The facility uses a chemical called Redoxx 60 to mitigate odors at the wastewater treatment area. Gregg estimated that they use about 864 gallons/day. They add it to the pipe that leads to the clarifier, and they also add it to the screw press feed. The water that is in the clarifier is hot water, about 120°F. Retaining the heat from the process water and recycling it back into the plant for reuse saves energy by not having to heat as much virgin river water or water from the city. Gregg said that they also sometimes add biocide if they notice any bioactivity in the clarifier. The clarifier is approximately 100 feet in diameter.

Next, we went to the AES building. This is where the water goes after the clarifier. In this building there are three gravity filters that vent on the top of the building. We took an H_2S sample inside the building while standing next to one of the filters, and the reading was 15 ppb. Then we went to the sludge thickening room, which houses the screw press and drum filter used to dewater the sludge. There are no stacks at the top of this building, but it is ventilated with some fans. There was also an open garage door on the building at the time of the inspection. In the past, the pipe that goes from the drum filter and back out to the clarifier was a source of foul odors. However, we could not assess odors from this pipe at the time of the inspection because the drum filter was not operating. We took an H_2S reading outside the door to this building, and the monitor read 1ppb.

Next, we went to the junction box that is owned by the city but is located on Graphic Packaging property. This is where water from the clarifier is transferred to, on its way to the Kalamazoo Wastewater Treatment Plant. This has been a known odor source in the past. We took another H_2S sample downwind of the junction box and got a reading of 2ppb. The last H_2S sample we took was north of Plant 10, which is just outside of the stock prep area. The reading from the monitor was 1ppb.

After we finished looking at the clarifier and the wastewater treatment portion of the facility, we toured the rest of the plant processes. The following are summaries, by emission unit or flexible group in the facility's ROP, of the rest of the facility tour and associated recordkeeping.

<u>Source-Wide Conditions:</u> This covers the emissions for both the mill and carton plant combined. They have a limit of 9.9 TPY (12-month rolling) for individual HAPs, and 24.9 TPY (12-month rolling) for combined HAPs. This includes the emissions for the boilers and clean-up solvents. Their records show that they are consistently under these limits. Individual HAPs records for June 2020 showed emission of 4.3 TPY. Combined HAPs records for June 2020 showed emissions of 9.4 TPY.

<u>Section 1: Mill</u>

EUBOILER#7: Boiler 7 is a natural gas-only boiler with a heat input of 127 MMBTU/hr. Their ROP requires them to monitor and record their natural gas consumption rate for this boiler, for each calendar month. Records show that they are keeping these records. Boiler 7 was not operating at the time of the inspection.

EUBOILER#8: This boiler now fires only natural gas. Their new PTI #133-19 required

that they no longer use fuel oil. This boiler has a max heat input of 240 MMBTU/hr and has a CEMS that records NOx during the ozone season. Records showed that they were keeping track of the hours of operation and natural gas consumption rates per day and per calendar month. During the facility tour, Boiler 8 was running at about 112 klbs steam/hr, and the CEMS was reading 79.1 ppm for NOx.

EUBOILER#9: This boiler now fires only natural gas. Their new PTI #133-19 required that they no longer use fuel oil. It has a maximum heat input of 227 MMBTU/hr and has low NOx burners and flue gas recirculation. As required by their ROP, they are keeping track of hours of operation, hourly steam load, and the natural gas consumption rate for each calendar day and month. They are limited to NOx emission rates with natural gas of 0.06 lbs/MMBTU of heat input within a 24-hour averaging period, and their data showed that they were around 0.036 lbs/MMBTU for February 2020, which is within this limit. They are also limited to NOx emissions of 13.6 pph, and their records showed that they were consistently under this limit, with emissions around 4.8 pph. Total NOx emissions are limited to 69.3 TPY (12-month rolling) and records showed that the highest emissions within the past year were during last May 2020 with 17.5 TPY NOx emitted. Total SO_2 emissions are limited to 34.0 TPY (12-month rolling), and their records show that the highest emission rate within the past year was in May 2020 with 0.321 TPY being emitted. Total gaseous non-methane organics emissions, measured as methane, is limited to 0.025 lbs/MMBTUs heat input or 5.7 pph. Records showed that they were under these limits with emissions around 1.2 pph. During the facility tour, Boiler 9 was running at about 84 klbs steam/hr, and the CEMS was reading 22.14 ppm for NOx.

