Missouri Department of NATURAL RESOURCES
dnr.mo.gov
Michael L. Parson, Governor
Carol S. Comer, Director

APR 3 0 2019

Mr. Kevin Crane
Director of Environmental, Health & Safety
Royal Oak Enterprises, LLC - Mountain View
PO Box 850
West Plains, MO 65775

RE: New Source Review Permit - Project Number: 2019-02-006

Dear Mr. Crane:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. 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 your new source review permit application 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.

This permit may include requirements with which you may not be familiar. If you would like the department to meet with you to discuss how to understand and satisfy the requirements contained in this permit, an appointment referred to as a Compliance Assistance Visit (CAV) can be set up with you. To request a CAV, please contact your local regional office or fill out an online request. The regional office contact information can be found at the following website: http://dnr.mo.gov/regions/. The online CAV request can be found at http://dnr.mo.gov/cav/compliance.htm.

If you were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty 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 administrative hearing commission, whose contact information is: Administrative Hearing Commission, United States Post Office Building, 131 West High Street, Third Floor, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: www.oa.mo.gov/ahc.

If you have any questions regarding this permit, please do not hesitate to contact Kathy Kolb, at the Department of Natural Resources' 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

Susan Heckenkamp
New Source Review Unit Chief

SH:kkj

Enclosures

c: Southeast Regional Office
PAMS File: 2019-02-006
Brian Matt, Royal Oak Enterprises, LLC

Permit Number: 042019-018

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: 042019-018 Project Number: 2019-02-006
Installation Number: 091-0012

Parent Company: Royal Oak Enterprises, LLC

Parent Company Address: 1 Royal Oak Avenue, Roswell, GA 30076

Installation Name: Royal Oak Enterprises, LLC - Mountain View

Installation Address: 9916 County Road 2780, Mountain View, MO 65548

Location Information: Howell County, S12, T26N, R7W

Application for Authority to Construct was made for:
Charcoal portable screening and bagging plant at an existing installation. 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.

Kendall B. Hale for

Director or Designee
Department of Natural Resources

APR 30 2019

Effective Date

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 Enforcement and Compliance Section of 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 Enforcement and Compliance Section of the Department's Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available within 30 days of actual startup. Also, you must notify the Department's 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 the permit application and this permit and permit review shall be kept at the installation address and shall be made available to Department's 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 using the contact information below.

Contact Information:
Missouri Department of Natural Resources
Air Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102-0176
(573) 751-4817

The regional office information can be found at the following website:
http://dnr.mo.gov/regions/

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW
Project Number: 2019-02-006
Installation ID Number: 091-0012
Permit Number: 042019-018

Installation Address:	Parent Company:
Royal Oak Enterprises, LLC - Mountain View	Royal Oak Enterprises, LLC
9916 County Road 2780	1 Royal Oak Avenue
Mountain View, MO 65548	Roswell, GA 30076

Howell County, S12, T26N, R7W

REVIEW SUMMARY

- Royal Oak Enterprises, LLC - Mountain View has applied for authority to construct a Charcoal portable screening and bagging plant at an existing installation.
- The application was deemed complete on February 7, 2019.
- HAP emissions are not expected from the proposed equipment.
- None of the New Source Performance Standards (NSPS) apply to the installation.
- None of the NESHAPs apply to this installation. None of the currently promulgated MACT regulations apply to the proposed equipment.
- No air pollution control equipment is being used in association with the new equipment.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM_{10} are below de minimis levels.
- This installation is located in Howell County, an attainment/unclassified area for all criteria pollutants.
- This installation is on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation is classified as item number 25. Charcoal production facilities. The installation's major source level is 100 tons per year and fugitive emissions are counted toward major source applicability.
- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.

- Emissions testing is not required for the equipment as a part of this permit. Testing may be required as part of other state, federal or applicable rules.
- No Operating Permit is required for this installation.
- Approval of this permit is recommended without special conditions.

INSTALLATION DESCRIPTION

Royal Oak Enterprises, LLC - Mountain View Kiln Facility is an existing charcoal production facility located in Mountain View, Missouri, which is in Howell County. The facility currently has two banks of eight kilns each and one bank of ten kilns for a total of 26 kilns. Each bank of kilns has an afterburner emission control device. There was an existing bank of 6 kilns (EP-05) that was dismantled in 2015 and replaced by the bank of ten kilns per Permit # 122015-013.

