



Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director

DEPARTMENT OF NATURAL RESOURCES

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JUN 24 2014

Mr. Steve Courtney
Environmental Affairs, HQ
Kansas City Power & Light Company
P.O. Box 418679
Kansas City, MO 64141

RE: New Source Review Temporary Permit Request - Project Number: 2014-04-039

Installation ID Number: 083-0001

Temporary Permit Number: **062014-008**

Expiration Date: June 16, 2015

Dear Mr. Courtney:

The Missouri Department of Natural Resources' Air Pollution Control Program has completed a review of your request to test mercury controls at Kansas City Power & Light - Montröse Generating Station, located near Clinton, Missouri. The Air Pollution Control Program is hereby granting your request to conduct this temporary operation at this location in accordance with Missouri State Rule 10 CSR 10-6.060(3).

According to your request, the controls will be tested for proposed compliance with 40 CFR 63 Subpart UUUUU, *National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units*. Three solid sorbents will be injected downstream of Boiler 2, upstream of the electrostatic precipitator (ESP). Unit 2 has its own dedicated ESP, but shares a combined stack with Unit 3. The sorbents will be injected alone or in combination. The alone or combined maximum injection rate will not exceed 317 pounds per hour. The sorbents are brominated activated carbon, amended silicates, and a propriety oxidizer called ME2C. Currently sulfur trioxide (SO₃) is injected upstream of the ESP to improve PM removal efficiency. During the tests either SO₃ or a liquid conditioning agent ADA-ES RESpond will be injected, but not together. According to the material safety data sheets (MSDS), the test additives do not contain volatile organic compounds (VOCs) or hazardous air pollutants (HAPs). The solid sorbents may be delivered in super sacks or pneumatic trucks. Spent sorbent will be entrained with fly ash and subject to the ESP removal efficiency.

A historic ESP PM control efficiency was not available during permit review. ESP control efficiency was obtained from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Table B.2-3 AIRS code 010, January 1995. Activated carbon particle size distribution was obtained from various vendors and solid sorbent PM, PM₁₀, and PM_{2.5} control efficiencies were determined by weighted average. According to the EPA document, *Operation and Maintenance Manual for Electrostatic Precipitators*, page 2-9, September 1985, an ESP designed for 99.5 percent collection efficiency but running Western subbituminous coal could operate at a collection efficiency of 90 percent or less. So, operating Unit 2 without SO₃ could result in a significant net emissions increase if the RESpond additive were not effective. As the RESpond has been on the market for some time and has been tested at other installations, it was assumed the ESP control efficiency would not decrease during the test.

Potential emissions from solid sorbent handling were calculated using cement supplement unloading emission factors obtained from AP-42 Table 11.12-2, June 2006.

Potential emissions from haul roads for sorbent receiving and shipping were calculated using AP-42 Section 13.2.1, *Paved Roads*, January 2011 and Section 13.2.2, *Unpaved Roads*, November 2006. Project emissions are based upon 50 days of testing, or 1,200 hours.

Emission Summary (tpy)

Pollutant	De Minimis Level	Project Potential Emissions
PM	25.0	3.73
PM ₁₀	15.0	2.84
PM _{2.5}	10.0	2.53

Since all pollutants are expected to have potential emissions below de minimis levels and additional testing is being conducted to measure the effects of the additives on emission levels, permission to temporarily use the additives is granted up to the expiration date stated above. In order to continue using the additives past the expiration date, KCPL will need to seek permission from the Air Pollution Control Program.

No later than 90 days following the expiration of this permit, KCPL shall submit a project report to the Air Pollution Control Program. At a minimum, the report shall include:

1. Identification of the emission units and control devices evaluated for this project
2. Locations of the additive introduction and sampling sites
3. Additive rates and concentrations, unit load for each trial
4. The amount of each additive used per respective trial
5. The date, time, and duration of each trial. The number of days of testing shall not exceed 90 days.

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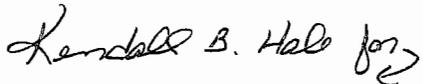
6. Comparison of emission rates of PM filterable, PM₁₀, PM_{2.5}, SO₂, SO₃, and mercury during the trials and immediately pre or post project
7. Higher heating value, sulfur, mercury, moisture, and ash content of the coal used in the trials and during the pre or post project testing period
8. Conclusions reached concerning the emissions reduction effectiveness of the testing project

KCPL is still obligated to meet all applicable air pollution control rules, Department of Natural Resources' rules, or any other applicable federal, state, or local agency regulations. Specifically, you should avoid violating 10 CSR 10-6.045 *Open Burning Requirements*, 10 CSR 10-6.220, *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.165 *Restriction of Emission of Odors*, 10 CSR 10-6.170 *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, and 10 CSR 10-6.405 *Restriction of Particulate Matter Emissions From Fuel Burning Equipment Used For Indirect Heating*.

A copy of this letter should be kept at the installation and be made available to Department of Natural Resources' personnel upon verbal request. If you have any questions regarding this determination, please do not hesitate to contact David Little at the department's Air Pollution Control Program, P.O. Box 176 Jefferson City, MO 65102 or by telephone at (573) 751-4817. Thank you for your time and attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM



Kyra L. Moore
Director

KLM:dll

c: PAMS File: 2014-04-039
Kansas City Regional Office