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Evaluation Memo

Application Number: PD17-017
Facility ID Number: 057-00003
Name of Applicant: Kingsford Manufacturing Company
Name of Facility: Beryl Plant
Location of Facility: Near Piedmont, Mineral County
Latitude/Longitude: 39.47729/-79.06650
Application Type: Permit Determination
Submission Date: March 9, 2017
Complete Date: March 9, 2017
Due Date: **April 20, 2017**
Engineer: Joe Kessler

Background Information

On March 9, 2017, Kingsford Manufacturing Company (KMC), submitted a Permit Determination Form (PDF) for proposed changes at the Beryl Plant located near Piedmont, Mineral County, WV. KMC is requesting concurrence that a project to install an additional 40 mmBtu/hr auxiliary propane-fired burner on the After Combustion Chamber (ACC) is not defined as a “modification” or as a “major modification” under 45CSR13 and 45CSR14, respectively. The facility is currently operating under Permit Number R13-2117E issued on November 1, 2016.

Description of Proposed Changes

Existing Facility

Kingsford's Beryl Plant produces “char” from a feedstock of raw bark chips. Bark chips are received via belt conveyer from a neighboring paper mill and stored outside in piles before being

screened, sized, and dried in a rotary wood dryer (03-001). The sized and dried feedstock is then charred in an oxygen starved environment (a process known as pyrolyzing) in the multi-hearth retort furnace (03-002). Heat for the furnace is supplied by six (6) 4 mmBtu/hr natural-gas fired retort burners. The produced char is quenched with water and conveyed to trailers for transport to Kingsford's Parsons Plant as the main ingredient in charcoal manufacturing.

The dryer and the furnace air emissions are controlled by cyclone collectors which are exhausted to a common After Combustion Chamber (ACC) for oxidation (C-8). The ACC currently uses one (1) 40 mmBtu/hr propane-fired burner. The hot exhaust gases from the ACC are recirculated and used as the heat source in the wood dryer and then returned to the ACC and emitted from the ACC stack. Currently the facility is permitted to produce a maximum of 5.0 TPH and 32,000 TPY of wood char.

Proposed Changes

KMC is proposing to add a second 40 mmBtu/hr propane-fired auxiliary burner (and associated propane supply equipment) to the ACC to supplement the existing burner to facilitate reaching correct temperature quicker during cold startups (KMC estimated that the two auxiliary burners will operate simultaneously a maximum of 200 hours per year). The auxiliary burner does not have a separate stack and the exhaust is ultimately (after use for heat in the wood dryer) emitted from the ACC stack (Emission Point S-02). KMC is not requesting an increase in the ACC permit limits as given under 4.1.4 of the permit.

Air Emissions and Calculation Methodologies

As stated above, there will be no increase in any facility emission limits as a result of this proposed change. The ACC has permit limits as given 4.1.4 of the permit and these will not be changed. However, KMC provided the following stand-alone emissions of the new auxiliary burner to facilitate review of the PDF:

Table 1: Auxiliary Burner Emissions

Pollutant	Emission Factor	Source	Hourly (lb/hr)	Annual (ton/yr)
CO	n/a	Vendor	1.50	6.57
NO _x	n/a	Vendor	4.45	19.49
PM _{2.5} /PM ₁₀ /PM ⁽²⁾	0.7 lb/10 ³ gallon	AP-42, Table 1.5-1	0.31	1.36
SO ₂	0.054 lb/10 ³ gallon	AP-42, Table 1.5-1	0.02	0.11
VOCs	0.8 lb/10 ³ gallon	AP-42, Table 1.5-1	0.35	1.53

- (1) As writer calculated based on 8,760 hours of operation per year.
 (2) Includes condensables.

Determination of Permit Applicability

As the Beryl Plant is defined under 45CSR14 as a “major stationary source” (see below), the following will evaluate the potential permit applicability of the proposed changes under both 45CSR13 and 45CSR14.

