

**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: **122015-007** Project Number: 2015-08-035  
Installation Number: 065-0002

Parent Company: Royal Oak Enterprises, LLC

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

Installation Name: Royal Oak Enterprises, LLC - Salem Kiln Facility

Installation Address: 673 Hwy JJ, Salem, MO 65560

Location Information: Dent County, S30, T35N, R5W

Application for Authority to Construct was made for:  
Construction of ten (10) new, concrete charcoal kilns (EP-5) numbered 7 through 16, with a triple-pass afterburner for control (AB-2). 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.

Handwritten signature of Kathy Kolb.

Prepared by  
Kathy Kolb  
New Source Review Unit

Handwritten signature of Kyrin L Moore.

Director or Designee  
Department of Natural Resources

**DEC 11 2015**

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 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 Department's Air Pollution Control Program of the anticipated date of start up of these air contaminant sources. The information must be made available within 30 days of actual startup. 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 these air contaminant sources.

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 sources(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.

**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 - Salem Kiln Facility  
Dent County, S30, T35N, R5W

1. Charcoal Kiln Processing Requirements
  - A. Royal Oak Enterprises, LLC-Salem Kiln Facility shall not simultaneously operate more than four (4) kilns during the burn cycle in the bank of ten kilns known as Kiln 7 - Kiln 16 (EU7-EU16).
  - B. Royal Oak Enterprises, LLC-Salem Kiln Facility shall maintain a daily log for each charcoal kiln that includes start-up time, cool-down time, and re-light time to demonstrate compliance with Special Conditions 1.A. and 1.B.
2. Control Device Requirements
  - A. Royal Oak Enterprises, LLC-Salem Kiln Facility shall control emissions from the charcoal kilns (EU7-EU16) using afterburner AB-2 (CD2) as specified in the permit application. The afterburner shall be operated and maintained in accordance with the manufacturer's specifications.
  - B. Royal Oak Enterprises, LLC-Salem Kiln Facility shall continuously monitor and record the temperature of the afterburner AB-2 (CD2) any time the charcoal kilns (EU7-EU16) are in operation.
  - C. Royal Oak Enterprises, LLC-Salem Kiln Facility shall ensure that the temperature of the afterburner (CD2) is maintained within the normal operating range established in the emissions test reports that were provided with the application. Emission test reports indicate that a minimum temperature of 1430°F must be maintained to ensure continued compliance.
  - D. Royal Oak Enterprises, LLC-Salem Kiln Facility may propose to use a lower minimum temperature than the one stated in Special Condition 1.C by submitting subsequent testing to the Director of the Air Pollution Control Program as allowed by 10 CSR 10-6.330(E)8. Upon approval by the Director, an alternate temperature control plan may be implemented.
  - E. Royal Oak Enterprises, LLC-Salem Kiln Facility shall maintain an operating and maintenance log for the afterburner AB-2 (CD2) which shall include the following:
    - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and

**SPECIAL CONDITIONS:**

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

- 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
3. Fuel Requirements  
Afterburner #2 shall be fueled exclusively by propane.
4. Record Keeping and Reporting Requirements
  - A. Royal Oak Enterprises, LLC-Salem Kiln Facility shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include MSDS for all materials used.
  - B. Royal Oak Enterprises, LLC-Salem Kiln Facility shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after the end of the month during which any record required by this permit show an exceedance of a limitation imposed by this permit.

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

Project Number: 2015-08-035  
Installation ID Number: 065-0002  
Permit Number:

Installation Address:

Royal Oak Enterprises, LLC - Salem Kiln Facility  
673 Hwy JJ  
Salem, MO 65560

Parent Company:

