Packaging Corporation of America

Malfunction Abatement Plan

Filer City Containerboard Mill

4-27-2022

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Overview of Requirements

The Packaging Corporation of America Filer City Mill is required under Michigan Rule 336.1911 "Malfunction Abatement Plans" and Renewable Operating Permit MI-ROP-B3692-2015b to implement and maintain a source-wide Malfunction Abatement Plan (MAP) approved by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) District Supervisor. If the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall revise the MAP within 45 days after such an event occurs. The revised plan shall include procedures for operating and maintaining the process equipment and add-on air pollution control device during similar malfunction events, and a program for corrective action for such events.

As defined in Michigan Rule 336.1113, a "malfunction" means any sudden, infrequent and not reasonable preventable failure of a source, process, process equipment, or air pollution control equipment to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operations are not malfunctions.

Requirements for each emission unit's malfunction abatement plan are summarized as:

- Emission unit name
- Pollution control equipment
- Supervision in charge of operation
- Supervision in charge of maintenance
- Items or conditions requiring inspection and frequency of inspection
- A list of major replacement parts
- A list of monitoring parameters and the range of the conditions
- A procedure for correcting malfunctions

Notification Procedures

When a malfunction or failure is observed for any of the reasons described in each control device section, the actions outlined below will be taken to alert an outside agency:

1. Verification of the value of the operating parameter.
2. Initial correction attempt.
3. Response to unsuccessful correction attempts.
4. Secondary correction attempt.
5. Repair and inspection.
6. Estimate time for safe process shutdown if necessary.
7. Report malfunction to Environmental Manager.
8. Report malfunction to EGLE following the requirements in MI-ROP-B3692-2015b.

Power Boiler #1 (EUBOILER1)

- Emission unit name
  - EUBOILER1
- Pollution control equipment
  - Low NOx Burners
- Supervision in charge of operation
  - Powerhouse Supervisor
  - Powerhouse Superintendent
- Supervision in charge of maintenance
  - Power/Recovery/Environmental Maintenance Supervisor
  - North End Maintenance Superintendent
- Items requiring inspection and frequency of inspection
  - Boiler MACT (Subpart DDDDD) Tune-up every 61 months
  - Mill-Wide shut-down, approximately every 18 months:
    - Check the general cleanliness and operation of the low NOx burners
    - Check the condition of the burners
    - Check the condition of the diffusers
    - Check calibration of gas flow meters
- Major replacement parts
  - Spare parts are maintained to ensure compliant operation
- Monitoring parameters and the range of the conditions
  - General
    - Burner is on and boiler is operating properly according to good general boiler operating practices
  - Boiler CEMS
    - Boiler CEMS are operated and maintained according to the CEMS QA/QC Program
    - Emissions are calculated daily. Daily boiler reports are evaluated by Mill Technical/Supervisor Staff
- Procedure for correcting malfunctions
  - Attempt initial correction without reducing load to boiler if there is no risk to safety or environment
  - Contact operation and maintenance supervision to assist in troubleshooting
  - If needed reduce load on boiler and correct issues causing burners to malfunction

Power Boiler #2 (EUBOILER2)

- Emission unit name
  - EUBOILER2
- Pollution control equipment
  - Low NOx Burners
- Supervision in charge of operation
  - Powerhouse Supervisor
  - Powerhouse Superintendent
- Supervision in charge of maintenance
  - Power/Recovery/Environmental Maintenance Supervisor
  - North End Maintenance Superintendent
- Items requiring inspection and frequency of inspection
  - Boiler MACT (Subpart DDDDD) Tune-up every 13 months
  - Mill-Wide shut-down, approximately every 18 months:
    - Check the general cleanliness and operation of the low NOx burners
    - Check the condition of the burners
    - Check the condition of the diffusers
    - Check the calibration of gas flow meters
- Major replacement parts
  - Spare parts are maintained to ensure compliant operation
- Monitoring parameters and the range of the conditions
  - General
    - Burner is on and boiler is operating properly according to good general boiler operating practices
  - Boiler CEMS
    - Boiler CEMS are operated and maintained according to the CEMS QA/QC Program
    - Emissions are monitored continuously by boiler operators. Daily boiler reports are evaluated by Mill Technical/Supervisor Staff
    - NO_x and O_2 CEMS daily drift check
      - 0-5%, calibration pass
      - 5-10%, bad calibration
      - >10%, failed calibration
- Procedure for correcting malfunctions
  - Attempt initial correction without reducing load to boiler if there is no risk to safety or environment
  - Contact operation and maintenance supervision to assist in troubleshooting
  - If needed reduce load on boiler and correct issues causing burners to malfunction

