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

B007048294

FACILITY: Georgia-Pacific Corrugated LLC-Owosso Facility		**SRN / ID:** B0070
LOCATION: 465 S DELANEY RD, OWOSSO		**DISTRICT:** Lansing
CITY: OWOSSO		**COUNTY:** SHIAWASSEE
CONTACT: Jessica Masternak , EHS Manager		**ACTIVITY DATE:** 02/28/2019
STAFF: Julie Brunner	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MINOR
SUBJECT: Inspection to determine compliance with PTI 743-92B and exemption rules. Report located: S:\Air Quality Division\@District Facilities\B0070\Activity Reports\B0070 Georgia-Pacific Inspection 2-28-2019.docx		
RESOLVED COMPLAINTS:		

On February 28, 2019, I conducted an unannounced, scheduled inspection of Georgia-Pacific Corrugated (B0070) in Owosso. The last compliance inspection of Georgia-Pacific was on June 29, 2016.

Contacts:
Ms. Jessica Masternak, EHS Manager, 989-725-3057, jessica.masternak@gapac.com
Mr. Mark Humrich, Director of Operations, mark.humrich@gapac.com

Facility Description and Regulatory Overview:
This facility manufactures secondary packaging (corrugated cardboard boxes), primarily for the food industry. The facility is located on the west side of Owosso in an industrial park. The industrial park is surrounded by mixed use areas consisting of residential and commercial properties.

Georgia-Pacific Corrugated is a minor source of any regulated air contaminants including hazardous air pollutants (HAPs) and not subject to the Title V Renewable Operating Permit (ROP) program. Georgia-Pacific Corrugated has one (1) active permit, Permit to Install (PTI) Nos. 743-92B and a number of exempt processes.

PTI 743-92B is for a corn starch silo with baghouse, and a paper/cardboard baling operation with two cyclones. The emission units are defined as follows:

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)
EUSTARCHSILO	Storage silo for powdered corn starch. Emissions are controlled by a baghouse mounted to the top of the silo.
EUCYCLONES	Collection process for scrap material generated by the corrugated container manufacturing process. Scrap is collected by the main process cyclone (rated 52,800 cfm). During wax box production, the smaller wax cyclone (rated 35,200 cfm) is used instead.

Michigan Air Emissions Reporting System (MAERS):
The facility is required to report emission information to MAERS.

Inspection:
Arrived: 9:40 am
Weather: 23°F, wind ESE @ 2 mph, UV Index 1
Departed: 11:15 am

No visible emissions were observed from any of the facility exhaust stacks upon arrival. No odors were identified surrounding the facility.

A pre-inspection meeting was conducted with Ms. Jessica Masternak (EHS Manager) and Mr. Mark Humrich (Director of Operations). I gave a brief overview of the inspection process which was the purpose of my visit.

The facility operations were discussed. The facility operates three (3) shifts per day, generally 5 days per week, with 6 days per week at most. During fruit and vegetable seasons, they employ about 125 people and during seasonal layoffs when not producing produce boxes, they employ about 85 hourly people. The inspection was conducted out of season. The facility has no emergency generators.

A facility tour was then taken. The facility has food safety/PPE requirements. Hard hats, safety boots, and hearing protection are required. No jewelry may be worn, shirts tucked in, and hands must be washed before entering the production areas of the facility.

Corrugator Machine and Starch Kitchen:
The production process begins when industrial sized rolls of cardboard paper stock are fed into the corrugator, which makes flat sheets of corrugated board. Three (3) layers of cardboard are glued together using a starch-based glue. Steam-heated hot plates are used to help the boards form and dry. The boards are cut into large sheets, and are made into boxes. The process is operated as exempt under Rule 290.

Corrugator Machine (S:\Air Quality Division\@District Facilities\B0070\Site Pictures\B0070 Georgia-Pacific 2-28-2019\ B0070 Georgia-Pacific 2-28-2019 011.JPG)

Powdered corn starch is mixed in the starch kitchen to make the water-based glue for the corrugator process. The powder is mixed with water, caustic, and borax to make the liquid glue for the boxes. The starch kitchen includes an emulsifier mixer, and two (2) tanks to feed the corrugator. The process is fully enclosed.

