



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

MAY 28 2014

REPLY TO THE ATTENTION OF

Ms. Kristin Hart  
Chief  
Permits and Stationary Source Modeling Section  
Bureau of Air Management  
Wisconsin Department of Natural Resources  
PO Box 7921  
Madison, Wisconsin 53707-7921

Dear Ms. Hart:

The U.S. Environmental Protection Agency has the following comments on the Wisconsin Department of Natural Resources' (WDNR) draft Prevention of Significant Deterioration (PSD) permit for Packaging Corporation of America (PCA), permit # 13-MDW-102. The draft permit authorizes the construction of one new gas fired boiler, the retirement of two solid fuel boilers, and the removal of a hydrogen scrubbing system that was formerly included in order to avoid PSD. A modification to an existing solid fuel boiler is also being planned, and the emissions increases are being considered in this permit action although a permit issued at a later time will authorize construction for that portion of the project. The project was determined to trigger PSD for Greenhouse Gases (GHG) and Carbon Monoxide (CO).

In order to ensure that the project meets Federal Clean Air Act requirements, that the permit will provide necessary information so that the basis for the permit decision is transparent and readily accessible to the public, and that the permit record provides adequate support for the decision, EPA has the following comments:

- 1.) The facility proposed a CO Best Available Control Technology (BACT) limit of good combustion practices and proposed a limit of 100 parts per million, volumetric dry (ppmvd) or 0.073 MMBTU. Upon reviewing BACT determinations for similar units, EPA finds that most large natural gas boilers that recently underwent BACT meet a 50 ppmvd emission limitation. In fact, on page 32 of the Preliminary Determination document it appears that WDNR reached the same conclusion as it is stated in bold, "Based on other similar units, the Department does not believe that this proposal represents BACT for CO emissions from a large natural gas boiler". The applicant argues that the boiler selected by the applicant has low emissions of Nitrogen Oxides (NO<sub>x</sub>) (guaranteed by the vendor at 25 ppmvd) and that it would be impossible to reduce CO emissions at these low NO<sub>x</sub> performance levels. However, it appears that many boilers were permitted with lower CO limits and still maintained low NO<sub>x</sub> emissions. WDNR states that, "this appears to be due to these boilers being subject to NO<sub>x</sub> BACT which is not the case for this permit applicant". This statement by WDNR is not accurate. The Virginia Department of Environmental Quality issued a permit to Celanese Acetate LLC to authorize the construction of six new natural gas boilers each rated at 400 MMBTU/hr on December 6, 2012. The project triggered PSD for only CO

and volatile organic compounds.<sup>1</sup> BACT was determined to be good combustion practices and CO was limited at 50 ppm at 3% oxygen and the NO<sub>x</sub> emissions limit is 0.036 MMBTU/hr when burning natural gas. This CO limit is half of the CO limit selected for PCA while maintaining a comparable NO<sub>x</sub> limit.

Additionally, in considering the environmental impacts of BACT, WDNR argues that NO<sub>x</sub> is a pollutant of greater concern than CO and therefore based on environmental interest selects a BACT limitation of 100 ppmvd on a 30 day average. However, WDNR does not provide a technical analysis for why it is infeasible to reduce CO emissions further without increasing NO<sub>x</sub> emissions, particularly considering that other sources (including sources that did not trigger PSD for NO<sub>x</sub>) were able to achieve low NO<sub>x</sub> and low CO emissions. EPA guidance on when it is appropriate to consider environmental impacts in a BACT determination indicate it should be made on site-specific circumstances. When the trade-off between emissions of various pollutants is considered, it is suggested that the permitting authority give consideration to local air quality concerns, considering for example whether the area is nonattainment. Lincoln County, where PCA is located, is designated as attainment or unclassifiable for all criteria pollutants and as indicated by the air quality review on page 37 of the Preliminary Determination, the total impact of the source and background concentration is expected to only utilize 21.8% of the annual nitrogen dioxide national ambient air quality standard. Therefore it does not appear that NO<sub>x</sub> is a pollutant of concern locally.

EPA suggests that WDNR reevaluate its BACT determination for CO considering the BACT limits selected for similar sources which triggered PSD for CO but not NO<sub>x</sub>. If WDNR continues to rely on the claim that the negative environmental impacts of a lower CO limit outweigh the positive, EPA suggests that WDNR provide a more detailed technical analysis explaining why it will be impossible for this project to lower the CO limit without increasing NO<sub>x</sub> emissions (given that it has been shown possible to have low limits for both by similar facilities) and provide a more detailed, site specific explanation as to why in this case it is more beneficial to increase CO emissions in favor of reducing NO<sub>x</sub> emissions.