Power Boiler #4 (EUBOILER4A)

- Emission unit name
  - EUBOILER4A
- Pollution control equipment
  - Low NOx Burners
- Supervision in charge of operation
  - Powerhouse Supervisor
  - Powerhouse Superintendent
- Supervision in charge of maintenance
  - Power/Recovery/Environmental Maintenance Supervisor
  - North End Maintenance Superintendent
- Items requiring inspection and frequency of inspection
  - Boiler MACT (Subpart DDDDD) Tune-up every 61 months
  - Mill-Wide shut-down, approximately every 18 months:
    - Check the general cleanliness and operation of the low NOx burners
    - Check the condition of the burners
    - Check the condition of the diffusers
    - Check calibration of gas flow meters
- Major replacement parts
  - Spare parts are maintained to ensure compliant operation
- Monitoring parameters and the range of the conditions
  - General
    - Burner is on and boiler is operating properly according to good general boiler operating practices
  - Boiler CEMS
    - Boiler CEMS are operated and maintained according to the CEMS QA/QC Program
    - Emissions are monitored continuously by boiler operators. Daily boiler reports are evaluated by Mill Technical/Supervisor Staff
    - NO_x and O_2 CEMS daily drift check
      - 0-5%, calibration pass
      - 5-10%, bad calibration
      - >10%, failed calibration
        - Procedure for correcting malfunctions
  - Attempt initial correction without reducing load to boiler if there is no risk to safety or environment
  - Contact operation and maintenance supervision to assist in troubleshooting
  - If needed reduce load on boiler and correct issues causing burners to malfunction

Power Boiler #5 (EUBOILER5)

- Emission unit name
  - EUBOILER5
- Pollution control equipment
  - Baghouse to control particulates
- Supervision in charge of operation
  - Powerhouse Supervisor
  - Powerhouse Superintendent
- Supervision in charge of maintenance
  - Power/Recovery/Environmental Maintenance Supervisor
  - North End Maintenance Superintendent
- Items requiring inspection and frequency of inspection
  - Boiler MACT (Subpart DDDDD) Tune-up every 61 months
  - Mill-Wide shut-down, approximately every 18 months:
    - Check the general cleanliness and operation of the baghouse
    - Check the condition of the burners and diffusers
    - Check the condition of the solid fuel transport system
- Major replacement parts
  - Spare parts are maintained to ensure compliant operation
- Monitoring parameters and the range of the conditions
  - General
    - Burner is on and solid fuel is being fed to the boiler. Boiler is operating properly according to good general boiler operating practices
  - Baghouse differential pressure range: 0-11 inches H_2O
  - Boiler CEMS and COMS
    - Boiler CEMS and COMS are operated and maintained according to the CEMS and COMS QA/QC Program
    - Emissions and opacity are monitored continuously by boiler operators. Daily boiler reports are evaluated by Mill Technical/Supervisor Staff
    - Daily block average for opacity must be under 20%

Emission	Calibration Pass	Bad Calibration	Failed Calibration
O_2	<0-0.5%	0.5-1.0%	>1.0%
NO_X	<0-5%	5-10%	>10%
CO (low and high)	<0-5%	5-10%	>10%
Opacity	<0-2%	2-4%	>4%