EUK1MACHINE: This is a paperboard machine that was installed in the 1990s and produces paper in three layers. It has an in-line coating process, uses six drying ovens to remove water, and is capable of producing 1000 tons of paper per day. They use both an air knife coater and a bar coater, and the starch prep/mix is controlled by a wet scrubber. Both K1 and K3 were operating during the facility tour.

Records showed that they are keeping track of lbs or tons of each VOC-containing material used per month. They are keeping track of their VOC emissions on a monthly and TPY (12-month rolling) basis. They are limited to 41.4 TPY, and their highest record in the past year was during May 2020, which showed they emitted 5.8 TPY VOC. This number includes their cleaning solvent usage. They are using a retention factor of 99.5% on the materials used on the wet end of the K1 paper machine. This affects both VOC and HAP emissions, including the calculations for Nalco 61720, Nalco 61755, and Nalco 1T60.

They are also keeping track of the lbs or tons of each formaldehyde, acrylonitrile, acrylamide, and acetaldehyde-containing materials they are using per month. Don said that they are not currently using any materials that have acrylonitrile or formaldehyde in them. They also have records of the acrylamide and acetaldehyde content in each material. They have a limit of 240 lbs/year of acrylamide. They are keeping monthly and yearly records, with the highest month in the past year being May 2020 with 1.01 lbs/year acrylamide. They have a limit of 39.8 lbs/day and 12,841.4 lbs/year (12-month rolling) for acetaldehyde, and May 2020 showed that they emitted 2,053.3 lbs/year (12-month rolling). The highest daily emissions for acetaldehyde in June 2020 were on June 10 with 10.65 lbs being emitted.

EUK3MACHINE: This is a paperboard machine that was installed in the 1950s and produces paper in eight layers. It has an in-line coating process, produces a third of what K1 can, and uses presses to remove water. The starch prep/mix used to vent uncontrolled outside, but about three years ago, they installed a scrubber to control emissions, like the one used on K1.

Records showed that they are keeping track of lbs or tons of each VOC-containing material used per month. They are keeping track of their VOC emissions on a monthly and TPY (12-month rolling) basis. They are limited to 20.8 TPY, and their 12-month rolling records for 2019 and 2020 showed that they emitted about 1.37 TPY VOC per month. This number includes their cleaning solvent usage. They are using a retention factor of 99% on the materials used on the wet end of the K3 paper machine. This affects both VOC and HAP emissions, including the calculations for Nalco 61720, Nalco 61755, and Nalco 1T60.

They are also keeping track of the lbs or tons of each formaldehyde, acrylonitrile, and acetaldehyde-containing materials they are using per month. Don said that they are not currently using any materials that have acrylonitrile or formaldehyde in them. They also have records of the acetaldehyde content in each material. They have a limit of 8.2 lbs/day and 2367.9 lbs/year (12-month rolling) for acetaldehyde. Records for June 2020 showed that the highest daily acetaldehyde emissions were on June 12th, with 1.87 lbs emitted. Records for 2019 and 2020 showed that the highest 12-month rolling emissions were in May 2020 with 557.3 lbs/year being emitted.

EUCONVERTDEPT: This is an off-line paperboard coater located in the converting department. Don emailed me records for the VOC emission rate of the coatings, which were under the 2.9 lbs/gallon, minus water, as applied limit. The coating with the highest VOC content was the 2886 B/B Maple Leaf Yellow, which has a VOC content of 2.1 lbs/gal. They are keeping track of the VOC and HAP contents for all coatings, inks, and reducers for this emission unit.

EU01GASTANK: Because this unit is considered an existing stationary gasoline dispensing facility at an area source of HAPs, it has a gasoline throughput limit of less than 10,000 gallons/month. Don emailed me throughput records for the unit, which showed only 1,247 gallons for all of 2018 and 459 gallons for 2019.

FGRULE290: This flexible group covers their ethylacetate emissions from EUCONVERTETHYLACETATE, and their PM emissions from EUMILLCYCLONES. They use the ethylacetate on a rag to wipe the excess wax off of the rolls. They purchase the ethylacetate in 55-gallon drums, and simply assume that they use one drum each month. This is a very conservative estimate and still keeps them under the 1000 lb/month limit. April 2018 was the last time they purchased two drums which made their usage 827.5 lbs/month. Their PM emissions from their cyclones show that they are under the 500 lbs/month limit. They emitted about 15.22 lbs PM each month in 2019 and 2020.

