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

B369274534		
FACILITY: Packaging Corporation of America - Filer City Mill		SRN / ID: B3692
LOCATION: 2246 Udell St., FILER CITY		DISTRICT: Cadillac
CITY: FILER CITY		COUNTY: MANISTEE
CONTACT: Zebadiah Jones , Environmental Engineer		ACTIVITY DATE: 10/17/2024
STAFF: Lindsey Wells	<b>COMPLIANCE STATUS:</b> Compliance	SOURCE CLASS: MAJOR
SUBJECT: report of on-site inspection for FY25 FCE. Records review to be addressed in a separate report. No further action		
recommended at this time beyon	nd an additional visit when Copeland reactor is operation	ng -LW;
RESOLVED COMPLAINTS:		

On Thursday October 17, 2024, Lindsey Wells mobilized to the Packaging Corporation of America – Filer City Mill (will be referred to as PCA) located at 2246 Udell Street, Filer City, Manistee County, MI (postal zipcode 49634). The purpose of the site visit was to conduct an on-site walk-through inspection as part of a full compliance evaluation (FCE) for the 2025 fiscal year (FY).

The referenced facility is classified as a major source and is permitted under Renewable Operating Permit (ROP) number MI-ROP-B3692-2015b and permit to install (PTI) 209-18A. Staff met with Zeb Jones and Zoe Braun, environmental managers for PCA Filer City Mill.

**Summary**: No items of non-compliance were readily apparent during the on-site inspection on 10/17/24. Based on staff observations during the 10/17/24 on-site inspection, the facility operates in general conformance with permits MI-ROP-B3692-2015b and PTI 209-18A.

Records reviewed during the 10/17/24 on-site inspection will be addressed in this report. A separate report will be prepared for review of records requested on 11/12/2024.

Upon staff arrival to site conditions were 30F, no wind, and foggy. When staff departed from site in the afternoon, conditions were 60F with light winds from the west.

### **Process overview**

The PCA Filer City Mill is a semi-chemical pulp paper mill that produces corrugated medium, which is used as the inner layer in corrugated cardboard. The plant produces the corrugated medium from whole logs, which are debarked and then processed into chips which pass through scalping screens and are transferred to storage piles or storage silos. Purchased chips are also used along with recycled cardboard. Particulate Matter (PM) emissions from processing, conveying and transfer of the chips are controlled by cyclone dust collection systems. The chips are softened in digesters by cooking under high pressure steam using white and green liquors (fresh and recycled sodium carbonate solutions, respectively). After digestion, the chips are reduced into pulp (wood fibers) by mechanical action from defibrator machines. The pulp is then washed in (2) pulp washers (also called brown stock washers) and pumped to pulp storage tanks (stock chests, machine chests). After passing through the final refiners, the pulp is fed to the paper machines to produce corrugated medium. Recycled cardboard is processed separately through mechanical shredders and 2 parallel pulpers and screeners, prior to storage in the stock tanks.

### **Gaseous Emissions and Chemical Recycle**

Non-condensable gases (NCGs) from the pulping process are collected by the Low Volume High Concentration (LVHC) system which routes the gases to the facility's boilers for emissions control via thermal destruction. The remaining cooking liquid once the pulp fibers have been removed is called black liquor. Black liquor is passed through evaporator systems and after moisture evaporation becomes heavy black liquor. Heavy black liquor is burned through a fluidized bed reactor (called the Copeland reactor), to produce sodium carbonate pellets. The pellets are recycled into green liquor and used in the pulping process. Heavy black liquor is stored in dedicated tanks when the copeland reactor is in outage.

Exhaust gases from the Copeland reactor are controlled by cyclones, a venturi scrubber, and a Regenerative Thermal Oxidizer (RTO). A wet electrostatic precipitator (WESP) is located after the venturi scrubber and demister that control the PM emissions from the Copeland reactor. The WESP is located prior to the regenerative thermal oxidizer but only serves to protect the operation of this unit and not to demonstrate compliance with any emission limits.