- Procedure for correcting malfunctions
  - Attempt initial correction without reducing load or adjusting fuel blend to boiler if there is no risk to safety or environment
  - Contact operation and maintenance supervision to assist in troubleshooting
  - If needed reduce load on boiler or adjust fuel blend and correct issues causing burners to malfunction

Brown Stock Washer (EUWASHERS)

- Emission unit name
    - EUBOILER5
- Pollution control equipment
    - LVHC Collection System
    - One of the Following
        - Power Boiler #1
        - Power Boiler #2
        - Power Boiler #4
- Supervision in charge of operation
    - Powerhouse Supervisor
    - Wood Yard Supervisor
    - Powerhouse Superintendent
    - Pulp/Wood Yard Superintendent
- Supervision in charge of maintenance
    - Power/Recovery/Environmental Maintenance Supervisor
    - Pulp/Wood Yard Maintenance Supervisor
    - North End Maintenance Superintendent
- Items or conditions requiring inspection and frequency of inspection
    - Rupture Discs and Bypass Valves in the Closed Position
        - Monitored continuously according to the LVHC Inspection Plan
    - Destruction Device (Power Boiler #1, #2, or #4) available
        - Monitored continuously by operator
    - Monthly visual inspection for leaks
- Major replacement parts
    - Spare parts are maintained to ensure compliance operation
- Monitoring parameters and the range of the conditions
    - Rupture Discs and Bypass Valves are monitored continuously according to the LVHC Inspection Plan
- Procedure for correcting malfunctions
    - Attempt initial correction without reducing load/stopping equipment if there is no risk to safety or environment
    - Contact operation and maintenance supervision to assist in troubleshooting
    - If needed reduce/stop load and correct issues

Subpart S – Digesters, Recovery Evaporators (FGMACT SUBPART S)

- Emission unit name
    - FGMACT SUBPART S
        - EUEVAPFC
        - EUEVAPLTV
        - EUDIGESTORS
- Pollution control equipment
    - LVHC Collection System
    - One of the Following
        - Power Boiler #1
        - Power Boiler #2
        - Power Boiler #4
- Supervision in charge of operation
    - Powerhouse Supervisor
    - Wood Yard Supervisor
    - Powerhouse Superintendent
    - Pulp/Wood Yard Superintendent
- Supervision in charge of maintenance
    - Power/Recovery/Environmental Maintenance Supervisor
    - Pulp/Wood Yard Maintenance Supervisor
    - North End Maintenance Superintendent
- Items or conditions requiring inspection and frequency of inspection
    - Rupture Discs and Bypass Valves in the Closed Position
        - Monitored continuously according to the LVHC Inspection Plan
    - Destruction Device (Power Boiler #1, #2, or #4) available
        - Monitored continuously by operator
    - Monthly visual inspection for leaks
- Major replacement parts
    - Spare parts are maintained to ensure compliance operation
- Monitoring parameters and the range of the conditions
    - Rupture Discs and Bypass Valves are monitored continuously according to the LVHC Inspection Plan
- Procedure for correcting malfunctions
    - Attempt initial correction without reducing load/stopping equipment if there is no risk to safety or environment
    - Contact operation and maintenance supervision to assist in troubleshooting
    - If needed reduce/stop load and correct issues

Wood Chip Transport (EUWOODCHIPTRAN)

- Emission unit name
    - EUWOODCHIPTRAN
- Pollution control equipment
    - Cyclone
- Supervision in charge of operation
    - Wood Yard Supervisor
- Supervision in charge of maintenance
    - Pulp/Wood Yard Maintenance Supervisor
    - North End Maintenance Superintendent
- Items or conditions requiring inspection and frequency of inspection
    - non-certified visible emission observation at outlet of cyclone
- Major replacement parts
    - Spare parts are maintained to ensure compliance operation
- Monitoring parameters and the range of the conditions
    - Cyclone Emissions
        - No visible emissions
- Procedure for correcting malfunctions
    - Attempt initial correction without reducing load/stopping equipment if there is no risk to safety or environment
    - Contact operation and maintenance supervision to assist in troubleshooting
    - If needed reduce/stop load and correct issues
    - If visible emissions are observed, correct and document the problem within 2 hours
    - Re-perform visible emissions check
    - Repeat until no visible emissions are present

