



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7

11201 Renner Boulevard
Lenexa, Kansas 66219

SEP 29 2015

Mr. Kendall Hale, Chief, Permit Section
Missouri Department of Natural Resources
Air Pollution Control Program
PO Box 176
Jefferson City, Missouri 65102

RE: Draft Permit to Construct
Columbia Municipal Power Plant
Project No. 2015-03-068

Dear Mr. Hale:

A draft of the Permit to Construct for Columbia Municipal Power Plant (CMPP) was placed on public notice August 21, 2015 by the Missouri Department of Natural Resources; Air Pollution Control Program (MDNR-APCP). The United States Environmental Protection Agency, Region 7 (EPA) has reviewed this draft construction permit and provides the following comments for your consideration and use.

First, CMPP is proposing to undertake an environmentally beneficial project to reduce nitrogen oxide (NO_x) emissions and cease coal combustion at their facility located in Columbia, Missouri. The facility, which is a major stationary source under the Prevention of Significant Deterioration (PSD) regulation, consists of three boilers. Boilers 6 and 7 are coal and biomass fired stoker units. Boiler 8 is a natural gas fired unit. For Boiler 8, CMPP proposes to install a low NO_x combustion system (LNB) with flue gas recirculation (FGR) and to replace the existing air heater with an economizer. For Boilers 6 and 7, CMPP proposes to cease coal combustion and only burn biomass. To facilitate operation of 100% biomass, Boiler 6 and Boiler 7 will replace the grates, add fuel feeder equipment and install over-fire air. CMPP plans to cease coal combustion as of January 30, 2016.

The grate replacement, fuel feeder replacement and the installation of over-fire air on Boilers 6 and 7 appear to be modifications, as defined in 40 CFR §60.2, necessary to burn 100% biomass. In the Emissions Calculations section of its permit application, CMPP appears to exclude certain emissions from its calculation of projected actual emissions increases, pursuant to 40 CFR § 52.21(b)(41)(ii)(c). As that provision states, if these modifications are related to the increased use of Boiler 7, then the emissions associated with this increase may not be excludable. Therefore, EPA recommends MDNR require CMPP to explain how Boiler 6 and Boiler 7 were each capable of 100% biomass without the modifications being undertaken or how the modifications are otherwise unrelated to the significant increase in anticipated operations. Likewise, CMPP should explain how the modifications being made to Unit 8, including the new economizer, affect the ability of the unit to operate more in the future. Again, any resulting emissions increases that are related to the economizer project may not be excludable from projected actual emissions.



Additionally, based on CMPP's claimed heat input capacities in its permit application, Boiler 6 operated at a capacity factor of 2 – 18% in the baseline years 2009 to 2014; Boiler 7 operated at a capacity factor of 7 – 32 % and Boiler 8 at a capacity factor of 0 – 4 %. CMPP proposes to limit the use of Boiler 6 to 250 hours per year, or an approximate capacity factor of 3% -- well within the historical operations of the boiler. For Boilers 7 and 8, CMPP proposes to limit the boilers to 4,380 hours per year, representing an approximate 50% capacity factor. Where Units 7 and 8 operated well below their projected actual emissions, it calls into question if emissions excluded from projected emissions could have been achieved in the baseline, or not.

During the 60 month baseline period, Boilers 6, 7 and 8 were completely shut down for 33, 18 and 39 months, respectively. Further, Boilers 6, 7, and 8 operated at greater than 50% of the design heat input for only 11, 26 and 3 months, respectively. Some of the units were off-line for extended periods of time. EPA recommends MDNR require CMPP to submit an analysis for each month in the 60-month baseline period describing the physical and economic readiness of Boilers 6, 7 and 8 to operate. CMPP should provide a detailed discussion demonstrating that the units were available to be operated during these shutdown months. If the units were not available, then CMPP may not be able to claim credit for excludable emissions during these months.

Lastly, CMPP calculates excludable emissions for each pollutant by multiplying the highest mass emissions in a single month by 12, in order to annualize those emissions. This approach may be problematic, especially if, as noted above, a unit was unable to operate during any of those 12 months or the emissions are not excludable because they are related to the project. Monthly mass emissions are comprised of two elements, the monthly heat input and the pollutant emission rate. In the months in which CMPP selected the highest mass emissions, the result was a consequence of a higher emission rate than would be allowed following the project. As one example, the annualized SO₂ rate used to exclude emissions for Unit 7 was 3.23 lb SO₂/mmBtu, rather than the 0.22 lb/mmBtu expected following the biomass conversion. Since CMPP is not allowed to burn coal or emit SO₂ at 3.23 lb/mmBtu in the future, emissions should not be annualized and excluded on this basis. EPA observed that this same technique was used by CMPP for all pollutants, and recommends that MDNR require CMPP to re-characterize these emissions by multiplying the incremental heat input that could have been accommodated during the baseline, if any, by the post project emission rate. This assures that any unutilized heat input, if creditable, is available for use following the project at its future permitted rate.

In summary, EPA questions CMPP's assertion that these boilers were capable of operating at a sustained level of operations claimed in the "excludable" emissions analysis and recommends that MDNR require CMPP to address the comments above. To be clear, in making these comments EPA is not rendering a specific determination on the applicability of the NSR program's requirements to the projects contained in CMPP's permit application.