FGCOLDCLEANERS: They have one Safety Kleen unit in the stock-prep area that was installed in 1992. It is 6 ft^2 and is not heated or agitated. The solvent is 6.65 lbs/gal VOC. During the tour, the instructions were posted, and the lid was closed.

FG-RICE-MACT4Z: This is an existing fire pump with an hour meter. They are limited to 100 hours of operation per calendar year, with 50 of those hours allowed for non-

emergencies and testing. Their records show that they are under these limits. Don said that the only time this pump has operated is for maintenance and testing purposes. During the tour, the hour meter read 836.73 hours. Don said that they inspect the unit at least annually. This is when they perform preventative maintenance, such as oil and filter changes, and inspections of hoses, belts, air cleaner, etc.

Section 2: Carton Plant

After leaving the mill, we met with Spencer Macko, EHS Manager for the Carton Plant, and he walked us across the street to the Carton Plant. Spencer had already sent me records electronically prior to this walk-through, so no records were reviewed on-site. This portion of the facility prints a variety of paperboard products like tissue boxes, cereal boxes, and cake mix boxes. They were making Cheerios boxes during the inspection tour.

FGWEBPRESSES: There are now only five heat-set web-fed lithographic printing presses with in-line single roller coaters and video jet printers. Press #6 was physically removed in March of 2020, however, Spencer is still keeping records for the 12-month rolling calculations. The inks are cured with ultraviolet light and they are washed manually with a solvent. During the tour, the solvents and inks were kept in closed containers when not in use. The used rags with solvent also get placed into a closed container. Scrap pieces of trimmed paper are conveyed by ducts to balers and then sent back to the mill for reuse. They have a dust collector for this process that is vented internally and can be considered exempt under Rule 285(l)(vi)(B).

Their records show that they are keeping track of their usage rate and type of each VOC-containing material for each calendar month. The VOC content for each material is recorded and they are all under the ROP limits. The fountain solution itself has a limit of 5.0% by weight as applied. The fountain solution is shipped in a concentrated formulation with about 14.8% VOC by weight. However, they mix 5oz of this fountain solution per gallon of water, which reduces the VOC content, as applied, to below the 5.0% VOC limit. All of the inks have a non-volatile fraction of more than 60% by weight. They are keeping monthly and 12-month rolling records of their VOC emissions. They have combined limit for Presses 1,2, and 3 of 41.8 TPY 12MR, a combined limit of 26.0 TPY 12MR for Presses 4 and 5, and a limit of 13.5 TPY 12MR for Press 6. Their records show that they are under these limits. In July 2020, Presses 1,2, and 3 emitted 15.85 TPY 12MR, Presses 4 and 5 emitted 11.11 TPY 12MR, and Press 6 emitted 1.0 TPY 12MR.

FGRULE290: This flexible group encompasses Rule 290 emissions for all seven gluers (1-6 and 8), EUSILICONE and EUCARTON290ETHAC, which is their ethyl acetate usage. They are limited to 1000 lbs/month for each material. Records for EUCARTON290ETHAC show that their highest ethy acetate emissions in the past year were in August 2019, with 80 lbs being emitted that month. EUSILICONE is for the application of food-grade silicone to palletizer tables. Records for this emission unit show that they are consistently under the 1000 lb/month limit for VOC, Hexane Isomers (Petroleum Ether/Isohexane), and n-Hexane. The month with the highest emissions within the past year was in January 2020 with 398.67 lbs VOC emissions, 390.45 lbs Hexane Isomers emissions, and 27.95 lbs n-Hexane emissions. Records for the seven gluers showed that IPA emissions and acetone emissions were consistently far under the 1000 lb/month limit.

FGCOLDCLEANERS: There are five cold cleaners at the carton plant. They were all installed either in 1992 or 2007 and are all under 10ft^2 and not heated or agitated. They use either Hickory Ink Wash (5.44 lbs/gal VOC), or Zone Defense (6.66 lbs/gal VOC). The facility maintains the units themselves and stores the two solvents in solvent cabinets. The spent material gets hauled away by Univar. During the tour, the lids were closed when not in use, and the rules were posted. Spencer mentioned that they may be getting rid of two or three of the cold cleaners in the near future.

The facility seemed to be in compliance at the time of inspection.

NAME _____ DATE 9/29/2020 SUPERVISOR RIL 9/30/20