Copeland Reactor (EUCOPELAND+DISTANK)

- Emission unit name
  - EUCOPELAND+DISTANK
- Pollution control equipment
  - Venturi Scrubber
  - Mist Eliminator
  - Regenerative Thermal Oxidizer
- Supervision in charge of operation
  - Powerhouse Supervisor
  - Powerhouse Superintendent
- Supervision in charge of maintenance
  - Power/Recovery/Environmental Maintenance Supervisor
  - North End Maintenance Superintendent
- Items or conditions requiring inspection and frequency of inspection
  - During periods of shutdown:
    - Check the general cleanliness of control equipment
    - Change demisting pads if needed
    - Inspect and change RTO saddles if needed
- Major replacement parts
  - Spare parts are maintained to ensure compliant operation
- Monitoring parameters and the range of the conditions
  - Venturi Scrubber
    - Differential pressure is ≥ 38 inches of water when in operation
  - Mist Eliminator
    - Installed when in operation
  - Regenerative Thermal Oxidizer
    - 1-hour average temperature is greater than the most recent established performance test when in operation
    - 2020 test – 1689°F
- A procedure for correcting malfunctions
  - Attempt initial correction without reducing load/stopping equipment if there is no risk to safety or environment
  - Contact operation and maintenance supervision to assist in troubleshooting
  - If needed reduce/stop load and correct issues

Soda Ash Silo (EUSODA-ASH)

- Emission unit name
  - EUSODA-ASH
- Pollution control equipment
  - Baghouse
- Supervision in charge of operation
  - Pulp Mill Supervisor
  - Pulp/Wood Yard Superintendent
- Supervision in charge of maintenance
  - Pulp/Wood Yard Maintenance Supervisor
  - North End Maintenance Superintendent
- Items or conditions requiring inspection and frequency of inspection
  - The baghouse is installed and operating properly
    - Incorporated into Basic Care/Shift Inspections
  - A device for monitoring the differential pressure across the baghouse is installed and operating
    - Monitored continuously
- Major replacement parts
  - Spare parts are maintained to ensure compliance operation
- Monitoring parameters and the range of the conditions
  - Baghouse differential pressure range while in operation: 0-15 inches H_2O
- Procedure for correcting malfunctions
  - Attempt initial correction without reducing load/stopping equipment if there is no risk to safety or environment
  - Contact operation and maintenance supervision to assist in troubleshooting
  - If needed reduce/stop load and correct issues

Sand Silo (EUSANDSILO)

- Emission unit name
    - EUSANDSILO
- Pollution control equipment
    - Baghouse
- Supervision in charge of operation
    - Pulp Mill Supervisor
    - Pulp/Wood Yard Superintendent
- Supervision in charge of maintenance
    - Pulp/Wood Yard Maintenance Supervisor
    - North End Maintenance Superintendent
- Items or conditions requiring inspection and frequency of inspection
    - The baghouse is installed and operating properly
        - Incorporated into Basic Care/Shift Inspections
        - Non-certified visible emission observation during filling of the silo
- Major replacement parts
    - Spare parts are maintained to ensure compliance operation
- Monitoring parameters and the range of the conditions
    - No visible emissions
- Procedure for correcting malfunctions
    - Attempt initial correction without reducing load/stopping equipment if there is no risk to safety or environment
    - Contact operation and maintenance supervision to assist in troubleshooting
    - If needed reduce/stop load and correct issues
    - If visible emissions are observed, correct and document the problem within 2 hours
    - Re-perform visible emissions check
    - Repeat until no visible emissions are present

