



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

DEPARTMENT OF NATURAL RESOURCES

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JUN 09 2015

PERMIT BOOK

Mr. Christian Johanningmeier
Superintendent
Columbia Municipal Power Plant
P.O. Box 6015
Columbia, MO 65201

RE: New Source Review Temporary Permit Request - Project Number: 2015-05-008

Installation ID Number: 019-0002

Temporary Permit Number: **06 2015 - 004**

Expiration Date: January 6, 2016

Dear Mr. Johanningmeier:

The Missouri Department of Natural Resources' Air Pollution Control Program has completed a review of your request to conduct trial burns to test the feasibility of combusting corn stover and grass blended with coal in EP-02 Boiler #7 at Columbia Municipal Power Plant, located in Columbia, 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).

The Columbia Municipal Power Plant is authorized to conduct two separate trial burns. In the first trial burn the installation will combust up to 50 percent corn stover with the remaining percentage being coal. In the second trial burn the installation will combust up to 50 percent corn stover and grass with the remaining percentage being coal. Percentages are based upon Btu rating rather than tonnage. The corn stover and grass will be handled using the installation's existing coal handling equipment. No new equipment will be added.

The emission factors used in this analysis were obtained from the Environmental Protection Agency's document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Sections 1.1 "Bituminous and Subbituminous Coal Combustion" (September 1998) and 1.6 "Wood Residue in Combustion Boilers" (September 2003) and the installation's 2014 SO_x and NO_x CEMS data as reported in their 2014 Emission Inventory Questionnaire. The installation estimated the heating value of the corn stover and/or grass to be 7,800 Btu/lb. The installation has estimated testing will last for 80 hours. To be conservative, potential emissions for this project, available in Table 1, were based upon 160 hours.

Table 1: Potential Emissions Comparison (tons/160 hours)

Fuel	PM	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	VOC	HAP
100% Coal	1.40	1.35	1.30	92.74	12.30	6.05	0.06	1.64
Coal mixed with up to 50% corn stover and/or grass	2.44	2.02	1.87	46.74	13.42	11.93	0.28	1.43

Permission to conduct the trial burns is granted with the following conditions:

1. The permittee shall combust no more than 700 tons of corn stover and grass in EP-02 Boiler #7.
2. No later than 90 days after the expiration date of this permit, the permittee shall submit a project report to the Air Pollution Control Program. The report shall include:
 - a. A copy of the analytical data for each batch of corn stover and corn stover/grass combusted during each trial burn.
 - b. The start date, start time, and duration of each trial burn.
 - c. The quantity in tons and the heat content in Btu of the corn stover, grass, and coal combusted during each trial burn.
 - d. A table of emission factors developed from the stack testing conducted during the trial burns. The developed emission factor table shall include sample calculations and a full stack testing report.
 - e. The emission factors shall be reported in both pounds of pollutant per MMBtu and pounds of pollutant per ton.
 - f. An emission factor comparison for the different types of fuels combusted.
 - g. A steam production rate comparison for the different types of fuels combusted.
 - h. An emission factor summary including discussion of the methods used to develop the emission factors.
 - i. Conclusions reached concerning the long-term feasibility of blending corn stover or corn stover/grass with coal in EP-02 Boiler #7.

The permittee 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 10-6.165 *Restriction of Emission of Odors*
- ◆ 10 CSR 10-6.170 *Restriction of PM to the Ambient Air Beyond the Premises of Origin*
- ◆ 10 CSR 10-6.220 *Restriction of Emission of Visible Air Contaminants*
- ◆ 10 CSR 10-6.260 *Restriction of Emission of Sulfur Compounds*
- ◆ 10 CSR 10-6.405 *Restriction of PM Emissions From Fuel Burning Equipment Used for Indirect Heating*
- ◆ 40 CFR Part 64 *Compliance Assurance Monitoring*
- ◆ 40 CFR Parts 72, 73, 75, 76, 77, and 78 *Acid Rain Program*
- ◆ 40 CFR Part 96 *CAIR*

Mr. Christian Johanningmeier
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A copy of this letter should be kept with the unit 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 Alana Hess at the departments' 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

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c: PAMS File: 2015-05-008
Northeast Regional Office