### **Operational Changes**

Previously, polished wastewater from the paper machines, black liquor and other process waste streams could digested in the biogas system by anaerobic microorganisms which produced biogas that could be used as boiler fuel.

FGBIOGASSYSTEM was originally part of a trial project to explore chemical free pulping, and would have eliminated the need for a copeland reactor. This method of pulping did not advance past trials. As of July 2023, the facility is decommissioning the biogas system (see FGBIOGASSYSTEM for additional information). Those process wastes previously digested are now being routed through the copeland reactor and to the facility's on-site wastewater treatment plant (beginning with the primary clarifiers), as they were prior to the installation of the biogas system. The facility continues to recycle the water in the system until the organisms are sold, however the unit has not produced measurable biogas since July 2023.

In 2019, the facility made several major changes. Boilers 1 and 2 were retrofitted to only burn natural gas, NCGs, and biogas eliminating the need for the facility to use coal and/or oil as fuel. Boiler 4A is also capable of burning NCGs and biogas. A new boiler, Boiler 5, was also constructed. It is a fluidized bed solid fuel boiler capable of combusting wood, wood waste, primary clarifier residuals, paper recycling residuals, tire derived fuel (TDF), and natural gas.

Although still included in the current ROP, EUCOALHANDLING is not included in the ROP renewal package. The facility reports that the coal pulverizers and bunkers have been removed.

#### Sourcewide Items

#### Malfunction abatement plan (MAP)

Various emission units at the facility are required to be included in a malfunction abatement plan (MAP). The purpose of the MAP is to identify the persons, procedures, and equipment necessary to minimize emissions during equipment malfunctions. The plan also includes the normal operating range of the equipment and/or emissions control devices. The facility has a MAP on file. MAP records will be evaluated and addressed in the report of records review.

#### Periodic Reporting and Recordkeeping

As a Title V ROP facility, the permit requires semi-annual reporting of compliance with the permit, including any deviations from permit conditions. The facility is of record as having fulfilled the obligation to submit timely and complete reports. Evaluation at the emission unit level will be included in records review.

All permit required records are subject to a 5-year record retention requirement. The facility reports that their retention policy meets this requirement. Those records requested by staff on-site were readily available and conformed to the retention requirement.

#### Compliance Assurance Monitoring Rule (CAM Rule 40 CFR 64)

The CAM Rule applies to those emission units equipped with emissions control devices where pre-control emissions are greater than 100 tons per year. The CAM Rule requires a CAM plan that specifies the control device operating range intended to assure compliance with the applicable emission limit. Any excursions from this indicator range, exceedances of the emissions limit, and/or indicator downtime are reported on a semi-annual basis. The facility is of record as having fulfilled the obligation to submit timely and complete reports. Evaluation at the emission unit level will be included in records review.

#### **Process Walkthrough**

Upon arrival to the site staff met with Zeb (environmental manager), Zoe (air and solid waste), and Jackie (water) for a pre -inspection briefing to detail the purpose of the on-site inspection, provide an outline of activities for the day, and discuss general topics.

Other than the decommissioning of the biogas system, the facility reports no changes since the previous inspection on 6/7/23. All units are operating except the Copeland reactor and RTO, which operate concurrently and are in routine outage today.

Paper Machine rates in feet per minute were 1311, 2507, and 1450 for machines 1, 2, and 3 respectively. Note that by virtue of operating prior to 1967, they are considered grandfathered equipment and not subject to permit conditions.

Boilers 1, 4A, and 5 were producing 126, 93, and 148 klbs (1000 pounds) of steam respectively. Boiler 2 was in standby mode which is currently normal operation for Boiler 2. NCGs were being routed to Boiler 1 which is currently normal operation. Boiler 5 fuel rates were 14.24 tons per hour (tph) bark, 2.15 tph sludge (primary clarifier residuals), 0.95 tph tire derived fuel (tdf).

The facility reported no abnormal conditions during the 10/17/24 on-site inspection.