Printing Operations and Box Making:
There are two (2) die-cut presses, and four (4) flexographic presses. The die-cut presses print and cut flat sheets that can be assembled into boxes. The flexographic presses print, fold and glue the corrugated material that can be assembled into boxes. The presses currently being operated are:

125 Diecutter 66 X 115 – 2 color, no box folding
126 Diecutter 66 X 125 – 5 color, no box folding, operating at the time of inspection
130 Flexo D/C 50 X 113 – 3 color, down for maintenance
132 Flexo D/C 38 X 97 – 3 color, hand fed, operating
134 Flexo D/C 37 X 97 – 1 color, operating
136 Flexo 50 X 113 – 2 color, down and not operating

The majority of the ink used is black, but colored (green, yellow, blue, red, brown, and white) ink is also used. The black ink comes in large totes, and is pumped directly to the presses from the tote. Color ink is received in 5 gallon pails, and is pumped directly from the 5 gallon pails to the presses. The ink is water-based with volatile components in the ink including 2-(dimethylamino) ethanol (CAS No. 108-01-0) or DMEA, petroleum distillates (CAS No. 64742-54-7), ethanolamine (CAS No. 141-43-5), isopropyl alcohol (CAS No. 67-63-0), and diethanolamine (CAS No. 111-42-2) according to the SDS (AG0090D GCMI 90 BLACK, Issue Date 25-Oct-2016). Diethanolamine (CAS No. 111-42-2) is a HAP. It is only 0.0001% by weight in the ink. The ink supplier provides a monthly VOC report which breaks down ink usage and VOC/HAP content. Currently, the only VOC listed on the monthly report is DMEA. It was confirmed that all VOC (not just DMEA) are accounted for in the monthly VOC report since the SDS indicates that there may be more than one VOC in the ink. The emission units are each operated as exempt under Rule 290.

Cascader Machine:
Some of the boxes are coated with wax. This protects the boxes from moisture if they are going to be used for carrying produce. This process is operated seasonally, so it was not operating during the inspection. The cascader is steam-heated at approximately 270°F, and wax is cascaded over the box in the warm environment. The cascade unit vents externally out the roof. The process is operated as exempt under Rule 290.

Process Steam Heat:
A 20.4 MMBtu/hr (500 hp) natural-gas fired Cleaver-Brooks boiler (Model CB1200500250, Serial No. 0L099699) was installed in 2014. This replaced a 13.8 MMBtu/hr natural gas and fuel oil-fired boiler. The manufacture date of the boiler is 2000. It is capable of combusting fuel oil, but there is no fuel oil capabilities installed onsite. The

boiler is vented out the roof and was operating at the time of inspection. A boiler operating log is posted on the side of the unit.

The boiler is exempt per Rule 282(2)(b)(i). It is subject to the New Source Performance standard (NSPS), 40 CFR 60, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. If natural gas is combusted in the boiler, then compliance with 40 CFR 60, Subpart Dc requirements is assured.

There is a Maximum Achievable Control Technology (MACT) standard, 40 CFR 63, Subpart JJJJJJ - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources that could apply to the boiler. The applicability is listed below:

§63.11195 Are any boilers not subject to this subpart?
The types of boilers listed in paragraphs (a) through (k) of this section are not subject to this subpart and to any requirements in this subpart....
(e) A gas-fired boiler as defined in this subpart.

§63.11237 What definitions apply to this subpart?
Gas-fired boiler includes any boiler that burns gaseous fuels not combined with any solid fuels and burns liquid fuel only during periods of gas curtailment, gas supply interruption, startups, or periodic testing on liquid fuel. Periodic testing of liquid fuel shall not exceed a combined total of 48 hours during any calendar year.

The boiler meets the definition of a gas-fired boiler, and is not subject to 40 CFR 63, Subpart JJJJJJ.

PTI 743-92B corn starch silo with baghouse, and baling operation with two cyclones:
The starch silo (EUSTARCHSILO) holds dry powder starch that is conveyed to the starch kitchen. A small fabric filter baghouse sits on top of the silo. The fabric filter baghouse is inspected on an annual basis, and bags are replaced as necessary. No white powder was on the pad. The process appears compliant with the permitted emission limits in Special Conditions (SC) I.1 and I.2, and the requirements to install, maintain, and operate the baghouse on the starch silo in SC IV.1. The starch silo is exhausted out of the small baghouse that sits on top of the silo. Stack/vent restrictions were not part of the original PTI (743-92) but were added with modifications to the PTI. The stack/vent appears to vent horizontally, but there are no restrictions on stack parameters in the permit. The requirement to discharge unobstructed vertically upwards does not apply and is an artifact of the PTI template language that did not get removed.

