Packaging Corporation of America (PCA)

# Compliance Assurance Monitoring Plans

Renewable Operating Permit – Renewable Application

Filer City
Revised: 4-27-2022

# Introduction

Packaging Corporation of America (PCA) Filer City Mill is subject to the EPA 40 CFR Part 64 Compliance Assurance Monitoring rules to create and maintain a source-wide Compliance Assurance Monitoring Plan approved by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) District Supervisor. This plan will outline all the onsite major sources along with a high-level description, a list of the regulations the sources are subject to, and the control devices installed on the sources..

The purpose of monitoring is to:

- document the operation of the control measures within ranges of the performance indicators (emissions, control device parameters, and process parameters)
- record any excursions from the established ranges
- provide guidance so that excursions can be corrected as soon as possible.

Below is a list of onsite sources that are subject to the facility's compliance assurance monitoring plan:

- Copeland Reactor (EUCOPELAND+DISTANK)
- Boiler 5 (EUBOILER5)
- Soda Ash Silo Baghouse (EUSODA-ASH)
- Fly Ash Silo Baghouse (EUFLYASH)

# PCA Filer City, Michigan Mill
# Copeland Reactor CAM Plan
# (EUCOPELAND+DISTANK) Particulate Matter (PM) Control

**A. Emissions Unit**

| | |
|---|---|
| Description: | The Copeland Reactor is a fluidized bed reactor used to recover sodium carbonate from spent pulping liquor (black liquor). The Copeland Reactor is equipped with two cyclones, a venturi scrubber, wet electrostatic precipitators (WESP), and regenerative thermal oxidizer (RTO). The venturi scrubber controls the PM emissions. The WESP serves as protective equipment to prevent fouling of the RTO ceramic saddle bed (where the RTO was installed to comply with VOC destruction requirements). |
| Identification: | EUCOPELAND+DISTANK |
| Facility: | Packaging Corporation of America (PCA) – Filer City, MI Mill |

**B. Applicable Regulations, Emission Limit, and Monitoring Requirements**

| | |
|---|---|
| Regulation No.: | R 336.1331(1)(a) |
| Emission Limits: | 0.20 lb PM/1000 lbs exhaust corrected to 50%excess air |
| Monitoring Requirements: | Monitor and record the differential pressure across the throat of the venturi scrubber at least onceevery 15 minutes. |

**C. Control Technology (Particulate Matter)**

- Venturi Scrubber

## II. MONITORING APPROACH

The key elements of the monitoring approach are presented below:

**A. Indicator**

The differential pressure across the venturi scrubber.

**B. Measurement Approach**

The differential pressure across the venturi scrubber is measured via a differential pressure transmitter.

**C. Indicator Range**

An excursion is defined as a one-hour average differential pressure across the venturi scrubber less than 38 inches w.c.

**D. Performance Criteria**

| | |
|---|---|
| Data Representativeness: | The differential pressure transmitter monitors the static pressures upstream and downstream of thescrubber's venturi throat. |
| Verification of Operational Status: | A differential pressure transmitter is currently installed, operated, and maintained. |
| QA/QC Practices and Criteria: | Annually and as needed, the instrument is cleaned, zeroed out, and calibration checked. |
| Monitoring Frequency and Data: | Measured |
| continuously.Collection Procedure: | Measured |
| continuously. | |

## III. JUSTIFICATION

### A. Background

The Copeland Reactor is equipped with a venturi scrubber to control PM emissions.

### B. Rationale for Selection of Performance Indicator

A differential pressure transmitter continuously monitors the venturi scrubber to indicate proper functioning of the scrubber and to assure compliance with the PM limit.

### C. Rationale for Selection of Indicator Level

Differential pressure readings within the range specified indicate that the venturi scrubber is properly functioning and effectively controlling emissions of PM.

# PCA Filer City, Michigan Mill
# Boiler No. 5 CAM Plan (EUBOILER5)
# Particulate Matter (PM) Control

## I. BACKGROUND

### A. Emissions Unit

Description: Boiler No. 5 has a maximum rated heat input of 302 MMBtu/hr. The boiler is permitted to burn wood and wood waste, primary clarifier residuals, tire derived fuel, and natural gas. The boiler operates a repurposed baghouse, previously servicing Boiler Nos. 1 and 2

Identification: EUBOILER5

Facility: PCA Filer City, Michigan Mill

### B. Applicable Regulations, Emission Limit, and Current Title V Monitoring Requirements

Regulation No.: 40 CFT Part 63, Subpart DDDD, Table 1, Item 9b; R 336.1331, Table 31; R 336.1205(1)(a)

Emission Limits:

| Limit | Pollutant | Operating Scenario |
|---|---|---|
| 9.80E-03 lb/MMBtu | Filterable PM | 3-Run Average |
| 0.5 lb/1000 lb exchaust gas | Filterable PM | Corrected to 50% excess air (during periods of firing wood, when the heat input of the wood is >75% of total heat input) |
| 8.06 lb/hr | Filterable and Condensable $PM_{10}$ | 24-hr Average |
| 21.10 tons/yr | Filterable and Condensable $PM_{10}$ | 12-month rolling average |
| 7.76 lb/hr | Filterable and Condensable $PM_{2.5}$ | 24-hr Average |
| 19.86 tons/yr | Filterable and Condensable $PM_{2.5}$ | 12-month rolling average |
| 20% | Opacity | 6-minute average, except one 6min period per hour of not more than 27% opacity |