Second, Special Condition 2. A. of the draft permit requires CMPP to "control emissions from Boilers 6 and 7 using fabric filters as specified in the permit application." After a thorough review and search of CMPP Boiler 8 NO_x Reduction Project Air Permit Application, EPA is unable to locate any reference or specifications for fabric filter control devices. Additionally, permit condition references to an application that is not appended to the permit may not be enforceable from a practical matter. Also, for the purpose of added clarity, MDNR-APCP should consider indicating that these fabric filters are in place to control emissions of particulate matter. In as much as there is no fabric filter discussion in the construction permit application, EPA strongly encourages MDNR-APCP to remove the reference to the permit application and insert the actual specific operating specifications used by CMPP to control PM from Boilers 6 and 7 into Special Condition 2. A.

Third, Special Condition 3 of the draft permit requires CMPP to install low NO_x burners and flue gas recirculation on Boiler 8 as specified in the permit application. However, after a thorough review and search of CMPP Boiler 8 NO_x Reduction Project Air Permit Application, EPA is unable to identify any specifications of the proposed low NO_x burners and flue gas recirculation. In addition to the low NO_x burners and flue gas recirculation, CMPP is planning on installing an economizer on Boiler 8; however, the economizer is not mentioned in Special Condition 3. Again, a permit condition reference to an application that is not appended to the permit may not be enforceable. This unenforceability is highlighted by the lack of specifics in the permit application. EPA strongly recommends MDNR-APCP require CMPP to modify their Boiler 8 NO_x Reduction Project Air Permit Application to include a complete and accurate description of the proposed Boiler 8 NO_x control. This description should describe how the low NO_x burners, flue gas recirculation and economizer serve as NO_x control. The discussion should include all specifications including controls to be monitored to verify stated NO_x control. MDNR-APCP should then include all of the CMPP supplied detail in Special Condition 3, to allow for compliance verification.

Fourth, Special Condition 4. B. of the draft permit requires CMPP to periodically water, wash and/or otherwise clean the pavement to achieve control of fugitive emissions. The term “periodically” may be too vague to be enforceable from a practical matter. Permit conditions must contain sufficient detail to ensure the facility clearly understands the obligations in the permit. Therefore, EPA recommends MDNR-APCP clearly specify a haul road maintenance frequency, with appropriate record keeping for verification.

Fifth, CO BACT incorporated into Special Condition 5. B. of the draft permit requires CMPP to operate their boilers using good combustion practices and over-fire air. The discussion of the BACT analysis MDNR-APCP performed and included on pages 20-22 in the Review Summary for the draft permit for spreader stoker boilers 6 and 7, identifies explicit good combustion practices that should be employed to obtain CO BACT control. Therefore, EPA strongly recommends MDNR-APCP incorporate these explicit activities in Special Condition 5. B. BACT should include an identified boiler tuning frequency; detailed steps to achieve combustion optimization; specific instruments and controls (including operating ranges and/or set points); the steps to reduce air leakage, heat transfer surface fouling; and specific preventative measures.

Additionally, the CO BACT selected for the natural gas-fired Boiler 8 is identified as a good combustion practice. Again, the discussion of the BACT analysis MDNR-APCP performed and included in the Review Summary of the draft permit, identifies explicit good combustion practices that should be employed to obtain CO BACT control. Therefore, EPA strongly recommends MDNR-APCP incorporate these explicit activities into the Special Condition. BACT should include an identified boiler tuning frequency; detailed steps to achieve combustion optimization; specific instruments and controls (including operating ranges and/or set points); the steps to reduce air leakage, heat transfer surface fouling; and specific preventative measures.

Sixth, the CO BACT requirement in Special Condition 5.E. requires CMPP to calculate the 30-day rolling average CO emission rate as the sum of all hourly CO emission rates (lb/MMBtu) divided by the number of hours of operation during the most recent 30-day period. What is unclear is at what frequency CMPP is required to calculate the rolling average. EPA recommends MDNR-APCP specify how often CMPP is to “roll the data” to verify compliance with the BACT limit.

Seventh, Special Condition 6. G. presents an operational limitation requiring CMPP to calculate and record the 12-month rolling total heat input for each boiler as the sum of each monthly heat input for the most recent 12-months. It is unclear, however, whether or not CMPP is being required to “roll the data” monthly. EPA recommends MDNR-APCP include additional specificity to Special Condition 6. G. identifying the roll frequency.

Finally, the draft permit Review Summary Project Description begins by stating that Columbia Municipal Power Plant “wishes” to cease combusting coal in Boilers 6 and 7 by no later than January 31, 2016. However, CMPP states on page 1-1 of the project application introduction that they “will cease combustion as of January 30, 2016.” Therefore, the cessation of coal combustion is not a “wish” but a “must.” This being the case, this cessation of coal combustion by no later than January 31, 2016 is more appropriately an enforceable permit condition and EPA recommends MDNR-APCP include this requirement as a Special Condition.

We appreciate the opportunity to provide what we hope you will find to be constructive comments. If you have any questions, please contact Bob Cheever by phone at 913-551-7980 or email at cheever.robert@epa.gov.

Sincerely,



Mark A. Smith, Chief
Air Permitting and Compliance Branch
EPA Region 7