



Missouri Department of dnr.mo.gov

# NATURAL RESOURCES

Michael L. Parson, Governor

Carol S. Comer, Director

October 14, 2020

Evan Bryant  
Area Director  
Royal Oak Enterprises-Ellsinore  
P.O. Box 850  
West Plains, MO 65775

RE: New Source Review Temporary Permit Request - Project Number: 2020-09-047

Installation ID Number: 035-0004  
Expiration Date: October 1, 2021  
Temporary Permit Number: 102020-003

Dear Evan Bryant:

On August 31, 2020, the Air Pollution Control Program received your request to extend the period of operation for the [REDACTED] Kiln located at the Ellsinore installation (Site ID: 035-0004). The temporary permit expired May 1, 2020. As stated in your email, there was several delays in getting the kiln here from [REDACTED] as well as installation issues. You want to run additional stack tests using propane and then apply for a permanent permit. An additional year is requested in order to rebuild the fire box and make modifications for propane usage.

Since the temporary permit had expired May 1, 2020, the extension cannot be granted and another temporary permit application was needed. This was received, September 23, 2020. The new temporary permit essentially the same as the one from 2019, therefore 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(10) with an expiration date of October 15, 2021.

Royal Oak submitted a second application for a temporary metal retort style kiln (RK-1) with a furnace and chimney routed to an afterburner for control. The new kiln system will not replace any of the 50 existing kilns or 5 separate control devices (afterburners). The kiln is a pyrolysis type kiln with a way of supplying heat through the wall and then combusting the pyrolysis products. The technology used in the kiln can be compared to the retort method of charcoal production [REDACTED]

[REDACTED] The original design presented to Missouri Department of Natural Resources' Air Pollution Control Program included [REDACTED]



██████████ The duration of the drying and pyrolysis processes depends on the ambient temperature, size, density, humidity, loaded volume and the weight of the initial raw material. Royal Oak expects a cycle to take ██████████.

The afterburner was initially built with a wood burning firebox and will now be modified to use propane instead to maintain a nominal operating temperature of 1600°F, with a 1520°F minimum temperature if the kiln does not provide adequate combustion gases. Stack testing for this style of kiln has not been conducted and will be conducted during Royal Oak's verification process during this process. Methods 1-5 will be used to test for Particulate Matter (PM). Method 7 will be used to test for NOx. NOx emissions are not known but are expected to be well below the 100 tons per year temporary permit threshold. Method 10 will be used to test for Carbon Monoxide (CO). Method 18/25A will be used to test for Non Methane Organic Compounds (NMOC). The test methods shall prove at least a 99% or greater VOC control efficiency. Visible emissions from the kiln/control system shall not be greater than 10% opacity. This will be validated using Method 9. No charcoal from this verification/testing process will be sold or offered for sale.

The expected potential to emit for this process as stated in your application is expected to be below de minimis levels for all criteria pollutants. These emission factors are based on the maximum emission (lb/hr) allowed in 10 CSR 10-6.330 *Restriction of Emissions From Batch-Typed Charcoal Kilns*. The calculations that Royal Oak provided also include haul road emissions for the wood slabs (raw material) and charcoal (finished product). The following Table 1 represents the potential to emit for criteria pollutants.

Table 1: Potential to Emit for Retort Style Kiln RK-1 at Ellsinore, Missouri (tons per year)

PM/PM <sub>10</sub> /PM <sub>2.5</sub>	CO	NOx	VOC	Methanol	HAPs
6.75/6.62/6.58	7.67	<100.0	1.05	1.05	1.05

This is the public version of the temporary permit. A confidential version of this temporary permit will also be issued under the project number 2020-09-029.

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 10-6.045 *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 10-6.400 *Restriction of Emission of Particulate Matter From Industrial Processes*.

A copy of this letter should be kept with the unit and be made available to Department of Natural Resources' personnel upon verbal request.

Evan Bryant  
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If you have any questions regarding this determination, please do not hesitate to contact Kathy Kolb 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

A handwritten signature in blue ink that reads "Darcy A. Bybee". The signature is written in a cursive style.

Darcy A. Bybee  
Director

DAB:kkj

c: PAMS File: 2020-09-047  
Southeast Regional Office