Monitoring Requirements: Monitor and record pressure drop across the EUBOILER5 baghouse at least once a day when the unit is firing wood and wood waste, primary clarifier residuals, and/or tire derived fuel. Continuously monitor the stack opacity using Continuous Opacity Monitoring System (COMS)

installed to comply with 40 CFR Part 60, Subpart Db; 40 CFR Part 63, Subpart DDDDD; and R 336.1301(1) requirements.

**C. Control Technology**

Baghouse, Sonic Horns

## II. MONITORING APPROACH

The key elements of the monitoring approach are presented below:

**A. Indicator**

Readings from the Continuous Opacity Monitoring (COMS).
Pressure drop across the Boiler No. 5 baghouse

**B. Measurement Approach**

The COMS measures the opacity from the Boiler No. 5 exhaust.

Differential pressure gauge.

**C. Indicator Range**

Pressure drop should be greater than or equal to 0 inches water column and less than or equal to 11 inches water column.

Opacity daily block average should be less than 10%.

Opacity 6-minute average shall not exceed 20%, except for one 6-minute period per hour of not more than 27% opacity.

**D. Performance Criteria**

| | |
|---|---|
| Data Representativeness: | Pressure drop is measured as the difference in pressure between the inlet and outlet of the Boiler No. 5 baghouse. The COMS directly measures visible emissions in the stack. |
| Verification of Operation Status | Not applicable. Applies only to new or modified monitoring systems. The pressure differential gauge for the baghouse is an existing monitor and does not need to be modified. The Boiler No. 5 COMS has been verified in accordance with 40 CFR Part 60, Subpart Db and 40 CFR Part 63, Subpart DDDDD. |
| QA/QC Practices and Criteria: | The Boiler No. 5 COMS is operated and maintained in accordance with 40 CFR Part 60, Subpart Db and 40 CFR Part 63, Subpart DDDDD. |
| Monitoring Frequency and Data | Pressure drop across the baghouse is monitored and |

| | |
|---|---|
| Collection Procedure: | recorded daily while the boiler is firing wood or wood waste, primary clarifier residuals, and/or tire derived fuel. Readings are recorded and maintained on a log sheet. Opacity from the Boiler No. 5 stack is monitored continuously by the COMS. |

## III. JUSTIFICATION

### A. Background

Boiler No. 5 is equipped with one baghouse (DVBL5) to control emissions of particulate matter (PM) while firing wood and wood waste, primary clarifier residuals, and/or tire derived fuel. The baghouse is equipped with an ultrasonic pulse cleaning system.

### B. Rationale for Selection of Performance Indicator

Pressure drop across a baghouse is an indicator of the resistance to flow through the control device andthe effectiveness of the cleaning system. The baghouse is designed to operate within a certain pressuredrop range. Operation outside of that range is an indication that the baghouse is not performing as designed and may not be effectively removing particulate matter from the gas stream. A high pressure drop can indicate that the bags have become blinded, or the bag cleaning system or dust removal system is malfunctioning. A low pressure drop can indicate that the bags are being over-cleaned (the bags must be coated with some dust to clean effectively), there are holes or tears in one or more bags,that one or more bags have come loose, or that the pressure monitoring device is plugged.

Visible emissions below the opacity standard are an indicator that the baghouse is effectively removing particulate from the gas stream.

### C. Rationale for Selection of Indicator Level

The pressure drop indicator ranges selected for DVBL5 is based on a review of baghouse differentialpressure during particulate matter stack testing and engineering judgement from daily operations.

Visible emissions below the opacity standard are an indicator that the baghouse is effectively removing particulate from the gas stream. Continuous monitoring of opacity will provide the mill with real-time feedback as to the effectiveness of the baghouse.

# PCA Filer City, Michigan Mill
# Soda Ash Silo Baghouse CAM Plan (EUSODA-ASH)
# Particulate Matter (PM) Control

## IV. BACKGROUND

### A. Emissions Unit

| | |
|---|---|
| Description: | Soda ash silo and baghouse |
| Identification: | EUSODA-ASH |
| Facility: | PCA Filer City, Michigan Mill |

### B. Applicable Regulations, Emission Limit, and Current Title V Monitoring Requirements

| | |
|---|---|
| Regulation No.: | R 336.1331(1), R 336.1201 |
| Emission Limits: | 0.10 lb/1000 lb exhaust gas calculated on a dry basis |
| Monitoring Requirements: | The differential pressure across the baghouse shall be continuously monitored and recorded once per day. |

### C. Control Technology

Baghouse

## V. MONITORING APPROACH

The key elements of the monitoring approach are presented below:

### A. Indicator

Pressure drop across the baghouse and the absence of visible emissions.