Starch Silo (S:\Air Quality Division\@District Facilities\B0070\Site Pictures\B0070 Georgia-Pacific 2-28-2019\ B0070 Georgia-Pacific 2-28-2019 001.JPG)

There are two balers to collect scrap cardboard from the printing and box making operations. The baled box and cardboard are sent offsite, for recycling. Pickups for scrap are located throughout the plant. The scrap is air conveyed to one of two cyclones located on the roof (EUCYCLONES). The southernmost cyclone is the larger of the two, and is used for boxboard, and the smaller cyclone is used for wax board. The scrap board is separated in the cyclone, and drops down the chute into the baler for binding.

Scrap Board Balers (S:\Air Quality Division\@District Facilities\B0070\Site Pictures\B0070 Georgia-Pacific 2-28-2019\ B0070 Georgia-Pacific 2-28-2019 021.JPG)

The process appears compliant with the permitted emission limits in SCs I.1, I.2, and I.3. This is based on proper maintenance, and visible emission observations per SC VI.2 that show no visible emissions have been observed from EUCYCLONES.

Per SC III.1 for EUCYCLONES, a MAP is required to be implemented and maintained. The MAP was submitted in January of 2016 to fulfill the permit requirement. An update to the MAP was submitted on June 1, 2017. Records of work orders per SC VI.4 for inspection and maintenance of EUCYCLONES also indicate compliance with SC III.1.

Records:

Records of the monthly and annual material usage and emissions recordkeeping for Rule 290 were obtained for the years 2017, 2018, and January 2019, and monthly VOC report for March 2019. A monthly VOC report is received from the ink supplier that breaks down ink usage and VOC/HAP emissions. The records are attached to the paper file copy.

Printing Operations and Box Making, Rule 290:
The only volatile compound in the records for the inks is DMEA which has two (2) health-screening numbers: ITSL = 220 $\mu g/m^3$ (8-hr) and ITSL = 5.2 $\mu g/m^3$ (annual). Since both health-screening numbers are greater than 2.0 $\mu g/m^3$, uncontrolled emissions may not exceed 1,000 lb/month. Updates to the Rule 290 analysis were requested because DMEA is not the only volatile in the inks. According to the monthly VOC report for the inks, total VOC content ranges from 0.12 to 0.16%. According to the SDS for black ink, the VOC content of the inks could be as high as 0.71% at worse-case.

The water-based glues used in the process contain corn starch (CAS No. 9005-25-8), sodium borate (CAS No. 1303-96-4), and sodium hydroxide (CAS No. 1310-73-2). Sodium hydroxide (CAS No. 1310-73-2) has a health-screening number of ITSL = 8 $\mu g/m^3$ (1-hr) and is probably the only volatile material in the process. Since the health-screening number is greater than 2.0 $\mu g/m^3$, uncontrolled emissions may not exceed 1,000 lb/month. A conservative assumption of 0.001 lb/lb of volatile material could be emitted from the glue.

For 2017, the usage of ink and glue for the printing operations and box making combined was used to conservatively estimate emissions by AQD staff as follows:
Average Volatile Emissions = (415,043 lbs x 0.0016 lb/lb) + (50,770 lbs x 0.001 lb/lb) = 715 lb/year
Max Potential Volatile Emissions = (415,043 lbs x 0.0071 lb/lb) + (50,770 lbs x 0.001 lb/lb) = 2,998 lb/year

For 2018, the usage of ink and glue for the printing operations and box making combined was used to conservatively estimate emissions by AQD staff as follows:
Average Volatile Emissions = (375,920 lbs x 0.0016 lb/lb) + (66,200 lbs x 0.001 lb/lb) = 668 lb/year
Max Potential Volatile Emissions = (375,920 lbs x 0.0071 lb/lb) + (66,200 lbs x 0.001 lb/lb) = 2,735 lb/year

Corrugator Machine, Rule 290:
If the same assumption is used that the water-based starch glues contain 0.001 lb/lb of volatile material, the following monthly emissions and annual emissions were estimated by AQD staff.

For 2017, the highest usage of glue was in February.
February Volatile Emissions = 15,000 lbs x 0.001 lb/lb = 15 lb/month
Annual Volatile Emissions = 115,335 lbs x 0.001 lb/lb = 115 lb/year

For 2018, the highest usage of glue was in July.
July Volatile Emissions = 13,358 lbs x 0.001 lb/lb = 13 lb/month
Annual Volatile Emissions = 120,558 lbs x 0.001 lb/lb = 120 lb/year

Cascader Machine, Rule 290:
The cascader machine uses a liquid paraffin wax. Paraffin wax fume (CAS No. 8002-74-2) has a health-screening number of ITSL = 20 $\mu g/m^3$ (8-hr). Since the health-screening number is greater than 2.0 $\mu g/m^3$, uncontrolled emissions may not exceed 1,000 lb/month. A conservative assumption of 0.0002 lb/lb of volatile material is assumed to be emitted from the application of paraffin wax. The following monthly emissions and annual emissions were estimated by AQD staff.