#### Wood Yard

After opening discussions, staff proceeded on a process walkdown beginning in the wood yard. At the time of the 10/17/24 inspection, PCA utilizes chips from primarily northern hardwood tree species in addition to recycled cardboard in the pulping process. Activities and equipment in the wood yard include log delivery and storage, log debarking, log chipping, chip storage, and the chip conveyor system. Wood chips are used in both the pulping process and as boiler fuel. Per the facility, not all of the chip silos are in use.

Beginning in the wood yard, both the pulp chip conveyor (EUWOODCHIPTRAN) and the fuel chip conveyor (EUSOLIDFUELTRAN) are housed in a single enclosure. Once inside the plant, the conveyors split into separate enclosures up to their material transfer points into the digesters for pulp chips (EUDIGESTERS) and the boiler 5 fuel storage bin for fuel chips (EUBOILER5).

# EUSOLIDFUELTRAN (209-18A) and EUWOODCHIPTRAN (ROP-2015b)

In addition to the fuel wood chips previously discussed, EUSOLIDFUELTRAN includes additional covered conveyors that transport tire derived fuel (stored at the end of the log yard), primary clarifier residuals fuel, and paper recycling residuals fuel streams. These are added to the wood waste conveyor prior to its entry into building 4 and prior to the fuel storage bin.

PTI 209-18A requires that EUSOLIDFUELTRAN be enclosed or covered. During the 10/17/24 on-site inspection, staff observed that EUSOLIDFUELTRAN is visibly enclosed and/or covered. The reporting requirement related to initial installation of EUSOLIDFUELTRAN has been previously reviewed.

Solid fuel and wood chip respective permit conditions require the facility to perform and document a non-certified visible emission observation once per operating week, including documentation of the cause of and corrective actions taken to eliminate any confirmed visible emissions. Records were readily available for review upon staff request and conformed to documentation and retention requirements. A sample record will be included in the file. Operators record yes or no for the presence of visible emissions. A comment section is available for causes/corrective actions. The records are date/time/EU stamped and a trend can be generated using the historian software. Staff reviewed both printed reports and historian trends for the evaluation period. Particulate matter (PM) emissions from EUWOODCHIPTRAN are limited to 0.10 pounds PM per thousand pounds exhaust gases (lb/1000lb). Compliance with the limit is demonstrated via the visible emissions observations detailed in the previous paragraph.

The ROP requires that the 5 cyclones associated with EUWOODCHIPTRAN be installed and operating properly when EUWOODCHIPTRAN is running. The facility identified the 5 cyclones as assigned to:

- Chip silo belt
- #5 chip bin
- #6 chip bin
- West silo
- Stackout cyclone

The operational configuration/normal operation schedule of these components will be clarified during the planned followup visit when EUCOPELAND+DISTTANK is operating.

# Pulping System, FGMACT SUBPART S

This flexible group includes those emission units that are subject to the MACT Subpart S rule, which establishes emissions standards for hazardous air pollutants (HAPs) from the pulp and paper industry (40 CFR 63 Subpart S).

The scope of this rule is all of the HAP emission points in the pulping system. The pulping system at PCA Filer City includes the chip digesters (EUDIGESTERS), the defibrator machines, EUWASHERS, the evaporators (EUEVAPLTV, EUEVAPFC), and the copeland reactor (EUCOPELAND+DISTTANK). Although EUWASHERS is not listed in the FGMACT SUBPART S flexible group, the permit requires emissions from EUWASHERS to be collected with an LVHC system that is controlled by one of the facility's gas boilers.

EUWASHERS is connected to the LVHC system. Emissions from the EUs in FGMACT SUBPART S components are routed to the low volume high concentration system (LVHC) as required. The collected LVHC gases are then fed into the flame zone of one of the facility's gas boilers for thermal destruction (Boilers 1, 4A, or 2). The brown stock washer is equipped with a gauge to measure the inches of vacuum between it and the LVHC. During the on-site inspection this was noted as reading 2.1" vacuum.

The permit also requires that each bypass line in the closed vent system be equipped either an electronic flow indicator and/or a valve seal such that the valve cannot be opened without breaking the seal, if the bypass line could divert HAP containing vent streams to the atmosphere without meeting the control device requirements.

