

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Matt Blunt, Governor • Doyle Childers, Director

www.dnr.mo.gov

MAY 15 2008

Mr. Stacy Maxwell
Operation Supervisor
Central Electric Power Cooperative-Chamois Plant
P.O. Box 127
Chamois, MO 65024

Re: New Source Review Temporary Permit Request – Project Number: 2008-04-050
Installation ID Number: 151-0002
Temporary Permit Number: **052008-001**
Expiration Date: May 01, 2009

Dear Mr. Maxwell:

The Missouri Department of Natural Resources' Air Pollution Control Program has completed a review of your request to temporarily burn biomass fuels in your boilers (EU0020). The Air Pollution Control Program is hereby granting your request to conduct these temporary operations at this location according to Missouri State Rule 10 CSR 10-6.060(3). Permission to conduct the above activities is hereby granted provided that no more than 400 tons of solid during this trial is burned in the boilers.

The Central Electric Power Cooperative-Chamois Plant proposes to burn up to 400 tons of solid biofuels in order to assess the functionality of burning biomass fuels in their coal-fired boilers and gain experience with material handling and general combustion issues. The biofuel will consist of some combination of wheat flour based breading mixture and a soy bean oil based frying medium (fryer sludge). This amount of biofuel will replace approximately 15% of the solid fuel content by mass. Existing equipment will be used during the trial evaluation. The usage of the biomass fuel is not expected to change or cause an increase in design capacity of the boiler and the raw material handling/processing operations. An accurate record (Attachment A) of the total amount of biomass fuel combusted in the boiler shall be maintained for not less than five years.

There are currently no emission factors available for the introduction of biomass fuel into the boiler except for those of chipped wood. These emission factors were obtained from Environmental Protection Agency document AP-42, *Compilation of Air Pollutant*

Emission Factors, Fifth Edition, Section 1.6, *Wood Residue Combustion in Boilers* (9/03) and the emissions for burning 400 tons of chipped ground wood is shown in Table 1.

Table 1: Emissions based on 400 tons of wood consumed per year

	PM ₁₀	Sulfur Oxides	Nitrogen Oxides	Carbon Monoxide	VOC*	HAPs
Potential Emissions	1.4	0.1	1.9	2.3	0.1	0.1

*VOC = Volatile Organic Compound and HAP = Hazardous Air Pollutants

Emissions for all pollutants from the burning of other type of biofuels are expected to be similar or less than emissions from burning the chipped/ground wood except for possibly particulate matter emissions. Table 2 lists some of the key characteristics of biofuels as well as bituminous coals.

Table 2: Fuel Characteristics

Biomass Fuel	Moisture (%)	Ash (%)	Sulfur (%)	HHV (BTU/lb)
Corn Stover	12 – 18	1.0 – 6.5	0.0 – 0.6	7,400 – 8,000
Chipped/Ground Wood	15 – 20	0.5 – 2.0	0.0 – 0.7	8,000 – 9,500
Paper Pellets	8 – 12	5.0 – 7.0	0.1 – 0.2	7,000 – 8,000
Switchgrass	25 – 30	6.0 – 8.0	0.05 – 0.2	7,000 – 8,000
Dried Distiller Grains	8 – 15	5.0 – 7.0	0.1 – 0.2	7,500 – 9,000
Bituminous Coal	2.2 – 15.9	3.3 – 11.7	0.7 – 4.0	10,500 – 15,000

The ash content of the wheat flour based breadmaking mixture is about 9.76% and soy bean oil based frying medium is 1.36 % compared to 6% for coal when it replaces the bio-fuel. Table 3 lists the approximate fuel characteristics of the material to be tested.

Table 3: Fuel Characteristics of Breadmaking Mixture and Soybean Oil Medium.

Biomass Fuel	Moisture (%)	Ash (%)	Sulfur (%)	(BTU/lb)
Breadmaking Mixture	31.06	9.76	0.300 – 0.6	4933
Fryer Sludge	0.01	1.36	0.17	12346

PM₁₀ emissions are well below the required 100 tons per year for temporary permits. Since all pollutants are expected to have emissions below 100 tons per year, permission to temporarily burn the biofuels is granted up to the expiration date stated above. In order to continue burning the biofuels past the expiration date, Central Electric Power Cooperative- Chamois Plant will need to seek permission from the Air Pollution Control Program.

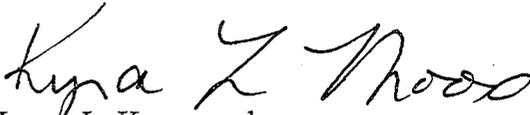
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You are still obligated to meet all applicable air pollution control rules, Department of Natural Resources' rules, or any other applicable federal, state, or local agency regulations. Specifically, you should avoid violating 10 CSR 10-2.100, *Open Burning Restrictions*, 10 CSR 10-6.220, *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.170, *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, and 10 CSR 10-2.070, *Restriction of Emission of Odors*.

A copy of this letter should be kept on-site and be made immediately available to Department of Natural Resources' personnel upon request. If you have any questions regarding this temporary permit, please contact Mr. Tim Hines with 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


for James L. Kavanaugh
Director

JLK:thl

Enclosure

c: Mr. Steve Feeler, Compliance/Enforcement Section
Northeast Regional Office
PAMS File 2008-04-050