Fly Ash Silo (EUFLYASH)

- Emission unit name
    - EUFLYASH
- Pollution control equipment
    - Baghouse
- Supervision in charge of operation
    - Powerhouse/Recovery Supervisor
    - Powerhouse/Recovery Superintendent
- Supervision in charge of maintenance
    - Power/Recovery/Environmental Maintenance Supervisor
    - North End Maintenance Superintendent
- Items or conditions requiring inspection and frequency of inspection
    - The baghouse is installed and operating properly
        - Incorporated into Basic Care/Shift Inspections
    - A device for monitoring the differential pressure across the baghouse is installed and operating
        - Monitored continuously
- Major replacement parts
    - Spare parts are maintained to ensure compliance operation
- Monitoring parameters and the range of the conditions
    - Baghouse differential pressure range: 0-6 inches H_2O
- Procedure for correcting malfunctions
    - Attempt initial correction without reducing load/stopping equipment if there is no risk to safety or environment
    - Contact operation and maintenance supervision to assist in troubleshooting
    - If needed reduce/stop load and correct issues

Copeland Reactor Pellet Silo (EUPELLET)

- Emission unit name
  - EUPELLET
- Pollution control equipment
  - Baghouse
- Supervision in charge of operation
  - Powerhouse/Recovery Supervisor
  - Powerhouse/Recovery Superintendent
- Supervision in charge of maintenance
  - Power/Recovery/Environmental Maintenance Supervisor
  - North End Maintenance Superintendent
- Items or conditions requiring inspection and frequency of inspection
  - The baghouse is installed and operating properly
    - Incorporated into Basic Care/Shift Inspections
  - A device for monitoring the differential pressure across the baghouse is installed and operating
    - Monitored continuously
- Major replacement parts
  - Spare parts are maintained to ensure compliance operation
- Monitoring parameters and the range of the conditions
  - Baghouse differential pressure range: 0-6 inches H_2O
- Procedure for correcting malfunctions
  - Attempt initial correction without reducing load/stopping equipment if there is no risk to safety or environment
  - Contact operation and maintenance supervision to assist in troubleshooting
  - If needed reduce/stop load and correct issues

Biogas (FGBIOGASSYSTEM)

- Emission unit name
  - FGBIOGASSYSTEM
    - EUBOILER1
    - EUBOILER2
    - EUBOILER4A
    - EUBIOGASSYSTEM
    - EUBIOGASFLARE
- Pollution control equipment
  - Any one of the following
    - EUBOILER1
    - EUBOILER2
    - EUOBOILER4A
    - EUBIOGASFLARE
- Supervision in charge of operation
  - Power/Recovery Supervisor
  - Power/Recovery Superintendent
- Supervision in charge of maintenance
  - Power/Recovery Maintenance Supervisor
  - North End Maintenance Superintendent
- Items or conditions requiring inspection and frequency of inspection
  - A destruction device is in operation when operating EUBIOGASSYSTEM
    - Basic Care/ Shift Inspections
    - Monitored continuously by operators
- Major replacement parts
  - Spare parts are maintained to ensure compliant operation
- Monitoring parameters and the range of the conditions
  - A destruction device is in operation
- Procedure for correcting malfunctions
  - Attempt initial correction without reducing load/stopping equipment if there is no risk to safety or environment
  - Contact operation and maintenance supervision to assist in troubleshooting
  - If needed reduce/stop load and correct issues

Revision Log

- 12-15-2020 Update RTO minimum operating temperature based on 2020 performance testing.
- 4-21-2021 Added Boiler 5 to the Plan
- 4-28-2022 Expanded EUBOILER5 baghouse differential pressure range to 0-11 in water column
  Expanded EUFLYASH baghouse differential pressure range to 0-6 in water column
  General review and editing corrections for typos and equipment descriptions