Royal Oak Enterprises, LLC  
1 Royal Oak Avenue  
Roswell, GA 30076

Dent County, S30, T35N, R5W

REVIEW SUMMARY

- Royal Oak Enterprises, LLC - Salem Kiln Facility has applied for authority to construct ten (10) new, concrete charcoal kilns (EP-5) numbered 7 through 16, with a triple-pass afterburner for control (AB-2).
- The application was deemed complete on September 2, 2015.
- HAPs of concern from this process are methanol and Polycyclic Organic Matter (POM). HAPs of concern from this process are below major source level and individual SMALs.
- 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.
- Afterburner (AB-2) is being used to control the PM, PM<sub>10</sub>, PM<sub>2.5</sub>, CO, Polycyclic Organic Matter (POM), HAPs, and VOC emissions from the equipment 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 below de minimis levels.
- This installation is located in Dent County, an attainment 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.
- An Intermediate Operating Permit application has already been submitted to Air Pollution Control Program and the changes from this permit will be included. There is no need to amend the operating permit upon issuance of this construction permit. The kiln operation and the briquette operation have been combined for the operating permit as agreed by Royal Oak. The facility identification will remain separate for emission inventory purposes.
- Approval of this permit is recommended with special conditions.

### INSTALLATION DESCRIPTION

Royal Oak Enterprises, LLC (Royal Oak) operates a charcoal production facility in Dent County, Missouri. Charcoal is currently produced in six kilns ducted to one after burner to control kiln emissions. These six kilns will be deemed inoperable once the ten new kilns are operating. In addition to kiln exhaust, there are fugitive particulate emissions from material handling, storage and hauling. Royal Oak operates a briquetting plant with the facility ID 065-0038 at the same location, which will not be affected by the proposed project.

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

Table 1: Permit History

Permit Number	Description
062000-010	New controlled charcoal kilns

### PROJECT DESCRIPTION

Royal Oak is constructing ten (10) new, concrete charcoal kilns (EP-05) numbered 7 through 16, with a triple-pass afterburner for control (AB-2). The new kiln system will eventually replace the existing kilns numbered 1 through 6 (EP-01) and afterburner AB-1. Royal Oak will construct kilns of the same dimensions and an afterburner of the same design as the existing equipment at Salem. The new system will operate with a maximum of four kilns in the burn cycle of production at one time. Stack testing of the Royal Oak triple-pass afterburner design (with four kilns in the burn cycle) was performed at Royal Oak's Mountain View facility in September 1999, Salem facility in July 2001 and Ellsinore facility in June 2005. A timeline for the operation of a 10-kiln system shows a batch cycle of 288 hours producing 25 tons of charcoal per kiln. The calculated MHDR of these ten kilns will be 0.87 tons of charcoal per hour.

The afterburner will use propane to maintain the minimum allowable temperature if the kilns do not provide adequate combustion gases. All previous stack test results include the contribution from propane combustion.

Currently charcoal produced in the kilns at Salem is processed into briquettes at the plant on-site. The charcoal produced in the proposed 10-kiln system will instead be trucked to another location for bagging. A new emission point (EP-06) is being added in this application to account for the new charcoal hauling activities. The fugitive emissions from hauling, storage and handling activities represented by EP-02, EP-03 and EP-04 are adjusted in this application to match the production rate of the new charcoal kilns.

Table 1: Existing and New Emission Points at Salem

Emission Point	Description	Existing/New
EP-01	Kilns 1-6	No change
EP-02	Unload Kilns/vehicular activity	Existing and updated
EP-03	Raw Charcoal Storage	Existing and updated
EP-04	Haul Road - Wood Slabs	Existing and updated
EP-05	Charcoal Kilns #7-16	New
EP-06	Haul Road - Charcoal Shipping	New

## EMISSIONS/CONTROLS EVALUATION

Emissions from the ten charcoal kilns (EU7-EU16) will be controlled by a propane-fired afterburner AB-2 (CD-2). Emission factors for this project were determined by prior stack testing performed on units of similar design and capacity. According to Missouri State Rule 10 CSR 10-6.330, *Restriction of Emissions from Batch-Type Charcoal Kilns*, new charcoal kilns may operate without initial performance testing if three (3) separate and similar systems have successfully demonstrated compliance with the emission limit requirements of the rule. Salem Kiln Facility submitted an emissions test report for testing that was performed on similar units having four (4) operating charcoal kilns equipped with afterburner controls of the same design and capacities as those proposed for this project. The testing was performed on three (3) afterburners: located in Mountain View, Missouri on September 15, 1999, located in Salem, Missouri, on July 26, 2001, and located in Ellsinore, Missouri, on June 23, 2005. Results of this testing were used to develop the emission factors and control efficiencies for PM<sub>10</sub>, NO<sub>x</sub>, VOCs, and CO. The test results have been reviewed and approved by the Air Pollution Control Program's Testing Oversight Unit. In a memo dated September 1, 2005, the Air Pollution Control Program's Testing Oversight Unit determined that no further testing was required unless the afterburner should be reconfigured to control more than four (4) kilns simultaneously. Therefore, a special condition of this permit requires that no more than four kilns, being controlled by the same afterburner, may operate in the burn phase simultaneously.