For 2017, the highest usage of wax was in August.
August Volatile Emissions = 552,434 lbs x 0.0002 lb/lb = 110 lb/month
Volatile Emissions = 3,135,089 lbs x 0.0002 lb/lb = 627 lb/year

For 2018, the highest usage of wax was in July.
July Volatile Emissions = 584,962 lbs x 0.0002 lb/lb = 117 lb/month
Volatile Emissions = 4,511,172 lbs x 0.0002 lb/lb = 902 lb/year

The processes that are operated as exempt per Rule 290 appear to be in compliance.

Summary:

The facility appeared to be in compliance with PTI 743-92B, and the applicable rules and regulations. Updates to the Rule 290 analysis for the printing operations are pending.

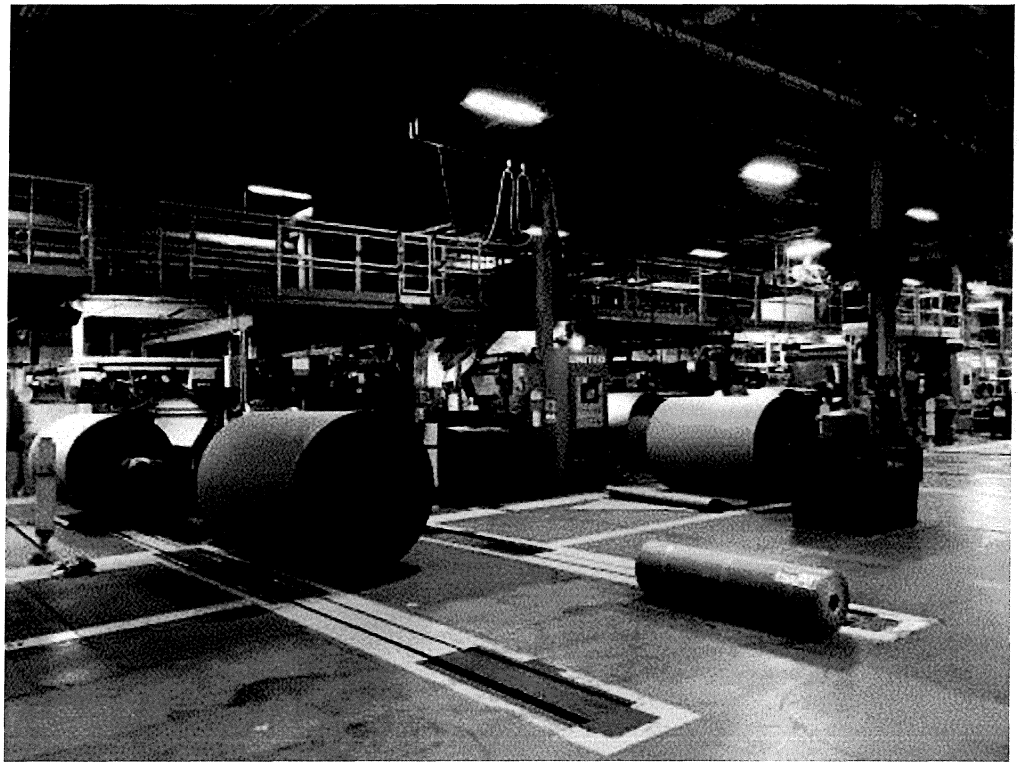

Image 1(11) : Corrugator Machine

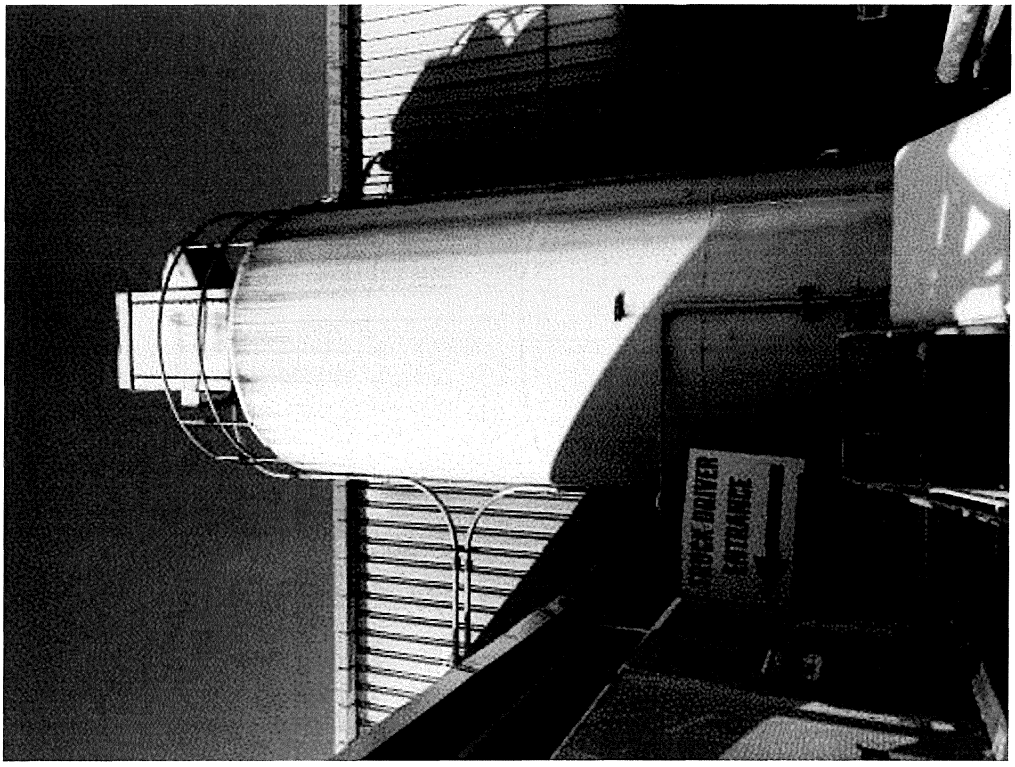

Image 2(1) : Starch silo

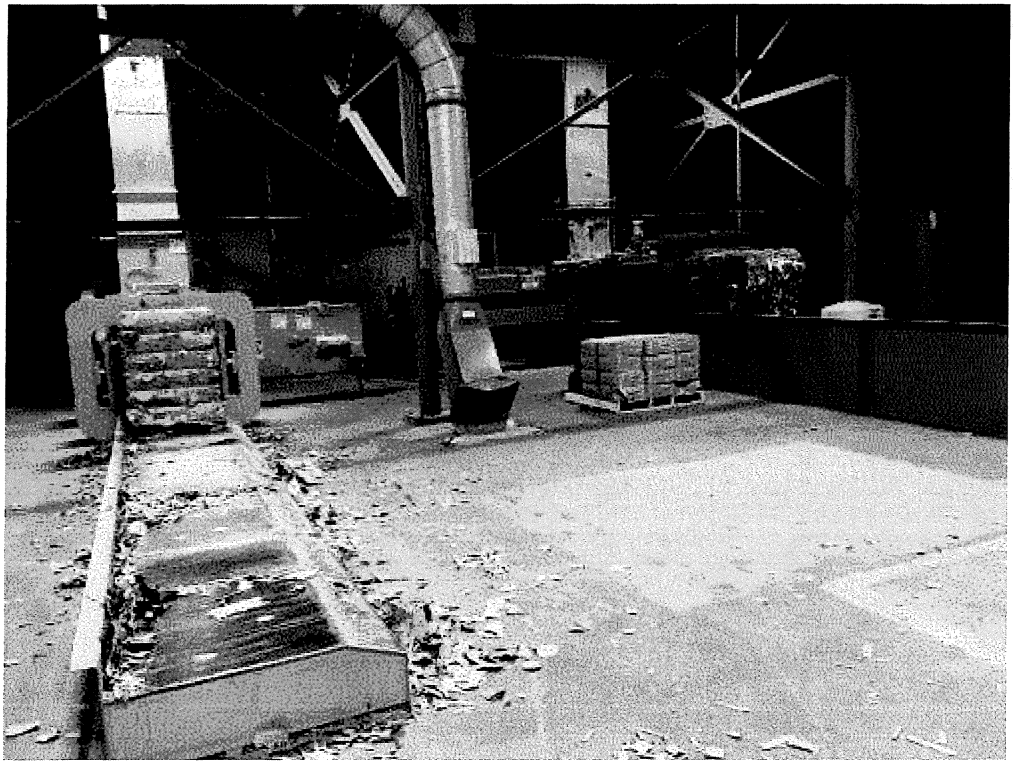

Image 3(21) : Scrap board balers

NAME Julie L. Brown DATE 4/9/19 SUPERVISOR B.M.