



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

MAR 04 2011

REPLY TO THE ATTENTION OF:
AR-18J

Andrew Stewart
Chief
Permits and Stationary Source Modeling Section
Bureau of Air Management
Wisconsin Department of Natural Resources
PO Box 7921
Madison, Wisconsin 53707-7921

Dear Mr. Stewart:

The U.S. Environmental Protection Agency reviewed the proposed Prevention of Significant Deterioration Permit (PSD) for WE Energies – Biomass Fueled Cogeneration Facility, which will be located in Rothschild, Wisconsin. The facility will be located next to a paper mill owned and operated by Domtar. The WE Energies plant will receive biomass from Domtar to use as fuel and provide steam to Domtar. Additionally, the WE Energies plant will be providing electricity for sale to the grid.

We appreciate the effort that Wisconsin Department of Natural Resources (WDNR) has put forth in developing this proposed permit record considering Greenhouse Gases (GHG) are newly regulated pollutants. Although we have comments, overall we believe that the proposed permit contains the appropriate requirements regarding GHG. We provide these comments to help ensure that the project meets all federal requirements, that the permit provides all necessary information so that it is readily accessible to the public, and that the record provides adequate support for the permit decision.

Our comments on the proposed permit 10-SDD-058 include:

- 1) The "Analysis and Preliminary Determination" document mentions possibly setting a 1,830 lb/MWh GHG Carbon Dioxide equivalent (CO₂e) Best Available Control Technology (BACT) limit for when the biomass-fired boiler is operating in co-generation mode. This emission limit, compared to the 3,120 lb/MWh GHG CO₂e limit that was chosen as BACT during all times of operation, is a good way of reflecting the true emissions during co-generation operation mode and would help limit emissions. Please include this limit within the permit as BACT for GHG in co-generation mode.

- 2) Please affirm that the CO_{2e} emissions during start-up and shut-down must be included in the compliance calculation for the CO_{2e} BACT limits in lb/MWh.
- 3) The proposed permit does not contain a BACT emission rate for Volatile Organic Compound (VOC) emissions for either the natural gas fired boiler or the biomass fired boiler. Instead, the conditions for VOC contain requirements for complying with the Carbon Monoxide (CO) BACT limitation (for both boilers). However, as defined in NR 405, BACT is "...an emissions limitation, including a visible emissions standard, based on the maximum degree of reduction for each air contaminant subject to regulation under the Clean Air Act which would be emitted from any proposed major stationary source or major modification...". The permit must contain BACT emission rates for VOC, or explain why numerical limits are infeasible based on technological or economical limitations. A search of the RACT/BACT/LAER Clearinghouse (RBLC) results in BACT determinations for VOC as low as 0.01 lb/mmbtu (for biomass fired boilers). This is an example of a BACT emission rate that may be appropriate for the source at issue.
- 4) The application contains a table that includes BACT CO emission rates as low as 0.10 lb/mmbtu. However, a search within the RBLC finds more recent BACT determinations. Laidlaw Berlin Power, LLC in New Hampshire, for example, is using flue gas recirculation in a fluidized bed boiler to attain emissions of 0.075 lb/mmbtu. The permit record should include this BACT determination and determine whether this technology would be feasible to attain a similar BACT emission rate.
- 5) The draft permit includes a 112(g) case-by-case Maximum Achievable Control Technology (MACT) standard determination for the biomass fired boiler. However, during the public comment period of this permit, EPA finalized the boiler MACT, 40 C.F.R. §63 Subpart DDDDD. We understand that WDNR has provided WE Energies with a case-by-case review that resulted in specific limitations on Mercury, Particulate Matter, and other regulated pollutants, with the intent that the final rule boiler MACT will supersede those requirements. The permit should include conditions that reflect the requirements of the final boiler MACT. EPA Administrator Lisa Jackson signed the final rule on February 21, 2011. A copy of the rule can be found at <http://www.epa.gov/airquality/combustion/actions.html#feb11>.

The remaining comments are enclosed.

We look forward to working with you to address all of our comments. If you have any further questions, please feel free to contact Danny Marcus, of my staff, at (312) 353-8781.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Richard Angelak". The signature is written in a cursive style with a large, prominent initial "R".