Rupture disks equipped with electronic sensors are installed on the brown stock washer, blow tower condenser, long tube vertical evaporator, and boiler lines. Manual bypass valves are equipped with physical tags each of which is printed with a unique number. The presence of the tag and the tag number are recorded during monthly operator inspections to indicate if the valve has been opened.

Records of monthly visual inspections for the evaluation period were reviewed during the 10/17/24 on-site inspection. The records conformed to the requirement to include the date, equipment identification, visual inspections of ductwork, piping, enclosure openings and their closure mechanisms, connections, covers, bypass seals, detected leaks, and date of repair. The duration of bypass valves in the open position (this scenario is referred to as venting) is reported in semi-annual subpart S deviation reporting. Venting occurs when lines need to be evacuated for safety purposes prior to maintenance/repair or during malfunctions such as high pressure events that cause the rupture disks to open (as intended) and vent the gases in the line.

### **Facility Boilers**

The facility uses on-site boilers to generate steam which powers the paper machines at the plant. Other supporting equipment is steam powered also.

### Fuels

Boilers 1, 2, and 4A are capable of firing natural gas, non-condensable gases from the LVHC system, and or biogas (see above, FGBIOGASSSYSTEM is being decommissioned and facility tests indicate no biogas has been produced since summer 2023). Where present, the permit condition limits the sulfur content of the gas to no greater than 0.0006 lb/mmbtu based on a 12-month rolling time period. The facility utilizes supplier fuel receipts to show that the natural gas meets this limit as required by the permit. The facility tests the sulfur content of the biogas on an annual basis to demonstrate compliance for the biogas portion.

The permit requires installation of a device to monitor and record the daily fuel usage rate for each boiler on a continuous basis. The facility has an on-site digital metering station to monitor the fuel for each boiler. Per the facility, the meters are calibrated periodically.

### **Boiler Continuous Emissions Monitoring Systems (CEMS)**

The permits require Boilers 2 and 4A to be equipped with CEMS measuring nitrogen oxides (NOx) in lb/mmbtu, as each is subject to the gaseous fuel requirements of 40 CFR 60 Subpart Db. Boilers 2 and 4 were visibly equipped with the NOx parts per million (ppm) and O2 percent volume (%v) instrumentation required to continuously record lb/mmbtu NOx at the time of the 10/17/24 on-site inspection. The supporting equipment appeared to be operating in conformance with those controller setpoints that were visible within the cabinet, such as sample line temperatures and sample flow rates to the instruments.

We also visited the boiler control room and the following readings were noted from the operating screens. Boiler 2 was in standby mode (reported as not producing steam but the boiler drum remains pressurized) and reading 19.9% O2.

Boiler 4A was operating at 105 million british thermal units per hour (MMBTU/hr) heat input, producing 93klb of steam, 65.7 ppm NOx, 4.26% O2, 0.086 lb NOx/mmbtu, 9.1 lb NOx/hr.

The permits require Boiler 5 to be equipped with CEMS measuring NOx in lb/mmbtu and opacity in %, as it is subject to the solid fuel requirements of 40 CFR 60 Subpart Db. Boiler 5 is also equipped with CEMS measuring carbon monoxide (CO) in parts per molar volume dry (ppmvd) corrected to 3% oxygen (CO ppmvd @ 3% O2) as required by the Industrial Boiler MACT Rule (40 CFR 63 Subpart 5D). Boiler 5 was visibly equipped with the required monitors at the time of the onsite inspection. No alarms or issues were readily apparent for the instruments or supporting equipment.

Boiler 5 readings at the time of the on-site inspection were as follows. Steam production 148klb/hr, 77.8 ppm NOx, 7.42% O2, 12.5 ppm CO at stack O2, 16.6 ppmvd CO @3% O2, 0.1% opacity, 0.135 lb NOx/mmbtu, 22 lb NOx/hr, 2.1 lb/hr CO.