Pollutant emissions from the charcoal kiln/afterburner system (EP-05/AB-2) will consist of filterable and condensable particulate matter, carbon monoxide (CO), volatile organic compounds (VOCs), and oxides of nitrogen (NO<sub>x</sub>) and methanol, a hazardous air

pollutant (HAP). Sulfur dioxide (SO<sub>2</sub>) emissions have been determined to be negligible due to the low sulfur content of wood and the propane used to fire the afterburner. The emission factors are derived from emission rates and production data obtained during the source testing previously conducted most recently at Ellsinore, Missouri.

The maximum hourly design rate (MHDR) for the 10-kiln system is determined from the time expected for a batch of minimum duration. Assuming a maximum production of 25 tons per kiln (250 total tons) and a minimum batch length of 288 hours, the MHDR for the system will be 0.87 tons per hour.

The potential emissions of methanol and POM were determined using emission factors from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 10.7 *Charcoal* (September, 1995). Uncontrolled emissions of methane are estimated to be 419.17 tons per year; uncontrolled emissions of methanol are estimated to be 571.59 tons per year; and uncontrolled emissions of POM are estimated to be 0.036 tons per year. Test reports confirm that the expected control efficiency for volatile HAPs is 99.98%, resulting in potential emissions of 0.08 tons per year for methane, 0.11 tons per year for methanol and an insignificant level of POM.

CO<sub>2</sub> emissions were calculated using the stack data test report stating that CO<sub>2</sub> concentration was 14.27 % of the dry flow volume. Using the mass emission rate calculation, CO<sub>2</sub>, GHG (mass) and GHG (CO<sub>2</sub>e) emissions were determined.

Emissions from the wood slab delivery are based on the rate of charcoal production and the quantity of wood required for the production. In general, 4.7 tons of wood are required to produce one ton of raw charcoal. Therefore, to produce 0.87 tons per hour of charcoal, 4.09 tons per hour of wood slabs are required. Flat-bed truck will deliver wood slabs an average of 2,000 feet on unpaved roads to storage areas throughout the property. Wood slabs will be transferred by truck from their storage location to staging areas near the kilns. The distance of travel will average 1,200 feet on unpaved surfaces. A loader will transfer wood slabs from the staging area to the charcoal kilns. The distance traveled is approximately 100 feet on paved and unpaved surfaces (vehicular activity). For this short distance, emissions are calculated using the unpaved road equations.

Charcoal hauling emission calculations are based on the charcoal production rate of 0.87 tons per hour. A dump truck loaded with charcoal at the kilns will haul the material approximately 1,000 feet on an unpaved surface to the charcoal storage shed. Charcoal stored in the storage shed will be shipped via truck over approximately 800 unpaved feet to the public highway. Emission point EP-03, Raw Charcoal Storage, includes particulate matter emissions from vehicular activity of the loader and two drop points at the charcoal storage shed. The dump truck will bring a load of charcoal from the kilns and deposit the load in the storage shed (one drop point). The loader will pick up the charcoal from the pile, travel approximately 50 feet on the concrete pavement and load a truck for shipment (second drop point).

The emission factors used in the analysis of the haul roads (EP-04 & EP-06), and the

charcoal vehicular activity (EP-02) were obtained from the following Sections of AP-42: Section 13.2.2 *Unpaved Roads* (November 2006) and Section 13.2.3 *Paved Roads* (January 2011).

