

# PERMIT BOOK

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: **062010-002** Project Number: 2008-03-016

Parent Company: Ozark Hardwood Products, LLC

Parent Company Address: 191 Hwy AB, Seymour, MO 65746

Installation Name: Ozark Hardwood Products, LLC

Installation Number: 225-0040

Installation Address: 191 Hwy AB, Seymour, MO 65746

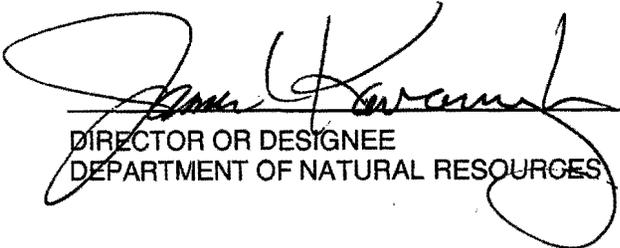
Location Information: Webster County, S36, T29N, R17W

Application for Authority to Construct was made for:  
Removing the installation wide PM<sub>10</sub> limit in permit 032006-013. This review was conducted in accordance with Section (6), 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.

JUN - 2 2010

EFFECTIVE DATE

  
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 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 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.

Page No.	3
Permit No.	
Project No.	2008-03-016

## 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."*

Ozark Hardwood Products, LLC  
Webster County, S36, T29N, R17W

1. **Superseding Condition**  
The conditions of this permit supersede all special conditions found in the previously issued construction permit 032006-013 issued by the Air Pollution Control Program.
2. **Documented Haul Road Watering**
  - A. Ozark Hardwood Products, LLC shall control dust from all haul roads at this site using water or surfactant spray consistently and correctly at all times to prevent visible fugitive emissions from entering the ambient air beyond the property boundary. The following conditions apply to haul road watering:
    - 1) The water application rate shall be 100 gallons per 1000 square feet at least once every day.
    - 2) A quarter inch or more rainfall during the preceding 24 hours shall substitute for one daily water application
    - 3) Water/surfactant application shall not be required when the ground is frozen or when there will be no traffic on the roads.
  - B. Ozark Hardwood Products, LLC shall keep the following records on file and available for inspection:
    - 1) A daily log initialed by the responsible facility operator of roads watered and quantity of water/chemical application used, or notation that there was a quarter inch or greater rainfall within the past 24 hours or that the facility was not in operation.
    - 2) Water tank size, total area of roads to be watered, and the resultant number of fills necessary to accomplish the required application rate.
    - 3) Records of watering equipment breakdowns and repairs.
  - C. In lieu of watering, Ozark Hardwood Products, LLC may pave haul roads with asphalt, concrete or another material approved by the Air Pollution Control Program

Page No.	4
Permit No.	
Project No.	2008-03-016

### SPECIAL CONDITIONS:

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

3. Sawdust Storage Area Silt Loading and Maintenance Requirement
  - A. The silt loading on the sawdust storage area shall not exceed 0.79 grams per square meter.
  - B. Ozark Hardwood Products, LLC shall develop, implement and maintain a Fugitive Dust Control Plan (FDCP) to control emissions from the sawdust storage area that insures compliance with special condition 3.A. The plan shall contain the following components:
    - 1) Ozark Hardwood Products, LLC shall conduct a daily survey of the sawdust storage area to determine if visible emissions are being generated and are leaving the property.
    - 2) Ozark Hardwood Products, LLC shall maintain a daily log of all maintenance, corrective actions and observations from the daily surveys.
  - C. Ozark Hardwood Products, LLC shall conduct a series of initial silt loading test to demonstrate compliance with special condition 3.A
    - 1) Testing shall be conducted in accordance with method ASTM-C-136. A summary of this method is found in AP-42 Appendix C.
    - 2) Testing shall be conducted once a quarter for three quarters following the issuing of this permit. If these three tests demonstrate compliance with special condition 3.A, no further testing is required. If a test shows an exceedence, Ozark Hardwood Products, LLC shall revise the FDCP and test for four consecutive quarters to demonstrate compliance with special condition 3.A.
4. Control Device Requirements-Cyclones
  - A. Ozark Hardwood Products, LLC shall control emissions from the equipment listed below using cyclones as specified in the permit application.
    - 1) Hammermill (EP-05)
    - 2) Sawdust Dryer (EP-06)
    - 3) Pellet Cooler (EP-07)
  - B. The cyclones shall be operated and maintained in accordance with the manufacturer's specifications.
  - C. Ozark Hardwood Products, LLC shall maintain an operating and maintenance log for the cyclones which shall include the following:

Page No.	5
Permit No.	
Project No.	2008-03-016

## SPECIAL CONDITIONS:

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

- 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.
5. Time of Day Restriction
- A. Ozark Hardwood Products, LLC is prohibited from receiving saw dust or logs by truck and shipping finished product by truck between the hours of 6:00 p.m. and 7:00 a.m. Monday through Thursday and 6:00 p.m. on Friday until 7:00 a.m. on Monday
  - B. The log chipper (EU-13) is prohibited from operating between the hours of 5:00 p.m. and 8:00 a.m.
  - C. The debarker (EU-14) is prohibited from operating between the hours of 4:00 p.m. and 8:00 a.m.
  - D. Sawing of logs for firewood is prohibited between the hours of 4:00 p.m. and 9:00 a.m.
  - E. Ozark Hardwood Products, LLC is prohibited from operating equipment in the log yard between the hours of 5:00 p.m. and 8:00 a.m.
  - F. Fork-lift activity for the purpose of stockpiling finished pellets in the stock yard is prohibited between 1:00 a.m. and 7:00 a.m.
6. Operating Restrictions
- A. Ozark Hardwood Products, LLC is prohibited from operating the log chipper (EU-13), the debarker (EU-14) or lumber sawing (EU-15) concurrently.
  - B. Ozark Hardwood Products, LLC is prohibited from loading wood processed in the chipper (EU-13) into the two northern most windows of the sawdust storage building.
7. Record Keeping and Reporting Requirements
- A. Ozark Hardwood Products, LLC shall maintain all records required by this permit for not less than five years and shall make them available

Page No.	6
Permit No.	
Project No.	2008-03-016

**SPECIAL CONDITIONS:**

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

immediately to any Missouri Department of Natural Resources' personnel upon request.

- B. Ozark Hardwood Products, LLC shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, Missouri 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 (6) REVIEW

Project Number: 2008-03-016  
Installation ID Number: 225-0040  
Permit Number:

Ozark Hardwood Products, LLC  
191 Hwy AB  
Seymour, MO 65746

Complete: March 4, 2008

Parent Company:  
Ozark Hardwood Products, LLC  
191 Hwy AB  
Seymour, MO 65746

Webster County, S36, T29N, R17W

REVIEW SUMMARY

- This permit removes the installation wide emission PM<sub>10</sub> limits in permit 032006-013.
- Hazardous Air Pollutant (HAP) emissions are expected from the combustion of sawdust. HAPs of concern are acrolein and chlorine.
- None of the New Source Performance Standards (NSPS) apply to the installation.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) apply to this installation. None of the currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- Cyclones are being used to control the PM<sub>10</sub> emissions from the equipment in this permit.
- This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, Construction Permits Required. Potential emissions of PM<sub>10</sub>, NO<sub>x</sub> and CO are above de minimis levels.
- This installation is located in Webster County, an attainment area for all criteria pollutants.
- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.
- Ambient air quality modeling was performed to determine the ambient impact of PM<sub>10</sub>, NO<sub>x</sub>, CO, polycyclic organic matter (POM) and chlorinated dibenzo-p-dioxins and chlorinated dibenzo-p-furans.

- Emissions testing are not required for the equipment.
- A Part 70 Operating Permit application is required for this installation within 1 year of equipment startup.
- Approval of this permit is recommended with special conditions.

### INSTALLATION DESCRIPTION

Ozark Hardwood Products, LLC is an existing synthetic de minimis source of PM<sub>10</sub> and NO<sub>x</sub> located in Webster County near Seymour, Missouri. The installation processes saw dust into pellets for use in pellet stoves. The process involves milling the raw sawdust into a uniform size, drying the sawdust and processing it in pellet mills. The finished pellets are cooled and bagged for shipping. The installation’s maximum production capacity is 14.95 tons of pellets per hour.

Sawdust is delivered on site by truck. This sawdust has an average moisture content of 33%. Ozark Hardwood Products, LLC also operates a whole log grinder that is used to produce sawdust when it cannot be obtained from locale lumber mills. These logs are also processed in a debarker. Some logs that are suitable for use as lumber are shipped off site. The sawdust is dried in a rotating drum dryer heated by a 45 million British thermal unit per hour (MMBtu/hr) sawdust fired burner. Exhaust from the dryer passes through a set of cyclones that remove the dry sawdust from the exhaust. The dried sawdust is conveyed to the pellet mills that convert the sawdust to pellets. The pellets are conveyed to a pellet cooler. The cooler is a large hopper connected to a fan that pulls air from inside the plant to cool the pellets to a temperature at which they can be bagged. The pellet cooler’s fan is exhausted to a cyclone. Once the pellets are cooled, they are conveyed to a bagger, bagged and palletized for shipping. During the summer months, Ozark Hardwood Products, LLC stores pallets in their stock yard.

