UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7
901 N. 5th STREET
KANSAS CITY, KANSAS 66101

AIR PERMITTING AND
COMPLIANCE BRANCH

September 14, 2005

Clark Duffy
Kansas Department of Health & Environment
Bureau of Air and Radiation
1000 S.W. Jackson Street, Suite 310
Topeka, KS 66612-1366

Dear Mr. Duffy:

On August 17 and 26, 2005, EPA Region 7 received electronic and hardcopy notification of the department's intent to approve the "NOx Reduction Project" for Jeffrey Energy Center, Unit 3, under the Prevention of Significant Deterioration (PSD) program. Jeffrey plans to retrofit Unit 3 with low NOx burners and over-fire air and to make modifications to the pulverizers to properly size the coal for maximum NOx reduction benefits.

As we understand it, Westar originally proposed the low NOx retrofit as a PSD-exempt pollution control project (PCP), but based on the recent D.C. Circuit Court rule instead opted to re-file as a PSD permit application. We appreciate both Westar and KDHE's commitment to evaluate this project under the PSD program given the uncertainty the court ruling has created.

Attached are our comments on the draft permit and associated documents made available to EPA during the public review period. This letter formalizes the draft comments we provided to Rick Bolfing via email on August 26, 2005, without change. As always, we appreciate the opportunity to provide what we hope you will find to be constructive comments. If you have any questions, please contact Jon Knodel, Air Permitting and Compliance Branch, at (913) 551-7622.

Sincerely,

JoAnn M. Heiman
Chief, Air Permitting and Compliance Branch

cc: Rick Bolfing, KDHE

Observations on Jeffrey Energy Center Pollution Control Project PSD Permit & Application

Technical Infeasibility of CO Oxidation Catalyst

The application concludes that catalytic oxidation for CO control is technically infeasible because the temperature, presumably in the stack, is only 300-350F, much lower than the 500F temperatures necessary for effective control. The application concludes, therefore, that only "good combustion practices" will be used to minimize CO. While good combustion practices are often employed as BACT and it is possible that such practices are appropriate for the Jeffrey 3 low-NOx retrofit, the permit record could benefit from additional discussion on why catalytic oxidation for CO control is technically infeasible.

Utility boilers often employ temperature-sensitive control technologies in regions of the boiler where the appropriate temperatures exist to promote the desired chemical reaction. For example, selective catalytic reduction (SCR) and selective non-catalytic reduction (SNCR) are highly temperature dependent control technologies; both widely employed on utility boilers. While these technologies aren't appropriate for CO control, they demonstrate that you look beyond just the stack exit temperature when determining if the technology is technically feasible or not. The application and permit record should discuss whether appropriate temperature zones exist in the boiler, or could exist by virtue of a slip-stream retrofit, such that CO oxidation catalyst could be operated within its design temperature range. Further, many utilities use stack-gas reheat to protect certain downstream equipment from thermal and chemical stress. Would reheat provide the temperatures necessary to provide for effective CO control? These are all options that should be discussed before eliminating oxidation catalyst as "technically infeasible".

For example, in at least one case, a large utility boiler firing natural gas was retrofit with CO oxidation catalyst to further reduce emissions. For more details, see "Emission Abatement Report for Huntington Beach Generating Station Units 3 and 4", http://www.pmsipower.com/html/cleanest.htm. While the report makes no claim about how such technology can be applied to a much larger, coal-fired unit like Jeffrey Unit 3, it seems clear that at AES-Huntington they found an engineering solution to utilize CO oxidation catalyst in the proper temperature zone. Presuming that the appropriate temperature zone exists either in the boiler, a slip stream, or in a portion of the downstream ductwork, the Jeffrey "NOx Reduction Project" application should have then evaluated the economic, environmental, and energy impacts of CO catalytic oxidation technology. We make no attempt to pre-judge that the oxidation catalyst is appropriate for the Jeffrey unit, but where the obstacle used to eliminate the technology from further consideration at Jeffrey has been solved elsewhere, the possibility should be explored further. In fact, it is conceivable that KDHE would ultimately find that such technology is not appropriate for BACT, but the record should benefit nonetheless from that discussion.

In short, it appears the application and the information provided to EPA stops short in its conclusion that CO oxidation catalyst should be eliminated based solely on the existing stack temperature range on Jeffrey Unit 3. We encourage the department to work with Westar and its

consultant to provide supplemental information to the record, as appropriate, describing why CO oxidation catalyst is technically infeasible or if not infeasible why the technology is not otherwise appropriate as BACT. Further, based on this supplemental information, we recommend that the department clearly explain its final decision as part of its "response to comment" document.

Demonstration of Compliance with CO BACT Limit

Under the "Monitoring, Recordkeeping, and Reporting" section of the draft permit, Westar is required to conduct an initial performance test but is then explicitly relieved of any requirement for any additional monitoring, recordkeeping, or reporting related to the CO BACT limit. We have a number of concerns about this language and recommend the following fixes:

1) With respect to the permit language that seems to preclude any further efforts to document compliance with the CO limit, we recommend that it be removed altogether. This approach is inconsistent with a number of principles outlined in EPA's "**GUIDELINES FOR WRITING EFFECTIVE SPECIFIC CONDITIONS IN NSR PERMITS**" found in the NSR Workshop Manual and attached to these comments. Further, when it comes time to incorporate these provisions into Westar's Title V permit, they will conflict with the requirement to perform periodic monitoring to verify compliance. CO continuous emission monitors have been used throughout the industry as a cost-reasonable means for documenting compliance with CO limits and to improve overall combustion efficiency of the unit. It's possible that Westar Jeffrey already has this equipment in place as a process monitor and could be used to enhance verification of compliance with the CO BACT limit. In any case, we recommend that the department specify the appropriate continuous emissions or surrogate monitoring to verify ongoing compliance with the CO BACT limit.

2) When it comes time for Westar Jeffrey to provide its annual compliance certification under Title V, they will need to document that they are in compliance with the CO BACT limit for Jeffrey Unit 3. While the initial stack test might provide sufficient documentation for the first year, it's not at all clear that these test data have any relevance past that time. In order for Westar to make a meaningful certification, they will need to have sufficient data upon which to base that certification. Therefore, it is important that the department remove the language blocking recordkeeping and reporting and instead develop conditions which clearly require Westar to maintain a) adequate documentation to b) certify verify compliance with both the Title V permit and underlying conditions in the PSD permit.

TABLE H.2. GUIDELINES FOR WRITING EFFECTIVE SPECIFIC CONDITIONS IN NSR PERMITS

1. Make each permit condition simple, clear, and specific such that it "stands alone."

2. Make certain legal authority exists to specify conditions.

3. Permit conditions should be objective and meaningful.

4. Provide description of processes, emissions units and control equipment covered by the permit, including operating rates and periods.

5. Clearly identify each permitted emissions unit such that it can be located in the field.

6. Specify allowable emissions (or concentration, etc.) rates for each pollutant and emissions unit permitted, and specify each applicable emissions standard by name in the permit.

7. Allowable emissions rates should reflect the conditions of BACT/LAER and Air Quality Analyses (e.g., specify limits two ways: maximum mass/unit of process and maximum mass/unit time)

8. Specify for all emissions units (especially fugitive sources) permit conditions that require continuous application of BACT/LAER to achieve maximum degree of emissions reduction.

9. Initial and subsequent performance tests should be conducted at worst case operating (non-malfunction) conditions for all emissions units. Performance tests should determine both emissions and control equipment efficiency.

10. Continual and continuous emissions performance monitoring and recordkeeping (direct and/or surrogate) should be specified where feasible.

11. Specify test method (citation) and averaging period by which all compliance demonstrations (initial and continuous) are to be made.

12. Specify what conditions constitute "excess emissions," and what is to be done in those cases.