# Miscellaneous Equipment EUSODA-ASH

The soda ash silo is used to store bulk soda ash that once mixed with water becomes white liquor for the pulping process. The facility reports that it is filled by truck a few times per week, based on production needs. At the time of the 10/17/24 on-site inspection, EUSODA-ASH was not operating due to the copeland reactor being in scheduled outage. Emissions from EUSODA-ASH are controlled by a baghouse. Proper operation includes maintaining the pressure drop across the

baghouse within the range specified in the malfunction abatement (MAP) and compliance assurance monitoring (CAM) plans, which will be addressed in the report of records review.

# EUPELLET

The sodium carbonate pellet storage silo is used to store pellets recovered from the copeland reactor (EUCOPELAND+DISTTANK). It is equipped with a baghouse for PM emissions control. Proper operation includes maintaining the pressure drop across the baghouse within the range specified in the MAP, which will be addressed in the report of records review.

## EUFLYASH

EUFLYASH is a fly ash storage silo equipped with a baghouse for particulate emissions (PM) control. Proper operation includes maintaining the pressure drop across the baghouse within the range specified in the malfunction abatement (MAP) and compliance assurance monitoring (CAM) plans, which will be addressed in the report of records review.

# EUSANDSILO

EUSANDSILO is used to store sand utilized in EUBOILER5, which is a bubbling fluidized bed (of sand) boiler. Per the facility, sufficient sand is obtained from the incoming logs that the facility plans to stop purchasing sand. Details on the facility's plans for storage of reclaimed sand will be included in the follow-up report.

Emissions from EUSANDSILO are limited to 0.10 lb/1000lbs. EUSANDSILO can only operate when the associated installed baghouse is operating properly. PTI 209-18A requires the facility to perform and document a non-certified visible emission observation when EUSANDSILO is being filled, including documentation of the cause of and corrective actions taken to eliminate any confirmed visible emissions. Records were readily available for review upon staff request and conformed to documentation and retention requirements. Because EUSANDSILO is filled so infrequently, the facility maintains hardcopy logs for these records.

### FGRICE

This ROP flexible group includes EURICE 12994 and EURICE 12974. Each is listed as a compression ignition (CI) engine.

EURICE12974 is the facility fire pump and supplies water in the event of a power outage. It is a Cummins fire pump. The following information was included on the tag affixed to the unit. Engine Serial Number 44902146, Rated HP 208 at 2100 RPM, Date of Mfg 19930803. The hour meter read 926 hours at the time of the 10/17/24 on-site inspection. Operation and maintenance logs were readily available for viewing upon staff request.

EURICE12994 is reported to power the facility's lift station in the event of a power outage. The facility utilizes a hardcopy operation/maintenance log. The operating hours at the time of the 10/17/24 on-site inspection were noted as 338 hours.

Also observed at the time of the 10/17/24 on-site inspection was engine #12716, reported to power the pump that transports clarifier effluent liquids to the on-site wastewater treatment plant in the event of a power outage. The facility reports that appropriate notification was submitted to the district for this emission unit. This will be further evaluated and addressed in the records review report. The following information was included on the tag affixed to the unit. CAT SR4, Model 3406B D1, serial number 4RG01233. The hour meter read 729 hours at the time of the 10/17/24 on-site inspection.

Equipment not addressed in this report will be addressed in the records review report.

Based on staff observations during the 10/17/24 on-site inspection, the facility operates in general conformance with MI-ROP-B3692-2015b and PTI 209-18A.

### Additional Information on terms used in this report:

40 CFR: Title 40 of the Code of Federal Regulations (Protection of Environment, Air Programs); see https://www.ecfr.gov/current/title-40

NSPS: New Source Performance Standards; see Part 60 for source category based standards: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60?toc=1

### NESHAP: National Emissions Standards for Hazardous Air Pollutants;

see Part 63 for source category based standards: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63

see part 61 for pollutant based standards: <u>https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-61?</u> toc=1 Title V, Renewable Operating Permits (ROP): https://www.epa.gov/title-v-operating-permits

NAME Lindseywells

<sub>DATE</sub> 12-2-24

SUPERVISOR No Xon