The following table provides an emissions summary for this project. Existing potential emissions were taken from Permit # 092013-007. Existing actual emissions were taken from the installation's 2014 EIQ. Existing Potential Emissions were taken from Permit 062000-010. These emissions were prior to testing conducted July 26, 2001 which resulted in significant lower emissions as stated in this permit. Also, this permit was prior to 10 CSR 10-6.330, *Restriction of Emissions From Batch-Type Charcoal Kilns*, which required the installation of afterburners on all charcoal kilns in order to obtain the limits stated in this rule. The existing six kilns (EP-01) will eventually be dismantled after the new kilns are constructed. This project's potential emissions will eventually be the facility's PTE. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year).

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions <sup>1</sup>	Existing Actual Emissions (2014 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential <sup>5</sup>
PM	25.0	N/D	N/D	13.96	13.96
PM <sub>10</sub>	15.0	26.3	1.74	5.93	5.93
PM <sub>2.5</sub>	10.0	N/D	1.03	2.9	2.9
SO <sub>x</sub>	40.0	N/A	0.0	N/D	N/D
NO <sub>x</sub>	40.0	100	13.62	20.81	20.81
VOC	40.0	4.2	0.2	0.08	0.08
CO	100.0	30.7	0.26	0.29	0.29
CO <sub>2</sub>	N/A	N/D	N/D	23,308.47	23,308.47
Methanol <sup>2</sup>	10.0	N/D	N/D	0.11	0.11
Methane	N/A	N/D	N/D	0.084	0.084
POM <sup>3</sup>	10.0	N/D	N/D	7.0E-06	7.0E-06
GHG (CO <sub>2</sub> e)	75,000 / 100,000	N/D	N/D	23,310.57	23,310.57
GHG (mass)	0.0 / 100.0 / 250.0	N/D	N/D	23,308.56	23,308.56
HAPs <sup>4</sup>	10.0/25.0	4.2	0.0	1.14E-01	1.14E-01

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

<sup>1</sup>Taken from Permit 062000-010. These emissions were prior to testing conducted July 26, 2001 which resulted in significant lower emissions as stated in this permit. Also, this was prior to 10 CSR 10-6.330, *Restriction of Emissions From Batch-Type Charcoal Kilns*, which required the installation of afterburners on all charcoal kilns in order to obtain the limits stated in this rule. The existing six kilns (EP-01) will eventually be dismantled after the new kilns are constructed. This project's potential emissions will eventually be the facility's PTE.

<sup>2</sup>Methanol's SMAL is 10 tons/yr.

<sup>3</sup>Major source level is 10 tons per year; SMAL for POM is 0.01 tons per year.

<sup>4</sup>Combined HAPs is Methanol and POM. The POM was not calculated in previous permits but would be insignificant. So, the Methanol amount was used to determine new installation PTE for HAPs.

<sup>5</sup>New Installation Potential Emissions are the emissions of the new bank of 10 kilns from this project. Kilns 1-6 will be dismantled once the new kilns are operating. For future projects, this will be the installation's PTE.

10 CSR 10-6.330, *Restriction of Emissions from Batch-Type Charcoal Kilns*, has a minimum temperature requirement of 1520°F; however, new charcoal kilns may operate at a lower temperature if compliance testing has shown that the destruction efficiencies exceed 99%. In the memo dated September 1, 2005, the Air Pollution Control Program's Testing Oversight Unit determined that a minimum temperature of 1430°F is sufficient to achieve destruction efficiencies exceeding 99% for this after burner design. The temperature of 1430°F has been established in previous issued permits (2015-08-025, 122014-008, 092013-007, and 072009-011) issued to Royal Oak facilities by APCP.

#### 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 - Salem Kiln Facility 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. For a complete list of applicable requirements for your installation, please consult your operating permit.

#### GENERAL REQUIREMENTS

- *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.
- *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 10-6.165

## SPECIFIC REQUIREMENTS

- *Restriction of Emissions From Batch-Type Charcoal Kilns*, 10 CSR 10-6.330

## 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 with special conditions.

## PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated August 26, 2015, received August 27, 2015, designating Royal Oak Enterprises, LLC as the owner and operator of the installation.

## APPENDIX A

### Abbreviations and Acronyms

<b>%</b> .....	percent	<b>m/s</b> .....	meters per second
<b>°F</b> .....	degrees Fahrenheit	<b>Mgal</b> .....	1,000 gallons
<b>acfm</b> .....	actual cubic feet per minute	<b>MW</b> .....	megawatt
<b>BACT</b> .....	Best Available Control Technology	<b>MHDR</b> .....	maximum hourly design rate
<b>BMPs</b> .....	Best Management Practices	<b>MMBtu</b> ....	Million British thermal units
<b>Btu</b> .....	British thermal unit	<b>MMCF</b> .....	million cubic feet
<b>CAM</b> .....	Compliance Assurance Monitoring	<b>MSDS</b> .....	Material Safety Data Sheet
<b>CAS</b> .....	Chemical Abstracts Service	<b>NAAQS</b> ...	National Ambient Air Quality Standards
<b>CEMS</b> .....	Continuous Emission Monitor System	<b>NESHAPs</b>	National Emissions Standards for Hazardous Air Pollutants
<b>CFR</b> .....	Code of Federal Regulations	<b>NO<sub>x</sub></b> .....	nitrogen oxides
<b>CO</b> .....	carbon monoxide	<b>NSPS</b> .....	New Source Performance Standards
<b>CO<sub>2</sub></b> .....	carbon dioxide	<b>NSR</b> .....	New Source Review
<b>CO<sub>2e</sub></b> .....	carbon dioxide equivalent	<b>PM</b> .....	particulate matter
<b>COMS</b> .....	Continuous Opacity Monitoring System	<b>PM<sub>2.5</sub></b> .....	particulate matter less than 2.5 microns in aerodynamic diameter
<b>CSR</b> .....	Code of State Regulations	<b>PM<sub>10</sub></b> .....	particulate matter less than 10 microns in aerodynamic diameter
<b>dscf</b> .....	dry standard cubic feet	<b>ppm</b> .....	parts per million
<b>EQ</b> .....	Emission Inventory Questionnaire	<b>PSD</b> .....	Prevention of Significant Deterioration
<b>EP</b> .....	Emission Point	<b>PTE</b> .....	potential to emit
<b>EPA</b> .....	Environmental Protection Agency	<b>RACT</b> .....	Reasonable Available Control Technology
<b>EU</b> .....	Emission Unit	<b>RAL</b> .....	Risk Assessment Level
<b>fps</b> .....	feet per second	<b>SCC</b> .....	Source Classification Code
<b>ft</b> .....	feet	<b>scfm</b> .....	standard cubic feet per minute
<b>GACT</b> .....	Generally Available Control Technology	<b>SDS</b> .....	Safety Data Sheet
<b>GHG</b> .....	Greenhouse Gas	<b>SIC</b> .....	Standard Industrial Classification
<b>gpm</b> .....	gallons per minute	<b>SIP</b> .....	State Implementation Plan
<b>gr</b> .....	grains	<b>SMAL</b> .....	Screening Model Action Levels
<b>GWP</b> .....	Global Warming Potential	<b>SO<sub>x</sub></b> .....	sulfur oxides
<b>HAP</b> .....	Hazardous Air Pollutant	<b>SO<sub>2</sub></b> .....	sulfur dioxide
<b>hr</b> .....	hour	<b>tph</b> .....	tons per hour
<b>hp</b> .....	horsepower	<b>tpy</b> .....	tons per year
<b>lb</b> .....	pound	<b>VMT</b> .....	vehicle miles traveled
<b>lbs/hr</b> .....	pounds per hour	<b>VOC</b> .....	Volatile Organic Compound
<b>MACT</b> .....	Maximum Achievable Control Technology		
<b>µg/m<sup>3</sup></b> .....	micrograms per cubic meter		

Mr. Jim Hayes  
Area Vice President  
Royal Oak Enterprises, LLC - Salem Kiln Facility  
PO Box 549  
Salem, MO 65560

RE: New Source Review Permit - Project Number: 2015-08-035

Dear Mr. Hayes:

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. Also, note the special conditions 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 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, Truman State Office Building, P.O. Box 1557, Jefferson City, MO 65102, website: [www.ao.mo.gov/ahc](http://www.ao.mo.gov/ahc). If you have questions regarding this permit, contact Kathy Kolb, Department of Natural Resources' Air Pollution Control Program, (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp  
New Source Review Unit Chief

SH:kk1

Enclosures

c: Southeast Regional Office  
PAMS File: 2015-08-035  
Permit Number: