



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7  
901 N. 5<sup>th</sup> STREET  
KANSAS CITY, KANSAS 66101

AIR PERMITTING AND  
COMPLIANCE BRANCH

November 19, 2004

Leanne Tippet Mosby  
Air Pollution Control Program  
Missouri Department of Natural Resources  
P.O. Box 176  
Jefferson City, MO 65102-0176

Dear Ms. Tippet Mosby,

We appreciate the opportunity to comment on the draft PSD permit for Aquila's proposed South Harper Energy Center project. The project includes installation of three natural gas fired combustion turbines, one emergency fire pump engine, and one natural gas fired natural gas heater. The following comments focus primarily on improving the enforceability of the permit. While we don't consider any of these comments to be show-stoppers, we encourage the department to incorporate our suggestions, to the extent possible, in the final permit.

- 1) The PM<sub>10</sub> test method proposed in Condition 3.E.3) does not measure PM<sub>10</sub>, so would not confirm whether the PM<sub>10</sub> BACT limit proposed in Condition 2.E. is being met or not. To assure compliance with the PM<sub>10</sub> limit, we recommend use of the appropriate methods, which would be Reference Methods 201 or 201a for the filterable PM<sub>10</sub> fraction and Reference Method 202 for the condensable PM<sub>10</sub> fraction. Taken together, these two fractions represent the total PM<sub>10</sub> emissions.
- 2) Once a project is "major" for PSD applicability, all equipment associated with the project must minimize its emissions through a BACT emission limitation; irrespective of whether an individual unit emits below the significance thresholds or not. If it is not possible to establish numerical emission limitations for the non-turbine equipment, then the department may establish a work practice standard for each. The revised application investigates BACT controls for the non-turbine equipment and concludes that all are cost prohibitive. But the application is silent on what level of emissions constitute BACT. If the department agrees that add-on control technology is not economically or technically available, it should document its decision as part of the written permit record. Further, the department should establish NO<sub>x</sub>, CO, and PM<sub>10</sub> BACT emission limitations for the natural gas heater and emergency fire suppressant engine, or in the absence of a limit the appropriate work practice standards.

- 3) Condition 4.A. requires Aquila to install a NO<sub>x</sub> and O<sub>2</sub> CEMS to verify compliance with the NO<sub>x</sub> BACT limit. We support this requirement. However, Conditions 4.C. and 4.D. require Aquila to simultaneously demonstrate that they meet the installation, operation, certification, and quality assurance requirements for both Parts 60 (NSPS) and 75 (Acid Rain). Since it is likely that NO<sub>x</sub> CEMS will be required for these units under the acid rain program and the units will have to meet the Part 75 requirements in full, it may cause less confusion if the Part 60 CEMS requirements are dropped altogether. Further, even though we agree that MDNR may require the use of Appendix F quality assurance procedures as a condition of the PSD permit, despite the CEMS not being “direct compliance” monitors under NSPS, the cleaner way to assure that the monitor provides quality assured data, using one set of procedures, is to defer to the Part 75 requirements.
- 4) Even though the permit limits the number of hours of operation for each turbine, which indirectly limits VOC and formaldehyde emissions below 40 and 10 tons per year, respectively, it is possible that higher site specific emission factors could put emissions over their respective thresholds. To ensure that these thresholds are protected, the permit should establish “hard” caps for these pollutants to assure they do not exceed their respective review thresholds. Further, the permit should explicitly require development of a VOC emission factor, in addition to the formaldehyde factor required in Condition 3.B., to verify that the hard caps are met. Lastly, so that there is no confusion about how these caps are to be met, we recommend that the PSD permit include explicit mass balance equations for each pollutant or sample worksheets showing how the calculations are to be made. Past PSD permits issued by the department provide good examples of how such accounting is to be performed. In the absence of clear instructions, the enforceability of such caps may be called into question and may not be appropriate for limiting these pollutants out of PSD or 112(g) review.
- 5) Based on a comprehensive review of NO<sub>x</sub> CEMS data for Siemens-Westinghouse 501D5A turbines located in New Mexico and Texas, it appears the NO<sub>x</sub> BACT level selected for the South Harper project is consistent with the emission levels achieved in practice. These data, however, indicate that a significant portion of the total NO<sub>x</sub> emissions from these types of turbines occur during off-peak load periods; in particular for units that appear to operate in peaking mode. In fact, as much as 14 to 18% of the total emissions from the turbines appear to occur at loads less than 70% -- which corresponds closely with the 75% level defined by the permit as normal load (e.g. excluding startup and shutdown periods). The draft permit makes no provision for limiting NO<sub>x</sub> emissions during these off-peak load periods; either by specifying a separate BACT limit during startup and shutdown or by otherwise minimizing the number and duration of startup and shutdown events. Based on EPA case law like that found in the Rockgen<sup>1</sup> EAB

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<sup>1</sup> ENVIRONMENTAL ADMINISTRATIVE DECISIONS, VOLUME 8, IN RE ROCKGEN ENERGY CENTER, PSD Appeal No. 99-1, ORDER DENYING REVIEW IN PART AND REMANDING IN PART <<http://www.epa.gov/eab/disk11/rockgen.pdf>>

decision and other EPA guidance which make clear the permit record must evaluate BACT for all periods of operation, we recommend that the department carefully reconsider its options for establishing a secondary BACT limit or other enforceable conditions to minimize the emissions during startup and shutdown periods.

If you have any questions or need further clarification of our comments, please contact Jon Knodel, Air Permits and Compliance Branch, at (913) 551-7622.

Sincerely,

JoAnn Heiman, Chief  
Air Permitting and Compliance Branch

Cc: Kyra Moore, MDNR

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