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Georgia Department of Natural Resources

Environmental Protection Division • Air Protection Branch

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Chris Clark, Commissioner

F. Allen Barnes, Director

NOV 15 2010

Matthew Lydon, EH&S Manager
Mackinaw Power - Effingham County Power Plant
3440 McCall Road
Rincon, Georgia 31326

Re: Application No. 19810, dated July 22, 2010
Mackinaw Power - Effingham County Power Plant, Rincon, AIRS No : 10300012

Dear Mr. Lydon:

Technical review of the above referenced application for the construction and operation of a 668-megawatt (MW) power plant has progressed. As a result, the Division has the following comments:

1. Georgia EPD is required to address both filterable and condensable particulate matter (CPM) in establishing enforceable emissions limits for particulate matter less than 10 microns (PM10) and fine particulate matter (PM2.5) in New Source Review (NSR) permits as of January 1, 2011. Mackinaw Power notes that PM10 and PM2.5 emissions for the combustion turbines (CTs) include filterable and back-half emissions. Is it correct to assume that the phrase "back-half emissions" corresponds to CPM? Do the projected potential emissions of PM10 and PM2.5 include both filterable and CPM from the other applicable pieces of equipment? If not, please update the projected potential emissions for these two regulated NSR pollutants as found in the application.
2. Will the proposed new equipment use the same source of water as the existing equipment? Please explain.
3. Mackinaw Power proposes to combust fuel oil in the combustion turbines (CTs) and natural gas in the duct burners. Mackinaw Power has proposed best available control technology (BACT) emission limits for carbon monoxide (CO), volatile organic compounds (VOCs), and particulate matter (PM, PM10, and PM2.5) for fuel oil firing of the CTs with duct firing. This operational scenario is not included as a potential operating scenario in Tables 2-4 or 4-8 which define the facility's potential emissions as well as BACT economic analysis. Georgia EPD cannot consider permitting this operational scenario without the applicant providing for the scenario in the facility's potential emissions and subsequent BACT economic analysis and air impact assessment. Please revise Tables 2-4 and 4-8 and the air impact assessment (if applicable) to account for this operational scenario.

4. Mackinaw Power proposes a BACT emissions limit for CO for the operational scenario of natural gas combustion in the CT with duct firing of 10.5 ppmvd @ 15% oxygen. This emission rate corresponds to a CT operating at baseload at an ambient temperature of 95 deg F. This limit cannot be considered because the applicant used a limit of 10.0 ppmvd @15% oxygen in the BACT economic analysis noted in Table 4-8. Please update the application accordingly if Mackinaw Power request a CO BACT emissions limit of 10.5 ppmvd @15% oxygen. Note: The limit of 10.0 ppmvd @15% oxygen corresponds to the operational scenario of natural gas combustion in the CT with duct firing at an ambient temperature of 59 deg F.

5. On page 4 of the application, Mackinaw Power notes that, "For this Project, the combustion process is based on lean premix staged combustion. . . . also referred to as DLN combustors." On page 5 of the application, Mackinaw Power notes that, ". . . the CTs typically will operate between 50 and 100 percent of load for an annual average capacity factor of approximately 40 to 60 percent."
 - a. At what minimum CT load, for each fuel type, does DLN combustion begin (i.e., at what maximum load does diffusion flame combustion end)?
 - b. What is the maximum percent load at the end of a 'warm startup'? Is it approximately 23.7% as stated in Table 2-3?
 - c. What is the maximum percent load at the end of a "cold startup"? Is it approximately 68.5% as stated in Table 2-3?
 - d. At what minimum CT load (per fuel type) is the SCR operational?
 - e. At what minimum CT load is water injection operational?

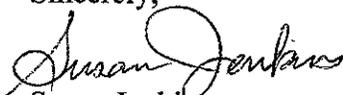
6. Mackinaw Power proposes BACT emissions limits for the applicable regulated NSR pollutants. The proposal does not include the following:
 - a. At what minimum loads (per fuel type) do these limits apply?
 - b. Averaging periods for each proposed BACT emission limit.
 - c. A discussion of BACT for periods of startup and shutdown of the combustion turbines.
 - d. Short-term BACT emission limits or work practice standards for periods of startup and shutdown.

7. Please conduct an air impact assessment for a requested operational scenario for the combustion of fuel oil in the combustion turbines during startup and shutdown.

8. On page 7 of the application Mackinaw Power notes, "To provide a conservative estimate of maximum pollutant emissions, the maximum emissions assume that the inlet chillers would be used when the ambient temperature is 95 deg F."
 - a. Will the inlet chillers be used at non-base load operational scenarios that occur at 95 deg F?
 - b. Do the emission estimates in Tables 2-1, 2-2, and 2-4 reflect an operational scenario of use of inlet chillers at 95 deg F?
 - c. Is the use of inlet chillers irrespective of fuel burned in the combustion turbines?
9. The application appears to be silent on whether Mackinaw Power intends on construction and operating additional storage tanks for ammonia.
 - a. Will Mackinaw Power construct and operate additional ammonia storage at the existing site? If so, please complete the applicable air permit application forms and please include the concentration of ammonia stored in these proposed new storage tanks.
10. Please address the potential applicability of the proposed Boiler MACT standard to applicable equipment.
11. Greenhouse gas (GHG) emissions from the largest stationary sources will, for the first time, be covered by the Prevention of Significant Deterioration (PSD) and title v Operating Permit Programs beginning January 2, 2011. In light of this requirement, Georgia EPD requests that Mackinaw Power provide the following information:
 - a. Please conduct a "five-step" top-down BACT analysis for GHGs proposed to be emitted by the new equipment. The U.S. EPA's website for Clean Air Act Permitting for Greenhouse Gases is at www.epa.gov/nsr/ghgpermitting.html.

The Division requests a response to these comments within ninety (90) business days following receipt of this letter. If you have any questions or need more information, please contact Tyneshia Tate at (404) 362-2700 or via email at tyneshia.tate@dnr.state.ga.us or Susan Jenkins at (404) 362-4598 or via email at susan.jenkins@dnr.state.ga.us.

Sincerely,



Susan Jenkins
Environmental Engineer, PSD Facilitator
Stationary Source Permitting Program

- c: Tyneshia Tate, Georgia EPD Stationary Source Permitting Program
Rosendo Majano, Georgia EPD Planning & Support Program