- 2.) On page 29 of the Preliminary Determination document WDNR states that, "BACT is not applicable to Boiler B29 because there are no physical changes being made to this boiler". In this project, PCA has proposed to suspend use of a hydrogen sulfide scrubbing system that was permitted in 2003 in order to avoid PSD review for sulfur dioxide. PCA has also proposed to increase the allowable sulfur concentration in the biogas, switch from #4 fuel oil to #2 fuel oil, and limit the #2 fuel oil use to avoid applicability under the National Emission Standards for Hazardous Air Pollutants. WDNR does not include this boiler in the BACT analysis because, "there are no physical changes being made to this boiler". As explained above there are significant operational changes being made to the boiler and as seen in the tables 11 and 16 these changes would result in an increase of potential emissions for CO and GHG. NR 405.08(3) requires that BACT be applied to, "... each proposed emissions unit at which a net emissions increase in the air contaminant would occur as a result of a physical change

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<sup>1</sup> See the Final PSD permit for Celanese Acetate, LLC

[http://www.deq.virginia.gov/Portals/0/DEQ/Air/Permitting/PSDPermits/20304\\_permit.pdf](http://www.deq.virginia.gov/Portals/0/DEQ/Air/Permitting/PSDPermits/20304_permit.pdf), and the BACT determination on page 6 of the Inter-Agency Memorandum:  
[http://www.deq.virginia.gov/Portals/0/DEQ/Air/Permitting/PSDPermits/20304\\_analysis.pdf](http://www.deq.virginia.gov/Portals/0/DEQ/Air/Permitting/PSDPermits/20304_analysis.pdf)

or change in the method of operation in the unit.” Please evaluate BACT for CO and GHG for Boiler 29.

- 3.) The compliance demonstration for the Particulate Matter of less than 10 micrometers (PM<sub>10</sub>) and the Particulate Matter of less than 2.5 micrometers (PM<sub>2.5</sub>) emission limits for Boiler 12 on page 7 of the permit states that “the permittee shall calculate the hourly potential to emit of PM, PM<sub>10</sub>, and PM<sub>2.5</sub> for the boiler using the maximum theoretical fuel usage rate for the boiler and emission factors of 5.25 pounds per million cubic feet (PM and PM<sub>10</sub>) and 4.8 pounds per million cubic feet (PM<sub>2.5</sub>).” The compliance demonstration goes on to allow the Department to use the most recent stack test on Boiler 12 in lieu of the provided emission factors if the stack test data is available. It is unclear from the permit and the Preliminary Determination document where these emission factors (which are considerably lower than the AP-42 emission factors for natural gas sources) originated. Footnotes 3 and 4 indicate that the 2.23 lb/hr emission limit taken for PM and PM<sub>10</sub> and the 2.04 lb/hr emission limit taken for PM<sub>2.5</sub> were selected to ensure that modeling impacts were below the Significant Impact Levels. However, it appears that by using these emissions factors, should the facility operate continuously at full capacity, the Maximum Theoretical Emissions (MTE) would never exceed the emissions limits. Thus, it appears that the emission factors function as permit limitations. EPA has spoken to the inappropriateness of using emission factors as permit limitations in Title V petition response Orders<sup>2,3</sup>. WDNR should clarify the origin of the emission factors used and explain why these emission factors are expected to be characteristic of the units at PCA or revise the permit. Additionally, WDNR should require stack testing to be performed at the new unit to verify that any emission factors are indeed representative of the unit’s operations. If a higher emission factor is found necessary and it were possible that the calculated emissions could exceed the permit limits, WDNR should require the facility to record hourly fuel usage and calculate PM, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions to ensure that the selected limits are not exceeded, or install a PM<sub>2.5</sub> continuous emissions monitoring system to demonstrate compliance with the selected limit.

We look forward to working with you to address all of our comments. If you have any further questions, please feel free to contact Andrea Morgan, of my staff, at (312) 353-6058.

Sincerely,



Genevieve Damico  
Chief  
Air Permits Section

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<sup>2</sup> See page 14 of January 31, 2011 Order Granting in Part and Denying in Part the Request to Object to the Title V permit of United States Steel Corporation, Granite City Works  
[http://www.epa.gov/region7/air/title5/petitiondb/petitions/uss\\_response2009.pdf](http://www.epa.gov/region7/air/title5/petitiondb/petitions/uss_response2009.pdf)

<sup>3</sup> See page 8 of December 3, 2012 Order Granting in Part and Denying in Part the Request to Object to the Title V permit of United States Steel Corporation, Granite City Works  
[http://www.epa.gov/region7/air/title5/petitiondb/petitions/uss\\_2nd\\_response2009.pdf](http://www.epa.gov/region7/air/title5/petitiondb/petitions/uss_2nd_response2009.pdf)