The following New Source Review permits have been issued to Royal Oak Enterprises, LLC - Mountain View from the Air Pollution Control Program.

Table 1: Previously Issued Construction Permits

Permit Number	Description
0499-016	This permit was issued for the installation of 12 new batch-type charcoal kilns with 2 afterburner controls. After receipt of the permit, only 6 batch-type charcoal kilns with 1 afterburner control were installed.
072009-011	This permit was issued for the installation of ten new batch-type charcoal kilns and two propane-fired afterburners. (Only eight kilns were built and Phase II was not constructed.)
082012-011	This permit was for a screening equipment that was never built, and its potential emissions were deducted from the facility's PTE per request by Royal Oak Enterprises, LLC-Mountain View Kiln Facility
092013-007	This permit was issued for the installation of eight new kilns and a thermal oxidizer (afterburner).
122015-013	This permit was for the construction of ten concrete charcoal kilns with a triple-pass afterburner

PROJECT DESCRIPTION

Royal Oak Enterprises, LLC requests to construct a wood char Screen/Bagging unit. A loader will deposit wood char into a hopper (EP-10). The finer material will fall though a screen (EP-11) onto the fines discharge screw conveyor (EP-12) that will be mixed with wet fines from the wet fines hopper (EP-13) and screw conveyor (EP-14). The larger wood char (lump) will discharge directly from a chute into the side of a metal container where a bagging operation (EP-15) is located. Storage pile and hauling road emissions at the site will not increase due to this project since the amount of wood char being produced has not changed. The new plant will reduce the hauling/storage/shipping of bulk charcoal and take charcoal from the pad to a finished bag on-site. The unit design will be made portable so it could be relocated to other facilities if necessary, but this is

not expected. An additional permit application will be submitted as required before relocating the unit.

Table 2: Emission Points and Equipment Description

Emission Point	Equipment	MHDR (tons per hour)
EP-10	Hopper Loading	7.0
EP-11	Screening	7.0
EP-12	Screw Conveyor	2.1
EP-13	*Fines Hopper loading	1.05
EP-14	*Fines Screw Conveyor	1.05
EP-15	Lump	4.90

*Wet, fine char material to be mixed with dry fines (as needed)

EMISSIONS/CONTROLS EVALUATION

Pollutants emissions from the screening/bagging unit will consist of filterable particulate matter (PM, PM_{10}, and $PM_{2.5}$). The emission calculations are derived from the emission rates by provided by Air Pollution Control Program memo dated December 12, 1995 for charcoal emissions and CEIDARS table. Production data was provided by Royal Oak. The maximum hourly design rate (MHDR) for the system can be determined by the kiln production capacity of 0.87 tons per hour char produced. Since there are three kiln banks the rate would be 2.61 tons per hour. But, because bagging will be performed in batches and the bottleneck is process (4 bags per minute), the MHDR will be closer to 7.0 tons per hour.

The following table provides an emissions summary for this project. Existing potential emissions were taken from Permit # 122005-003. Existing actual emissions were taken from the installation's 2018 EIQ (Last full EIQ was in 2016). Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year).

Table 3: Emissions Summary (tpy)

Pollutant	Regulatory *De Minimis* Levels	Existing Potential Emissions[a]	Existing Actual Emissions (2018 EIQ)	Potential Emissions of the Project	New Installation Conditioned Potential
PM	25.0	N/D	N/A	27.35	N/D
PM_{10}	15.0	29.35	9.77	13.67	43.02
$PM_{2.5}$	10.0	N/D	6.59	3.99	N/D
SOx	40.0	N/D	0.0	N/A	N/D
NOx	40.0	89.27	48.41	N/A	79.27
VOC	40.0	1.21	0.18	N/A	1.21
CO	100.0	1.85	0.65	N/A	1.85
HAPs	10.0/25.0	0.49	0.00	N/A	0.49

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

[a]Permit 122015-013

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 PM_{10} are below de minimis levels.

APPLICABLE REQUIREMENTS

Royal Oak Enterprises, LLC - Mountain View 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.

- *No Operating Permit is required*
- *Start-Up, Shutdown, and Malfunction Conditions,* 10 CSR 10-6.050
- *Submission of Emission Data, Emission Fees and Process Information,* 10 CSR 10-6.110
    - Per 10 CSR 10-6.110(4)(B)2.B(II) and (4)(B)2.C(II) a full EIQ is required for the first full calendar year the equipment (or modifications) approved by this permit are in operation.
- *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 10-6.165

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*, it is recommended that this permit be granted without special conditions.

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated February 6, 2019, received February 7, 2019, designating Royal Oak Enterprises, LLC as the owner and operator of the installation.

APPENDIX A

Abbreviations and Acronyms

% ..... percent
°F ..... degrees Fahrenheit
acfm ..... actual cubic feet per minute
BACT ..... Best Available Control Technology
BMPs ..... Best Management Practices
Btu ..... British thermal unit
CAM ..... Compliance Assurance Monitoring
CAS ..... Chemical Abstracts Service
CEMS ..... Continuous Emission Monitor System
CFR ..... Code of Federal Regulations
CO ..... carbon monoxide
CO_2 ..... carbon dioxide
CO_2e ..... carbon dioxide equivalent
COMS ..... Continuous Opacity Monitoring System
CSR ..... Code of State Regulations
dscf ..... dry standard cubic feet
EIQ ..... Emission Inventory Questionnaire
EP ..... Emission Point
EPA ..... Environmental Protection Agency
EU ..... Emission Unit
fps ..... feet per second
ft ..... feet
GACT ..... Generally Available Control Technology
GHG ..... Greenhouse Gas
gpm ..... gallons per minute
gr ..... grains
GWP ..... Global Warming Potential
HAP ..... Hazardous Air Pollutant
hr ..... hour
hp ..... horsepower
lb ..... pound
lbs/hr ..... pounds per hour
MACT ..... Maximum Achievable Control Technology
$\mu g/m^3$ ..... micrograms per cubic meter
m/s ..... meters per second
Mgal ..... 1,000 gallons
MW ..... megawatt
MHDR ..... maximum hourly design rate
MMBtu ..... Million British thermal units
MMCF ..... million cubic feet
MSDS ..... Material Safety Data Sheet
NAAQS ..... National Ambient Air Quality Standards
NESHAPs National Emissions Standards for Hazardous Air Pollutants
NO_x ..... nitrogen oxides
NSPS ..... New Source Performance Standards
NSR ..... New Source Review
PM ..... particulate matter
$PM_{2.5}$ ..... particulate matter less than 2.5 microns in aerodynamic diameter
PM_{10} ..... particulate matter less than 10 microns in aerodynamic diameter
ppm ..... parts per million
PSD ..... Prevention of Significant Deterioration
PTE ..... potential to emit
RACT ..... Reasonable Available Control Technology
RAL ..... Risk Assessment Level
SCC ..... Source Classification Code
scfm ..... standard cubic feet per minute
SDS ..... Safety Data Sheet
SIC ..... Standard Industrial Classification
SIP ..... State Implementation Plan
SMAL ..... Screening Model Action Levels
SO_x ..... sulfur oxides
SO_2 ..... sulfur dioxide
SSM ..... Startup, Shutdown & Malfunction
tph ..... tons per hour
tpy ..... tons per year
VMT ..... vehicle miles traveled
VOC ..... Volatile Organic Compound

			MHDR	7	tons/hr		61320	check			
		Based on Appendix B AP-42, 50% of PM is equal to PM10									
Emission Point	Description	PM Emission Factor	Units	EF Source	% input	Throughput/hr	Emissions (lb/hr)	Hours	Emissions (tons/yr)	Weighted EF	
EP-10	Hopper Loading	0.28	lb/ton	*MDNR Letter, Item 7	100	7.000	1.960	8760	8.585	0.28	
EP-11	Screening	0.24	lb/ton	*MDNR Letter, Item 9	100	7.000	1.680	8760	7.358	0.24	
EP-12	Screw Conveyor	0.36	lb/ton	*MDNR Letter, Item 5	30	2.100	0.756	8760	3.311	0.108	
EP-13	*Fines Hopper Loading	0.28	lb/ton	*MDNR Letter, Item 7	15	1.050	0.294	8760	1.288	0.042	
EP-14	*Fines Screw Conveyor	0.36	lb/ton	*MDNR Letter, Item 5	15	1.050	0.378	8760	1.656	0.054	
EP-15	Lump Bagging	0.24	lb/ton	*MDNR Letter, Item 18	70	4.900	1.176	8760	5.151	0.168	
							6.244		**27.349**	**0.892**	lb PM /ton input

* Wet, fine char material to be mixed with dry fines (as needed).