### B. Measurement Approach

Differential pressure gauge

### C. Indicator Range

Pressure drop should be greater than or equal to 0.0 inches water column and less than or equal to 15 inches water column.

### D. Performance Criteria

| | |
|---|---|
| Data Representativeness: | Pressure drop is measured as the difference in pressure between the inlet and outlet of the baghouse. |

| | |
|---|---|
| Verification of Operational Status: | Not applicable. Applies only to new or modified monitoring systems. The pressure differential gauges for the soda-ash silo baghouse are existing monitors and do not need to be modified. |
| QA/QC Practices and Criteria: | Inspections of the baghouse are conducted and any problems are noted and corrected promptly. |
| Monitoring Frequency and Data Collection Procedure: | Pressure drop across the baghouse is monitored and recorded daily while the unit is operating. Readings are also recorded continuously in the process information system for real-time feedback. |

## VI. JUSTIFICATION

### A. Background

The soda-ash silo is used to store sodium carbonate (soda ash) utilized in the pulping process. The silo is equipped with a baghouseto control particulate matter (PM) emissions.

### B. Rationale for Selection of Performance Indicator

Pressure drop across a baghouse is an indicator of the resistance to flow through the control device and the effectiveness of the cleaning system. The baghouse is designed to operate within a certain pressure drop range. Operation outside of that range is an indication that the baghouse is not performing as designed and may not be effectively removing particulate matter from the gas stream. A high pressure drop can indicate that the bags have become blinded, or the bag cleaning system or dust removal system is malfunctioning. A low pressure drop can indicate that the bags are being over-cleaned (the bags must be coated with some dust to clean effectively), there are holes or tears in one or more bags, that one or more bags have come loose, or that the pressure monitoring device is plugged.

### C. Rationale for Selection of Indicator Level

The pressure drop indicator ranges selected for the baghouse are based on a review of the differential pressure at the baghouse during transfers.

# PCA Filer City, Michigan Mill
# Fly Ash Silo Baghouse CAM Plan (EUFLYASH)
# Particulate Matter (PM) Control

## I. BACKGROUND

### A. Emissions Unit

| | |
|---|---|
| Description: | The baghouse for the Fly Ash Silo (EUFLYASH) is subject to CAM. |
| Identification: | EUFLYASH |
| Facility: | PCA Filer City, Michigan Mill |

### B. Applicable Regulations, Emission Limit, and Current Title V Monitoring Requirements

| | |
|---|---|
| Regulation No.: | R 336.1331(1), R 336.1201 |
| Emission Limits: | 0.10 lb/1000 lb exhaust gas calculated on a dry basis |
| Monitoring Requirements: | Monitor and record pressure drop across baghouse once per day when the fly ash silo is operating. |

### C. Control Technology

Baghouse

## II. MONITORING APPROACH

The key elements of the monitoring approach are presented below:

### A. Indicator

Pressure drop across the baghouse and the absence of visible emissions.

### B. Measurement Approach

Differential pressure gauges.

### C. Indicator Range

Pressure drop should be greater than 0 inches water column and less than or equal to 6.0 inches water column.

### D. Performance Criteria

| | |
|---|---|
| Data Representativeness: | Pressure drop is measured as the difference in pressure between the inlet and outlet of the baghouse. |
| Verification of Operational Status: | Not applicable. Applies only to new or modified monitoring systems. The pressure differential gauge for the fly ash silo baghouse is an existing monitor and does not need to be modified. |

| | |
|---|---|
| QA/QC Practices and Criteria: | Calibrate, maintain, and operate equipment and instrumentation in accordance with manufacturer's specifications. Inspections of the baghouse are conducted and any problems are noted and corrected promptly. |
| Monitoring Frequency and Data Collection Procedure: | Pressure drop across the baghouse is monitored and recorded daily while the unit is operating. Readings are recorded and maintained on a log sheet. |

## III. JUSTIFICATION

### A. Background

The fly ash silo is used to store fly ash collected from the boilers. The silo is equipped with a baghouse to control particulate matter (PM) emissions.

### B. Rationale for Selection of Performance Indicator

Pressure drop across a baghouse is an indicator of the resistance to flow through the control device and the effectiveness of the cleaning system. The baghouse is designed to operate within a certain pressure drop range. Operation outside of that range is an indication that the baghouse is not performing as designed and may not be effectively removing particulate matter from the gas stream. A high pressure drop can indicate that the bags have become blinded, or the bag cleaning system or dust removal system is malfunctioning. A low pressure drop can indicate that the bags are being over-cleaned (the bags must be coated with some dust to clean effectively), there are holes or tears in one or more bags, that one or more bags have come loose, or that the pressure monitoring device is plugged.

### C. Rationale for Selection of Indicator Level

The pressure drop indicator ranges selected for the baghouse are the manufacturer's recommendations to ensure effective particulate removal based on the design conditions for each filter.

Revision Log

| | |
|---|---|
| 4/27/2022 | Expanded EUBOILER5 baghouse differential pressure range to 0-11 in water column<br>Expanded EUFLYASH baghouse differential pressure range to 0-6 in water column<br>General review and editing corrections for typos and equipment descriptions |