For Genevieve Damico
Acting Chief
Air Permits Section

Enclosure

Enclosure

Additional Comments on WE Energies – Biomass-Fueled Cogeneration Facility

- 1) The "Analysis and Preliminary Determination" (PD) document shows the Carbon Dioxide equivalent (CO₂e) potential to emit (PTE) amounts for both the biomass boiler and the natural gas boiler. Please clarify whether all the GHGs emitted by the project are included in the CO₂e PTE amounts.
- 2) The permit requires CO₂ CEMS. Regarding CO₂e emission compliance, pages 13 and 30 of the draft permit require demonstrating CO₂e emission compliance by "averaging the valid 15 minute CO₂ measurements in any hour to determine an hourly average CO₂ emission rate" and then calculating the average 12-month emission rate. This seems to only account for CO₂ emissions where CO₂e is a combination of six different greenhouse gases, one of which is CO₂. Please explain how compliance will be demonstrated for CO₂e emissions.
- 3) Please include, in the Analysis and Preliminary Determination document, a more specific explanation of why Carbon Capture and Sequestration (CCS) was determined to be an infeasible technology for this project. The permit application has specific analysis on CCS and concluded that CCS was not technically feasible for this project, but the explanation in the Analysis and Preliminary Determination document is much more conclusory. Please either explicitly adopt the applicant's analysis or provide a more thorough project-specific analysis in the permit's Analysis and Preliminary Determination document.
- 4) Please include page numbers for the permit's "Analysis and Preliminary Determination" document. There are no page numbers except for those including the informational tables starting on page 42.
- 5) The permit does not contain Best Available Control Technology (BACT) emission rates for Fluorides for either boiler. The project triggers the Prevention of Significant Deterioration (PSD) significance level and the permit does contain a section on Fluorides which include BACT requirements. However, the conditions are missing a BACT emission rate for Fluorides (both biomass boiler and natural gas boiler). The PD provides that there will be testing for Fluoride emissions to determine an emission rate from the biomass boiler, however, the PD does not further explain whether this rate will then be considered to be enforceable. In addition, the PD states that for the natural gas boiler "BACT will be the use of natural gas and no specific fluorine emission limitation" but does not explain why a numerical limit is not included. The permit must contain BACT emission rates for Fluorides, or explain why numerical limits are infeasible based on technological or economical limitations.
- 6) A Carbon Monoxide (CO) catalyst was analyzed for each boiler and determined to be economically infeasible. It appears that the analysis was done separately for

each boiler. The costs do not appear to be extremely high and may be deemed to be economically feasible in certain circumstances. In addition, there is no discussion of whether an oxidation catalyst can be used to control both boilers. If this is technically feasible, then it appears that the permit record should also consider the costs of controlling both boilers with a single oxidation catalyst. Additionally, if an analysis yields results that provide a CO catalyst to be economically feasible when considering both boilers, the permit should be amended to include a CO catalyst to control CO emissions.

- 7) The proposed permit is missing the applicable New Source Performance Standards (NSPS) limit for Particulate Matter (PM) for the biomass boiler. Condition I.B.1. does include a lb/mmbtu limit for BACT, however, does not include a lb/mmbtu limit for NSPS. Please insert the appropriate NSPS limit in the permit. Additionally, the proposed permit does not contain a citation for NSPS for PM for the biomass boiler. Condition I.B.1. cites to "NSPS" as well as includes in the heading of the condition that the boiler is subject to NSPS Part 60, Subparts D and Db. However, the condition should also include the citation to the appropriate NSPS requirement. In this case, the appropriate NSPS citation may be 40 C.F.R. §60.43b.
- 8) The proposed permit does not contain the appropriate NSPS requirement citation for Sulfur Dioxide (SO₂) for the biomass boiler. The heading of condition I.B.2. includes the boiler is subject to NSPS Part 60, Subparts D and Db, however stops short of including the appropriate citation within the conditions. Additionally, the condition must include the applicable NSPS lb/mmbtu limit. The permit record states that the applicable NSPS limit is 0.20 lb/mmbtu, as required by 40 C.F.R. §60.42b. The permit condition must include this applicable limit and citation.
- 9) The proposed permit is missing the applicable NSPS limit for Nitrogen Oxides (NO_x) for the biomass boiler. Condition I.B.3. does include a lb/mmbtu limit for BACT, however, does not include a lb/mmbtu limit for NSPS. Please insert the appropriate NSPS limit in the proposed permit. Additionally, the proposed permit does not contain the appropriate citation for NSPS for NO_x for the biomass boiler. Condition I.B.3. includes in the heading of the condition that the boiler is subject to NSPS Part 60, Subparts D and Db. However, the condition must also include a citation to the appropriate NSPS requirement, 40 C.F.R. §60.44b.
- 10) The natural gas fired boiler is subject to an NSPS standard for NO_x. Condition I.A.3. must include the applicable NSPS lb/mmbtu limit, the appropriate NSPS requirement, and monitoring and recordkeeping to demonstrate compliance with a lb/mmbtu limit. The proposed permit record has determined that the applicable NSPS limit that applies is 0.20 lb/mmbtu and the appropriate NSPS requirement citation is 40 C.F.R. §60.44b. If the method for demonstrating compliance with Condition I.A.3. is a Continuous Emission Monitor (CEM), the proposed permit must include language to require that the CEMs provide appropriate data/readings to demonstrate compliance with the NSPS lb/mmbtu limit.

- 11) The proposed permit requires a PM CEMs to demonstrate compliance with opacity for the biomass boiler B01. However, the proposed permit/permit record does not explain how monitoring of PM emissions will demonstrate compliance with the 10 percent opacity limit. We suggest that during the required initial stack test, the PM emissions are tracked and compared with opacity so that a correlation can be made and the PM CEMs data can be used to demonstrate ongoing compliance with the opacity limit.