



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII  
901 NORTH 5TH STREET  
KANSAS CITY, KANSAS 66101

23 MAY 2007

Rick Thorson  
Environmental Health Supervisor  
Pollution Prevention/Air Quality Section  
Lincoln-Lancaster  
3140 "N" Street  
Lincoln, NE 68501-1514

RE: Nebraska Public Power District, Sheldon Generating Station Unit 2  
Draft PSD construction permit comments

Dear Mr. Thorson:

The Environmental Protection Agency, Region 7 (EPA) received notification of Lincoln-Lancaster County Health Department's (LLCHD) intent to approve the Prevention of Significant Deterioration (PSD) construction permit for the Nebraska Public Power District, Sheldon Generating Station (NPPD), Unit 2, located near Hallam, Nebraska. The Loss of Ignition (LOI) project includes the installation of an over-fire-air system and replacement of the cyclone burners and other related equipment for the existing coal-fired boiler Unit 2. The EPA has completed its review of the draft permit, and we are providing the following comments.

1) In the permit application, NPPD suggests that if a carbon monoxide (CO) best available control technology (BACT) limit is set for Unit 2, 1.26 lb CO/MMBtu 30-day rolling average would be appropriate, and LLCHD has proposed that emission limit in the draft permit. However, Table 4-1 of the BACT analysis in NPPD's application gives a range for similar projects, including pulverized coal units, with lower CO emission limits (0.13 – 1.26 lb/MMBtu). The application also states that in two recent permits issued in Region 7 for modification of existing cyclone boilers, "the CO emission limitations range from 0.55 to 1.26 lb/MMBtu." The emission limit of 0.55 lb/MMBtu was issued for the New Madrid modification of a cyclone boiler. In the application, NPPD states that the New Madrid cyclone boiler has a greater firing rate capacity than Unit 2, started up 11 years after Unit 2, and has a double-wall fired design versus a single-wall fired design. However, NPPD does not establish how these boiler differences should contribute to significantly lower emissions of CO for the New Madrid cyclone boiler when compared with Unit 2's proposed emission limit of 1.26 lb/MMBtu. Additionally, the permitting record fails to state what emission limitation the vendor has guaranteed NPPD for the modification project of Unit 2.

Regarding the CO BACT emission limit, we encourage NPPD to provide a detailed technical rationale, in conjunction with its vendor, to describe how the unique design features at Sheldon Unit 2 justify the very high CO BACT limit. Many utilities have undertaken these

projects over the last 4-5 years and have collected lots of detailed emissions data that may help to inform the department's decision making. These data should be included in the permitting record for this project. In the absence of such analysis, we recommend that the LLCHD require NPPD to submit a revised BACT determination detailing the emission levels achievable by implementing different continuous control options, the available performance data demonstrating the performance of such options, and an analysis supporting the selection of a particular option. Based upon available information, possible CO control levels range from 0.55 lb/MMBtu to 1.26 lb/MMBtu on a 30-day rolling average. Should NPPD propose to implement the less stringent level of control from this range, its BACT analysis should clearly support its preferred option.

2) The NPPD is proposing to install CO continuous emissions monitoring system (CEMS) on Unit 2. Since neither Units 1 nor 2 currently have a CEMS, we recommend that for Unit 2 LLCHD require NPPD to install, operate, maintain, and quality assure a CO CEMS that will meet enhanced quality assurance monitoring performance specifications found in 40 CFR Part 60 Appendix F. Should the CO CEMS not be required to initially meet the requirements of Appendix F, as the current draft permit proposes, the permit should state that the CEMS data shall nonetheless be used for credible evidence purposes to support direct compliance with the BACT limit for CO.

3) Throughout the Specific Conditions section of the draft Construction Permit, the acronym LLCHD has transposed letters and is typed incorrectly as "LLHCD". The typographical errors should be corrected.

As always, we appreciate the opportunity to provide what we hope you will find to be constructive comments. Please contact Patricia Scott at (913) 551-7312 if you have any questions or comments regarding this letter.

Sincerely,



JoAnn M. Heiman, Chief  
Air Permitting and Compliance Branch  
Air, RCRA, and Toxics Division