45CSR13

Pursuant to §45-13-5.1, “[n]o person shall cause, suffer, allow or permit the . . . modification . . . and operation of any stationary source to be commenced without . . . obtaining a permit to . . . modify.” The definition of “modify” is given under Section 2.17 of 45CSR13 and primarily defines various emission levels that would define any proposed changes as a modification and require KMC to get a permit prior to beginning construction. Based on the fact that this reactor replacement project will not increase the potential-to-emit (PTE) from the facility, the proposed changes do not exceed any of the modification thresholds under §45-13-2.17.

Additionally, the definition of “stationary source” under Section 2.24 of 45CSR13 includes in the definition any facility that “is subject to any substantive requirement of an emission control rule promulgated by the Secretary.” Based on long-standing DAQ policy and the “dual-definition” of a source, this test is also applied to proposed changes to determine if they meet the definition of modification. However, in the case of the determining if proposed changes are defined as a “modification,” the changes to the equipment must *trigger* an emission control rule. No substantive requirement of any rule will be triggered as a result of the changes described above.

45CSR14

The Beryl Plant is an existing major stationary source under 45CSR14 and the addition of the new auxiliary burner is considered, pursuant to §45-14-2.40, a “*physical change* or a change in the method of operation.” Therefore, to determine if the project is defined as a “major modification,” pursuant to §45-14-3.4(a), the project is examined under a two-step applicability test: “[A] project is a major modification for a regulated NSR pollutant if it causes two types of emissions increases -- a significant emissions increase (as defined in subsection [§45-14-2.75]), and a significant net emissions increase (as defined in subsections [§45-14-2.46] and [§45-14-2.74]). The proposed project is not a major modification if it does not cause a significant emissions increase. If the proposed project causes a significant emissions increase, then the project is a major modification only if it also results in a significant net emissions increase.”

Therefore, for the proposed changes to meet the definition of a major modification, the changes themselves must result in a significant emissions increase. The methodology for calculating the emissions increase under the first step is given under Sections §45-14-3.4(b), 3.4(c), 3.4(d) and 3.4(f). The substantive language relevant to the changes evaluated herein is given below:

[§45-14-3.4(b)]

The procedure for calculating (before beginning actual construction) whether a significant emissions increase (i.e., the first step of the process) will occur depends upon the type of emissions units being modified, according to subdivisions 3.4.c through 3.4.f.

[§45-14-3.4(d)]

Actual-to-potential test for projects that only involve construction of a new emissions unit(s). -- A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the potential to emit (as defined in subsection 2.58) from each new emissions unit following completion of the project and the baseline actual emissions (as defined in subdivision 2.8.c) of these units before the project equals or exceeds the significant amount for that pollutant (as defined in subsection 2.74).


In the case of the changes proposed above, it is difficult to determine the correct way to analyze the emissions associated with only the project. However, it was determined the most appropriate way is to consider the addition of the auxiliary burner a new emissions unit and evaluate the maximum potential emissions therefrom. These emissions are given above under Table 1 and are less than the thresholds given under §45-14-2.74. Therefore, under Step 1 of the PSD Applicability Analysis as given pursuant to §45-14-3.4(a), the proposed reactor replacement project is not defined as a “major modification” under 45CSR14.

The proposed change can also be evaluated qualitatively as a modification to the ACC. In that case, as noted above, the purpose of the auxiliary burner is to facilitate more efficient cold startups of the ACC. There is no indication that the new unit will allow for increased actual production of char from the facility. And, therefore, in any actual-to-projected actual PSD applicability analysis, the project’s emission increase would self-evidently be zero.

Summary and Recommendation

Based on the information provided in the PDF, I recommend the issuance of a “no permit needed” letter to KMC for the proposed changes discussed above at their Beryl Plant based on the following:

- The proposed changes will not trigger a substantive requirement of an emission control rule promulgated by the Secretary;
- There is no increase in the PTE of the facility as a result of the reactor replacement project; and
- The proposed changes are not defined as “major modification” under 45CSR14.



Joe Kessler, PE
Engineer

3/27/17

Date