The following table lists the emission units located at Ozark Hardwood Products, LLC.

**Table 1: Emission Units**

Emission Point	Emission Unit	Description
EP-01	EU-01	Pile Loading via Trucks
EP-02	EU-02a	Pile Loading via Chipper
EP-03	EU-03	Loadout of Sawdust Pile
EP-04	EU-04	Sawdust Loader Vehicular Activity
EP-05	EU-05a-c	Loading Sawdust Bins
EP-06	EU-06a-c	Sawdust Bins (3)
EP-07	EU-07	Conveyor
EP-08	EU-08	Hammermill a
EP-09	EU-09	Hammermill b
EP-10	EU-10	Loading of Fuel Bin
EP-11	EU-11	Sawdust Dryer
EP-12	EU-12	Pellet process
EP-13	EU-13	Wood chipper
EP-14	EU-14	Debarker
EP-15	EU-15	Lumber Sawing
HR1-9	HR1-9	Haul Roads
VA1-4	VA1-4	Vehicular Activity Areas

The following permit has been issued to Ozark Hardwood Products, LLC from the Air Pollution Control Program.

**Table 2: Permit History**

Permit Number	Description
032006-013	Wood Pellet Manufacturing

## PROJECT DESCRIPTION

The purpose of the current application is to remove the annual PM<sub>10</sub> emission limits in permit 032006-013. During the review, several emission units that were not included in the original application were added to the installation, most notably, a portable wood chipper and a portable debarker. These emission units are used when adequate sawdust supplies cannot be obtained from local lumber mills. Vehicular activity in the sawdust storage area and the product stock yard was also accounted for. In order to remove the emission limits in permit 032006-013, the installation was required to demonstrate compliance with the ambient air quality standards found in 10 CSR 10-6.060 Section (6) through refined modeling. This demonstration required the installation to accept limits on their hours of operation. The refined modeling and limits require for compliance are discussed in the Ambient Air Quality Impact Analysis section.

## EMISSIONS/CONTROLS EVALUATION

The emission factors and control efficiencies used in this analysis were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition. The emissions from sawdust handling were calculated using the predictive equation in AP-42 section 13.2.4 "Aggregate Handling and Storage Piles," November 2006. Emissions from the hammermill were calculated using the controlled emission factor for a rock-crusher found in AP-42 section 11.19.2 "Crushed Stone Processing and Pulverized Mineral Processing," August 2004. PM<sub>10</sub> and NO<sub>x</sub> emissions from the dryer were based on stack test results submitted by the company. Ozark Hardwood Products, LLC has requested that these results remain confidential (confidential file 2010-02-089). Emissions of VOC, SO<sub>x</sub>, CO and many individual HAPs from the dryer were calculated using the emission factor from AP-42 section 1.6 "Wood Residue Combustion in Boilers," September 2003. The emission factors for the remaining individual HAPs were obtained from the National Council for Air and Stream Improvement (NCASI) Technical bulletin No. 858, Table 20A. The NACSI paper reassessed emission factors for many HAPs based on data pertaining to only those boilers that were considered relevant to the burning of wood residues in forest products industry boilers. Thus, emissions data corresponding to wood combustion in furniture industry boilers and combustion of biomass other than virgin wood residues (e.g., agricultural waste, treated wood, etc.) were not included. Emissions of chlorinated dibenzo-p-dioxins and chlorinated dibenzo-p-furans were calculated using emission factors found in an EPA document entitled Exposure and

*Human Health Reassessment of 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (TCDD) and Related Compounds National Academy Sciences (NAS) Review Draft, Section 4 “Combustion Sources of CDD/CDF: Power/Energy Generation.”* Emissions from the pellet process were also included in the submitted stack test. Emissions from haul roads and vehicular activity on unpaved surfaces were calculated using the predictive equation in AP-42 section 13.2.2 “Unpaved Roads,” November 2006. A control efficiency of 90% was applied for documented watering. Emissions from paved surfaces were calculated using the predictive equation in AP-42 section 13.2.1 “Paved Roads,” November 2006. The sawdust storage area was tested for silt loading. The results of this test were used in developing the emission factor. 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.

Existing actual emissions reported in the 2008 EIQ omitted many of the emission points listed in Table 1 and emission factors used in the EIQ do not match those used in the in this analysis.

**Table 3: Emissions Summary (tons per year)**

Pollutant	Regulatory De Minimis Levels/SMAL	Existing Actual Emissions	Potential Emissions (8760 hrs Operation)	Potential Emissions (Operational Limits)**
PM10	15.0	1.18	52.04	43.04
SO <sub>x</sub>	40.0	0.00	4.93	4.93
NO <sub>x</sub>	40.0	1.62	13.02	13.02
VOC	40.0	0.00	3.35	3.35
CO	100.0	0.00	118.26	118.26
Acrolein	0.04*	N/D	0.015	0.015
Chlorine	0.1*	N/D	0.16	0.16
POM	0.01*	N/D	0.025	0.025
Total CDD/CDF	6x10 <sup>-7</sup> *	N/D	8.24x10 <sup>-7</sup>	8.24x10 <sup>-7</sup>
HAPs	10.0/25.0	0.00	4.71	4.71

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

\*Screening Model Action Level (SMAL)

\*\*Potential Emissions (Operational Limits) account for the time of day limits in the special conditions

### PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM<sub>10</sub>, NO<sub>x</sub> and CO are above de minimis levels.

## APPLICABLE REQUIREMENTS

Ozark Hardwood Products, 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. 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  
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

## AMBIENT AIR QUALITY IMPACT ANALYSIS

Ambient air quality modeling was performed to determine the ambient impact of CO, PM<sub>10</sub>, NO<sub>x</sub>, acrolein, chlorine, POM and chlorinated dibenzo dioxens and chlorinated dibenzo furans. CO, PM<sub>10</sub> and NO<sub>x</sub> were modeled using AERMOD to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS) and increment standards. Acrolein and chlorine were modeled using SCREEN3 to demonstrate compliance with the Risk Assessment Levels (RALs).

The modeling results, summarized in Table 4, show violations of both the 24-hour and annual NAAQS for PM<sub>10</sub> and the 24-hour increment standard from PM<sub>10</sub>. EPA guidance states that a permit may be issued if the installation demonstrates that they do not have a significant impact at any violating receptor. Ozark Hardwood Products, LLC did not have a significant impact at any violating receptors.

Ozark Hardwood Products, LLC voluntarily accepted limits to their hours of operation in order to demonstrate compliance with the applicable air quality standards. These limits are listed in special condition 7.

For a more detailed modeling analysis, consult the memorandum “Ambient Air Quality Impact Analysis for Ozark Hardwood Products, LLC-June Revision.”

**Table 4: Ambient Air Quality Impact Analysis**

Pollutant	Modeled Impact µg/m <sup>3</sup>	Standard µg/m <sup>3</sup>	Time Period
CO	67.021	500 <sup>a</sup>	8-hour
CO	339.767	2000 <sup>a</sup>	Annual
PM10	359.44	150 <sup>b</sup>	24-hour
PM10	67.35	50 <sup>b</sup>	annual
PM10	104.77	30 <sup>c</sup>	24-hour
PM10	3.93	17 <sup>c</sup>	Annual
NO <sub>x</sub>	188.7	87.09 <sup>b</sup>	1-hour
NO <sub>x</sub>	20.41	100 <sup>b</sup>	Annual
NO <sub>x</sub>	7.49	25 <sup>c</sup>	Annual
Acrolein	0.0061	0.55 <sup>d</sup>	24-hour
Acrolein	0.0007	0.02 <sup>d</sup>	Annual
Chlorine	0.0615	3.95 <sup>d</sup>	24-hour
Chlorine	0.0070	3.95 <sup>d</sup>	Annual
POM	0.16	0.0099 <sup>d</sup>	24-hour
POM	0.016	0.0011 <sup>d</sup>	Annual
CDD/CDF	1.02x10 <sup>-8</sup>	3.00x10 <sup>-7</sup> <sup>d</sup>	Annual

<sup>a</sup>Significance Level

<sup>b</sup>National Ambient Air Quality Standard (NAAQS)

<sup>c</sup>Increment Standard

<sup>d</sup>Risk Assessment Level (RAL)

## STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (6), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

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Michael Mittermeyer  
Environmental Engineer

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Date

### PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated October 11, 2007, received March 4, 2008, designating Ozark Hardwood Products, LLC as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Southwest Regional Office Site Survey, dated March 28, 2008.
- Memorandum; "Ambient Air Quality Impact Analysis (AAQIA) for Ozark Hardwood Products, LLC-June Revision, July 1, 2009
- Ozark Hardwood Products, LLC, Silt Content Testing Report, Conducted March 17, 2009

Mr. Mike Ferguson  
Director of Operations  
Ozark Hardwood Products, LLC  
191 Hwy AB  
Seymour, MO 65746

RE: New Source Review Permit - Project Number: 2008-03-016

Dear Mr. Ferguson:

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 Michael Mittermeyer, 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:mml

Enclosures

c: Southwest Regional Office  
PAMS File: 2008-03-016

Permit Number: