

STATE OF MISSOURI



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the terms, rules and conditions as set forth herein.

Permit Number: **102008-003** Project Number: 2008-03-091

Parent Company: Royal Oak Enterprises, LLC

Parent Company Address: P. O. Box 549, Salem, MO 65560

Installation Name: Royal Oak Enterprises, LLC

Installation Address: Highway 60, Ellsinore, MO 63937

Location Information: Carter County, S35, T27N, R2E

Application for Authority to Construct was made for the installation of a new lump charcoal screening and bagging operation. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

Standard Conditions (on reverse) are applicable to this permit.

Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

OCT 16 2008

EFFECTIVE DATE

A handwritten signature in cursive script, reading "Steven J. Feller". Below the signature is a horizontal line, and to the right of the line are the initials "for JIK".
DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the departments' Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

STATE OF MISSOURI



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: Project Number: 2008-03-091

Parent Company: Royal Oak Enterprises, LLC

Parent Company Address: P. O. Box 549, Salem, MO 65560

Installation Name: Royal Oak Enterprises, LLC

Installation Address: Highway 60, Ellsinore, MO 63937

Location Information: Carter County, S35, T27N, R2E

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-
- Standard Conditions (on reverse) are applicable to this permit.
 - Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

EFFECTIVE DATE

DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

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You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the departments' Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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Permit No.	
Project No.	2008-03-091

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

Royal Oak Enterprises, LLC
Carter County, S35, T27N, R2E

1. Emissions Limitations
 - A. Royal Oak Enterprises, LLC shall emit less than 15.0 tons of particulate matter less than ten (10) microns in diameter (PM₁₀) in any consecutive 12 month period from the lump charcoal screening and bagging operation (equipment/activities listed in Table 1).
 - B. Royal Oak Enterprises, LLC shall maintain an accurate record of PM₁₀ emitted into the atmosphere from the lump charcoal screening and bagging operation (equipment/activities listed in Table 1). Attachment A, or equivalent form(s), shall be used for this purpose. Royal Oak Enterprises, LLC shall maintain all records required by this permit for not less than five (5) years and shall make them available to any Missouri Department of Natural Resources' personnel upon request.
 - C. Royal Oak Enterprises, LLC shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after the end of the month during which the records from Special Condition Number 1.B. indicate that the source exceeds the limitation of Special Condition Number 1.A.

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Permit No.	
Project No.	2008-03-091

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

Table 1: Equipment/Activities for the Lump Charcoal Packaging Operation

Emission Point	Description
EP-22	Hauling Raw Charcoal
EP-23	Charcoal Storage
EP-24	Hopper Loading
EP-25	Hopper Loading
EP-26	Hopper Discharge
EP-27	Hopper Discharge
EP-28	Conveyor
EP-29	Conveyor
EP-30	Conveyor
EP-31	Conveyor
EP-32	Disc Screen
EP-33	Disc Screen
EP-34	Fines Discharge Conveyor
EP-35	Fines Discharge Conveyor
EP-36	Lump Discharge Conveyor
EP-37	Lump Discharge Conveyor
EP-38	Lump Bagging
EP-39	Lump Bagging
EP-40	Fines Storage Pile
EP-41	Loading Fines Truck
EP-42	Product Hauling

2. Haul Road Control
 - A. Royal Oak Enterprises, LLC shall water the product haul road whenever conditions exist which would cause visible fugitive emissions to enter the ambient air beyond the property boundary.
 - B. Royal Oak Enterprises, LLC shall pave the raw charcoal haul road and the raw charcoal vehicular activity area with material such as asphalt, concrete and/or other materials approved by the Air Pollution Control Program as specified in the permit application. Maintenance and/or repair of the road surface shall be conducted as necessary to ensure that the physical integrity of the pavement is adequate to achieve control of fugitive emissions from these areas while the plant is operating. The operators shall periodically water, wash or otherwise clean all of the paved portions of the haul road and vehicular activity area to achieve control of fugitive emissions while the plant is operating.

3. Baghouse Control Requirements
 - A. Royal Oak Enterprises, LLC shall control emissions from the equipment/activities listed in Table 2 using baghouses as specified in the permit application. The baghouses shall be operated and maintained in

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Permit No.	
Project No.	2008-03-091

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

accordance with the manufacturer's specifications. The baghouse shall be equipped with a gauge or meter, which shall indicate the pressure drop across the control device. These gauges or meters shall be located such that the Department of Natural Resources' employees may easily observe them. Replacement filters for the baghouses shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).

Table 2: Equipment/Activities to be Controlled by Baghouses

EP-24	Hopper Loading
EP-25	Hopper Loading
EP-26	Hopper Discharge
EP-27	Hopper Discharge
EP-28	Conveyor
EP-29	Conveyor
EP-30	Conveyor
EP-31	Conveyor
EP-32	Disc Screen
EP-33	Disc Screen
EP-34	Fines Discharge Conveyor
EP-35	Fines Discharge Conveyor
EP-36	Lump Discharge Conveyor
EP-37	Lump Discharge Conveyor
EP-38	Lump Bagging
EP-39	Lump Bagging

- B. Royal Oak Enterprises, LLC shall monitor and record the operating pressure drop across the baghouses at least once every 24 hours while the equipment is in operation. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
- C. Royal Oak Enterprises, LLC shall maintain an operating and maintenance log for the baghouses which shall include the following:
 - 1. Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
 - 2. Maintenance activities, with inspection schedule, repair actions, and replacements, etc.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2008-03-091
Installation ID Number: 035-0004
Permit Number:

Royal Oak Enterprises, LLC
Highway 60
Ellsinore, MO 63937

Complete: March 28, 2008

Parent Company:
Royal Oak Enterprises, LLC
P. O. Box 549
Salem, MO 65560

Carter County, S35, T27N, R2E

REVIEW SUMMARY

- Royal Oak Enterprises, LLC has applied for authority to construct a new lump charcoal screening and bagging operation.
- Hazardous Air Pollutant (HAP) emissions are not expected from the proposed equipment.
- None of the New Source Performance Standards (NSPS) apply to the proposed equipment.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) or currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- Baghouses are being used to control the PM₁₀ emissions from the equipment/activities in this permit.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are conditioned to below de minimis levels.
- This installation is located in Carter County, an attainment area for all criteria air pollutants
- This installation is on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2, #25, Charcoal Production Facilities].
- Ambient air quality modeling was not performed since potential emissions of the application are conditioned to below de minimis levels.

- Emissions testing is not required for the equipment of this permit.
- A modification to your operating permit is required for this installation within ninety (90) days of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Royal Oak Enterprises, LLC operates a charcoal kiln and packaging plant near Ellsinore. Wood and wood materials are pyrolyzed in a kiln to form lump charcoal. The lump charcoal are then separated and packaged for sale. There is also a Brix operation at the site. First, raw materials (charcoal, limestone, sawdust and coal) are combined, ground and sized. A solution of starch and water is then added to the mixture. The resulting mixture is extruded to form wafers (called Brix) and dried. After drying, a wax coating is applied to the Brix and these Brix are then packaged for shipment.

Historically, the charcoal kilns and the packaging/brix plant have been considered separate installations. The charcoal kilns were given installation ID 035-0004 and the packaging/brix plant was given installation ID 035-0021. However, these operations should be considered part of the same installation since these sources have the same primary activity, which is the production and processing of charcoal. Therefore, the installation ID 035-0004 will now be the designation for the entire facility and the installation ID 035-0021 will now be discontinued.

The following permits have been issued to the installation from the Air Pollution Control Program.

Table 3: Previous Construction Permits Issued to the Installation

Permit Number	Description
0782-008	Sawdust fired boiler and charcoal operation (Under ID 035-0004)
1297-014	Brix plant (Under ID 035-0021)
062003-004	Sixteen (16) charcoal kilns (Under ID 035-0004)
102003-009	Sixteen controlled kilns (Under ID 035-0004)

While being considered as a separate installation, the lump charcoal processing/brix manufacturing plant (035-0021) was considered a basic installation for operating permits. The charcoal kilns operation (035-0004) was considered a major installation for operating permits until Royal Oak Enterprises, LLC sent in a request in 2005 to change its status to a basic operating permit due to the addition of afterburners. After the issuance of this construction permit, Royal Oak Enterprises, LLC shall submit an application to modify its operating permit to combine the operating permits of the two operations into one operating permit. The potential emissions of the entire installation have not been determined. When applying for the operating permit modification, Royal Oak Enterprises shall submit information on all equipment (including any grandfathered equipment) so that the potential emissions from the entire installation can be calculated.

PROJECT DESCRIPTION

Royal Oak Enterprises proposes to install a new lump charcoal processing plant. The lump charcoal will be processed by hoppers, conveyors and screens before being bagged for shipping offsite. The entire process has a maximum hourly design rate of 22 tons of lump charcoal per hour. Baghouses will be used to control PM₁₀ emissions from all of the equipment.

EMISSIONS/CONTROLS EVALUATION

The haul road emission factors in this analysis were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 13.2.2, *Unpaved Haul Roads*, (11/06). Equipment emission factors were obtained from the Factor Information Retrieval (FIRE) system. There are no emission factors for the processing of lump charcoal, so emission factors from similar operations (scc 3-05-011-07, 3-05-016-08, 3-06-016-01, 3-05-016-07, 3-05-016-14) were used. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year.) The following table provides an emissions summary for this project. A baghouse capture efficiency of 95% was used for all the equipment due to enclosures and the high velocities of air at the pick-up points. A device efficiency of 99% was used for all of the baghouses. The raw material haul road is paved and was given a 90% control efficiency. The product haul road will be controlled by undocumented watering, which was given a 50% control efficiency.

Table 4: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	*Existing Potential Emissions	Existing Actual Emissions (2007 EIQ)	Potential Emissions of the Application	New Project Conditioned Potential
PM ₁₀	15.0	N/D	22.08	26.89	<15.0
SO _x	40.0	N/D	N/D	N/A	N/A
NO _x	40.0	N/D	69.45	N/A	N/A
VOC	40.0	N/D	3.57	N/A	N/A
CO	100.0	N/D	24.72	N/A	N/A
HAPs	10.0/25.0	N/D	N/D	N/A	N/A

N/A = Not Applicable; N/D = Not Determined

*The existing potential emissions of the installation have not been determined. While modifying its operating permit, the facility shall submit information on all equipment at the installation so that the emissions from the installation can be calculated.

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are below de minimis levels.

APPLICABLE REQUIREMENTS

Royal Oak Enterprises, LLC shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required June 1 for the previous year's emissions.
- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-3.090

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Chia-Wei Young
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated 3/28/08, received 3/28/08, designating Royal Oak Enterprises, LLC as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Southeast Regional Office Site Survey, dated 5/2/2008.

Mr. Jim Hayes
Area Vice President
Royal Oak Enterprises, LLC
Highway 60
Elllsinore, MO 63937

RE: New Source Review Permit - Project Number: 2008-03-091

Dear Mr. Hayes:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files.

Operation in accordance with these conditions, your new source review permit application and with your amended operating permit is necessary for continued compliance.

The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact Chia-Wei Young, at the departments' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:cwyl

Enclosures

c: Southeast Regional Office
PAMS File: 2008-03-091

Permit Number: