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ENGINEERING EVALUATION/FACT SHEET

B ACKGROUND INFORMATION

Application No.:	R13-0622A
Plant ID No.:	037-00007
Applicant:	Ox Paperboard LLC
Facility Name:	Halltown Paperboard Mill
Location:	Halltown
NAICS Code:	322130
Application Type:	Modification
Received Date:	July 31, 2015
Engineer Assigned:	Edward S. Andrews, P.E.
Fee Amount:	$3,500.00
Date Received:	July 31, 2015
Complete Date:	August 31, 2015
Due Date:	November 29, 2015
Applicant Ad Date:	August 5, 2015
Newspaper:	Spirt of Jefferson Advocate
UTM's:	Easting: 258.70 km Northing: 4,355.29 km Zone: 18
Description:	The application request is to limit the annual capacity of the boiler and install controls to meet the emission standards of Subpart JJJJJJ to Part 63.

DESCRIPTION OF PROCESS

The Ox Paperboard LLC (Ox) operates the Halltown Paperboard Mill, which is located at 163 Eyster Road, in Halltown, WV. The mill manufactures recycled paperboard products from recovered papers. To support the manufacturing operations at the mill, an industrial boiler is used to generate steam energy to support the mill operations.

This boiler is a coal fired unit that is designed to generate 80,000 pounds of steam per hour. To meet this steam demand, the unit has a maximum design heat input of 112 MMBtu/hr. This particular boiler was manufactured in 1984 and installed in 1985.

The mill's current demand for steam has been averaging 15,000 pounds per hour with peak demands at 30,000 pounds per hour.

This application is not seeking a physical modification, instead, Ox is requesting a federally enforceable limit for the hazardous air pollutants (HAPs) being emitted from the mill to below 25 tons per year with no single HAP being greater than 10 tons. This boiler at the facility is the single source of HAPs from the mill. To limit these emissions of HAPs below these major source threshold levels, Ox has proposed to limit the boiler's annual capacity to 40%, which would reduce the potential of 44.48 tpy of HAPs to 22.28 tpy. The sorbent system will be injecting lime as the sorbent for HCl control and activated carbon for the mercury control. However, the facility's potential is nearly all hydrochloric acid (HCl).

Thus, Ox proposes to install a dry absorbent injection (DSI) system with a new fabric filter (FF) control device. This system is projected to remove nearly 76% of the HCl and 61% of the mercury generated from the combustion of the coal in the boiler.

SITE INSPECTION

On May 7, 2014, Mr. Joseph Kreger, an inspector assigned to the Eastern Panhandle Regional Office, conducted a regular compliance inspection of Halltown Paperboard Mill. During this inspection, Mr. Kreger concluded that the facility was operating in compliance with all applicable rules and regulations. Thus, no site inspection of the facility was required for this review.

ESTIMATE OF EMISSION BY REVIEWING ENGINEER

The applicant supplied emissions estimates for the auxiliary boiler. The proposed annual emissions from the boiler are based on a 40% heat input capacity limit, which equates to a fuel usage rate of 15,000 tons of coal annually. The emissions listed in the following tables are estimates using the emission factors from AP-42, Chapter 1.3:

Table #1 – Boiler Emissions

Pollutant	Hourly Rate (lb/hr)	Annual Rate @ 40% Capacity (TPY)
Particulate Matter (PM)	6.83	11.89
Particulate Matter Less Than 10 microns (PM_{10})	5.01	8.72

Particulate Matter less than 2.5 microns ($PM_{2.5}$)	4.76	8.27
Sulfur Dioxide (SO_2)	277.78	484.50
Oxides of Nitrogen (NO_x)	47.30	82.50
Carbon Monoxide (CO)	21.50	37.50
Volatile Organic Compounds (VOCs)	0.22	0.38
Total Hazardous Air Pollutants (HAPs)	1.94	3.38
Hydrochloric Acid (HCl)*	1.26	2.20
Carbon Dioxide Equivalent (CO_2e)	23559.5	41,090.99

* - HCL is a HAP and is included with the Total HAPs.

REGULATORY APPLICABLILITY

The Halltown Paperboard Mill is classified as a major source under Rule 14 (Prevention of Significant Deterioration Program) and Rule 30 (Title V Operating Permit Program). In addition, the station is classified as a major source of hazardous air pollutants (HAPs). The company has proposed a restriction to fuel usage of 15,000 tons per year of coal coupled with the installation of controls (DSI with FF). These restrictions would limit the mill's potential to emit of HAPs below the major source threshold values as defined in 40 CFR Part 63.

This fuel restriction request is not classified as a major modification or physical change of operation under Rule 14 (45 CSR §14-2.40). The installation of the proposed controls would not increase any emissions that are classified as a New Source Review pollutant under 45 CSR 14. Thus, a PSD review is not required for this particular application.

The Industrial Boiler MACT for Major Sources was published in the Federal Register on January 31, 2013. Boilers and process heaters at major Sources of Hazardous Air Pollutants (HAPS) are affected by this regulation. The compliance date for this regulation is January 31, 2015. So, Ox can avoid complying with the requirements of this subpart if the following is met prior to January 31, 2016:

- The fuel restriction for boiler and proposed controls (DSI with FF) are in a federally enforcement document.
- The proposed controls are installed and in operation.

These changes will change the classification of the mill as an "area source" of HAPs. Subpart JJJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Source would be applicable to the boiler as an existing coal-fired boiler. Under 40 CFR §63.11201(a), an existing coal-fired boiler must meet the following emission standards:

- 2.2E-05 (0.000022) lb of mercury per MMBtu of Heat Input
- Carbon monoxide concentration of less than 420 ppm by volume on a dry basis corrected to 3 percent oxygen

The following are the applicable work practice standards for this particular unit, which is from Table 2 to Subpart JJJJJJ of Part 63.

- Minimize startup and shutdown periods in accordance with manufacturer's recommended procedures.
- Conduct a onetime energy assessment of the boiler.

Ox proposes to install and operate a bag leak detection system in conjunction with the dry sorbent injection system with a fabric filter control device. Under this regulation, the unit would be subject to the following operating limits of Table 3 to Subpart JJJJJJ of Part 63:

- In lieu of the 10% opacity limit, the bag leak detection and fabric filter can be operated in such a manner that the bag leak detection alarm does not sound more than 5% of the operating time during each 6 month period.
- Maintain the 30-day rolling average activated carbon injection rate at or above the minimum rate.

Ox did not propose to install an oxygen trim on the existing boiler. According to 40 CFR §63.11224(a), the permittee must install and operate a continuous monitoring system oxygen level in the exhaust. The installation and use of oxygen analyzer requires the source to conduct CO emission testing and to establish an oxygen level as operating parameter to demonstration compliance with the CO concentration limit.

The permittee will be required to conduct performance testing for mercury to demonstrate compliance with the mercury emission limit and to establish the activated carbon injection rate.

These changes do not affect the applicability of Rule 2 & 10 for this boiler. The same applicable requirements are still in effect towards this boiler. However, monitoring compliance for these emission requirements will be discussed in the Monitoring of Operations Section of this evaluation.

The permittee filed a complete application, paid the filing & NESHAP fees, and published a legal ad in the *Spirt of Jefferson Advocate* on August 18, 2015. Under 45 CSR §13-8.5., this application triggers the Notice Level C requirements of Rule 13 because Ox has proposed to limit the operational capacity of the boiler to below major stationary source thresholds of Part 63 for HAPs. Thus, Ox will be required to publish a commercial ad in accordance with 45 CSR §13-8.4a and post a sign in accordance with 45 CSR §13-8.5a. The applicant also filed a request for a Significant Modification to the Facility's Title V Operating Permit in conjunction with this application.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

The potential release of hazardous air pollutants from the boiler will be reduced to less than 4 tons per year, which is significantly below the Rule 13 trigger threshold of 2 pounds per hour or 5 tons per year. Therefore, no information about the toxicity of the HAPs is presented in this evaluation.

AIR QUALITY IMPACT ANALYSIS

The writer deemed that an air dispersion modeling study or analysis was not necessary, because the proposed modification does not meet the definition of a major modification of a major source as defined in 45CSR14.

MONITORING OF OPERATIONS

The writer recommends the following monitoring requirements:

- Track the fuel usage (coal consumed for each month and determine the total 12 month rolling heat input. Fuel usage recordkeeping is required by Rules 2, 10 and Subpart JJJJJJ. This is currently required in the Facility's Title V Permit.
- Maintain records of each shipment of coal to not exceed the maximum sulfur content of 1.7 % sulfur by weight. This is currently required in the Facility's Title V Permit.
- Conduct quarterly fuel analysis for mercury per Subpart JJJJJJJ.
- Monitor the fabric filter baghouse with a Bag Leak Detection System that meets the criteria of Subpart JJJJJJ to Part 63. This is required under Subpart JJJJJJ to Part 63.
- Establish operating parameters for the DSI system of the hydrated lime and activated carbon injection rates that correlates to a compliance demonstration for respective pollutants.
- Monitor and record the amount of line (sorbent) and activated carbon is injected.
- Oxygen analyzer. This is required under Subpart JJJJJJ to Part 63 for demonstrating compliance with the CO requirement.
- Maintain records indicating that the start-up and shutdown periods are minimized. This is required under Subpart JJJJJJ to Part 63.

The unit is subject to Rules 2 & 10. The applicable PM, and visible emissions limits were incorporated into the permit. The unit's allowable PM rate under Rule 2 is 17.7 pounds per hour. The applicant proposed a PM rate of 6.82 pounds per hour, which is 38.5 % of the allowable for this unit under Rule 2.

The Boiler GACT specifies that a Bag Leak Detection System (BLDS) must be capable of detecting particulate matter emissions at concentrations of 10 milligrams per cubic meter or less. At this specification, the PM rate from the boiler after the bag house would be 1.65 pounds per hour when the system would activate. The Boiler GACT notes that satisfactory operation of the fabric filter control baghouse if the bag leak detection system does not activate (sound off) for more than 5% of the operating time during a 6-month period.

Under the Boiler GACT, a source could elect not to use a bag leak detection system. Then, the unit would be subject to a 10% opacity limit and be required to use a continuous opacity monitoring system (COMS) to demonstrate compliance. In general, one may view that EPA has determined that BLDS is an equivalent monitoring means to COMS.

Rule 2 requires the permittee to develop and implement a monitoring plan under 45 CSR §2-8.2.a. The writer considers the use of a BLDS in accordance with Boiler GACT to satisfy this requirement under Rule 2. Therefore, no additional monitoring is necessary for the visual emission standard of Rule 2.

Rule 2A establishes a testing schedule for a Rule 2 source for periodic testing for the purpose of demonstrating compliance with the weight emission standards of 45 CSR §2-4. Based on this schedule, this particular unit would be on a 3 year cycle (Cycle 3- 45 CSR §2A-5.2.). This unit is being permitted to operate at 40% of its designed capacity on an annual basis with a PM rate of just 38% of its allowable. With the sensitivity level of less than the proposed emission rate, the writer recommends conducting an initial performance test for PM to ensure that the additional loading of sorbent and activated carbon does not exceed the proposed PM rate and follow-up testing conducted based on the Director's discretion.

Rule 10 sets an allowable sulfur dioxide rate for this unit at 347.2 pounds per hour. Ox had an emission limit set based on maximum sulfur content of 1.7% sulfur and firing rate of 4.3 tons of coal per hour, which equates to 277.78 pounds of sulfur dioxide per hour. Tracking fuel usage and sulfur content of the coal consumed is sufficient for demonstrating compliance with the SO_2 emission limitation being established in the permit, which satisfies Rule 10.

CHANGES TO PEMRIT R13-0622

Permit R13-0622 was issued on June 4, 1982. This permit did not establish any specific conditions or requirements for this unit. The writer recommends converting the permit into the agency's current permit format. The applicable emission standards from Rule 2 and 10 will be incorporated into the permit as well as the applicable requirements of Subpart JJJJJJ to Part 63 (Boiler GACT).

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates the proposed modification of the boiler at the Halltown Paperboard Mill will meet all the requirements of the applicable rules and regulations when operated in accordance with the permit application. Therefore, the writer recommends granting Ox Paperboard LLC a Rule 13 modification permit for the proposed changes at the Halltown Paperboard Mill, which is located in Halltown, WV.

Edward S. Andrews, P.E.
Engineer

December 30, 2015
Revised Date