Emission Point	Description	PM10 Emission Factor	Units	EF Source	% input	Throughput/hr	Emissions (lb/hr)	Hours	Emissions (tons/yr)	Weighted EF	
EP-10	Hopper Loading	0.14	lb/ton	*MDNR Letter, Item 7	100	7.000	0.980	8760	4.292	0.14	
EP-11	Screening	0.12	lb/ton	*MDNR Letter, Item 9	100	7.000	0.840	8760	3.679	0.12	
EP-12	Screw Conveyor	0.18	lb/ton	*MDNR Letter, Item 5	30	2.100	0.378	8760	1.656	0.054	
EP-13	*Fines Hopper Loading	0.14	lb/ton	*MDNR Letter, Item 7	15	1.050	0.147	8760	0.644	0.021	
EP-14	*Fines Screw Conveyor	0.18	lb/ton	*MDNR Letter, Item 5	15	1.050	0.189	8760	0.828	0.027	
EP-15	Lump Bagging	0.12	lb/ton	*MDNR Letter, Item 18	70	4.900	0.588	8760	2.575	0.084	
							3.122		**13.674**	**0.446**	lb PM10 /ton input

* Wet, fine char material to be mixed with dry fines (as needed).

Emission Point	Description	PM2.5 Emission Factor	Units	EF Source	% input	Throughput/hr	Emissions (lb/hr)	Hours	Emissions (tons/yr)	Weighted EF	
EP-10	Hopper Loading	0.041	lb/ton	PM10 EF x CEIDARS(0.292)	100	7.000	0.286	8760	1.253	0.04088	
EP-11	Screening	0.035	lb/ton	PM10 EF x CEIDARS(0.292)	100	7.000	0.245	8760	1.074	0.03504	
EP-12	Screw Conveyor	0.053	lb/ton	PM10 EF x CEIDARS(0.292)	30	2.100	0.110	8760	0.483	0.015768	
EP-13	*Fines Hopper Loading	0.041	lb/ton	PM10 EF x CEIDARS(0.292)	15	1.050	0.043	8760	0.188	0.006132	
EP-14	*Fines Screw Conveyor	0.053	lb/ton	PM10 EF x CEIDARS(0.292)	15	1.050	0.055	8760	0.242	0.007884	
EP-15	Lump Bagging	0.035	lb/ton	PM10 EF x CEIDARS(0.292)	70	4.900	0.172	8760	0.752	0.024528	
							0.912		**3.993**	**0.130232**	lb PM2.5 /ton input

* Wet, fine char material to be mixed with dry fines (as needed).

4.034 17.667

It takes 30 seconds to fill a 40 lb. bag
2 bags are fill in 1 minute
2 x 40 = 80 lb/min
60 minutes/hr x 80 lb/min = 4800 lb/hr
4800 lb/hr / 2000 lb/ton = 2.4 tons/hr that can be bagged on one head
Royal Oak wants the flexibility to operate with two heads, therefore
2 head x 2.4 tons/hr = 4.8 tons/hr which is approximately 4.9 tons /hr as the throughput for Lump Bagging

EP-10 hopper loading is total charcoal of 7 tph
EP-11 Screening is total charcal of 7 tph

Total charcoal consists of 70% lump and 30% fines
7 x 30% = 2.1 fines EP-12
50% of the fines will be wet fines that will be mixed in with the dry fines that are directly from the kiln.
50% of 2.1 = 1.05 EP-13
50% of 2.1 = 1.05 EP-14

EP-15 Lump bagging is 70% of 7.0 = 4.9 tph which is approximately 4.8 tons per hour as stated above.
The wet/dry fines are shipped by truck as before to the briquette plant at Salem or West Plains