

# 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: **052012-010**

Project Number: 2012-01-109  
Installation ID: 037-0053

Parent Company: Beyer Crushed Rock Co.

Parent Company Address: 408 High Grove Road, Grandview, MO 64030

Installation Name: Beyer Crushed Rock Co.

Installation Address: 4600 East Highway Y, Cleveland, MO 64734

Location Information: Cass County, S26 T45N R33W

Application for Authority to Construct was made for:

The installation of the following: two screens, eleven conveyors, four bins and one diesel generator. The generator is rated at 1,475 horsepower and the other equipment is rated at 300 tons of aggregate per hour. 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.

MAY 16 2012

*Kendall B. Halo*

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 Department's Air Pollution Control Program of the anticipated date of startup 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 startup 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.	2012-01-109

**SITE SPECIFIC SPECIAL CONDITIONS:**

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

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*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."*

1. Superseding Condition

The conditions of this permit supersede Special Condition 3 found in construction permit 042011-005A and supersede Special Condition 1 found in construction permit 102005-009A that were issued from the Air Pollution Control Program.

2. Ambient Air Impact Limitation

A. Beyer Crushed Rock Co. shall not cause an exceedance of the National Ambient Air Quality Standard for particulate matter less than 10 microns in aerodynamic diameter (PM<sub>10</sub>) of 150.0 µg/m<sup>3</sup> 24-hour average in ambient air.

B. Beyer Crushed Rock Co. shall demonstrate compliance with Special Condition 2.A using Attachment A, Attachment B or other equivalent forms that have been approved by the Air Pollution Control Program, including electronic forms.

3. Primary Equipment Requirement

Beyer Crushed Rock Co. shall process all rock handled by equipment of this project through this installation's primary crusher (Emission Point (EP) 3), which was permitted in Permit 102005-009A. Bypassing the primary crusher is prohibited.

4. Wet Suppression Control System Requirement

A. Beyer Crushed Rock Co. shall install and operate wet spray devices on the following emission sources: primary crusher (EP-3A), Pioneer screen (EP-5D), and JCI screen (EP-5E).

B. Watering may be suspended during freezing conditions, when the use of the wet spray devices may damage the equipment. During these conditions, Beyer Crushed Rock Co. shall adjust the production rate to control emissions from these units. Beyer Crushed Rock Co. shall record a brief description of such events.

5. Diesel Generator

The equipment of this project is powered by one diesel generator (EP-12A) rated at 1,475 horsepower. This generator shall not run unless it is powering the plant's equipment for production purposes.

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**SITE SPECIFIC SPECIAL CONDITIONS:**

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

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6. Fuel Requirement
  - A. Beyer Crushed Rock Co. shall exclusively burn fuel with a sulfur content less than or equal to 0.5 percent by weight for the diesel generator (EP-12A) of this permit.
  - B. Beyer Crushed Rock Co. shall demonstrate compliance with Special Condition 6.A by either obtaining records from the vendor of the fuel's sulfur content for each shipment of fuel received or by testing each shipment of fuel for the sulfur content in accordance with the method described in 10 CSR 10-6.040 *Reference Methods*.
7. Record Keeping Requirement

Beyer Crushed Rock Co. shall maintain all records required by this permit for not less than five years and make them available to any Missouri Department of Natural Resources personnel upon request.
8. Reporting Requirement

Beyer Crushed Rock Co. shall report to the Air Pollution Control Program Enforcement Section P.O. Box 176, Jefferson City, MO 65102, no later than ten days after any exceedances of the limitations imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE  
SECTION (6) REVIEW

Project Number: 2012-01-109  
Installation ID Number: 037-0053  
Permit Number:

Beyer Crushed Rock Co.  
4600 East Highway Y  
Cleveland, MO 64734

Complete: January 30, 2012

Parent Company:  
Beyer Crushed Rock Co.  
408 High Grove Road  
Grandview, MO 64030

Cass County, S26 T45N R33W

### PROJECT DESCRIPTION

Beyer Crushed Rock Co. (herein referred to as Beyer) has requested authority to construct and operate the following at its primary rock-crushing plant (referred to as the Primary Plant ) in Cleveland, Missouri: two screens (EP- 5D and EP-5E), eleven conveyors (EP-4V, EP-4W, EP-4Z, EP-4AA, EP-4BB, EP-4DD, EP-4FF, EP-4HH, EP-4JJ, EP-4X, and EP-4Y), four bins (EP-4CC, EP-4EE, EP-4GG, and EP-4II), and one diesel generator (EP-12A). The generator is rated at 1,475 horsepower and the other equipment is rated at 300 tons of aggregate per hour. Each bin will have a capacity of 60 tons.

This equipment will be used in conjunction with the existing equipment of the Primary Plant. This equipment will replace the following equipment: one screen (5 feet by 16 feet) with an attached 36 inch underconveyor, one finish screen (6 feet by 16 feet) with an attached 30 inch underconveyor, four homemade bins, each with a capacity of 30 tons, and a generator rated at 725 kilowatts that consumes approximately 51.6 gallons of diesel fuel per hour. This existing equipment is being replaced because it is wearing out. The equipment that is being replaced will be dismantled and removed from this installation.

Beyer also operates the Eagle Plant, a stationary rock-crushing plant that is rated at 200 tons per hour, at this installation. Per construction permit 042011-005A, the Eagle Plant and the Primary Plant operate independently of each other, will have separate ambient impact factors and shall balance production to comply with the National Ambient Air Quality Standard (NAAQS) for particulate matter less than 10 microns in aerodynamic diameter (PM<sub>10</sub>) emissions. The Eagle Plant uses a 237 horsepower engine to power a heater overnight that keeps oil warm during cold nights for equipment of the Eagle Plant. Because this engine does not operate continuously, it has a separate ambient impact background of 14.37 µg/m<sup>3</sup>.

The new ambient impact factor of the Primary Plant includes emissions from the existing equipment that will remain on site and emissions from the new equipment of this project. The

existing equipment of this plant is powered by two diesel generators: one that is rated to burn 11.9 gallons of diesel per hour and one that is rated to burn 24.4 gallons of diesel per hour. The Primary Plant's primary crusher (EP-3), which was permitted in Permit 102005-009A, is located at least 1,000 feet from the nearest property boundary. The ambient impact of this project's equipment is based on this distance. The emissions of the existing equipment that is being replaced were not included when the new ambient impact factor for the Primary Plant was calculated.

This permit supersedes Special Condition 3 of construction permit 042011-005A and Special Condition 1 found in construction permit 102005-009A and reestablishes the ambient impact and operating scenario limitations of the Primary Plant. This permit also adds equipment that shall use wet spray devices. Particulate emissions from conveyors that follow equipment with wet spray devices will be controlled by wet spray device carryover. These conveyors include the following emission sources: EP-4A, EP-4V, EP-4W, EP-4N, EP-4Z, EP-4AA and EP-4BB.

This installation is a minor source for all pollutants and operates under a basic operating permit (Project # 2011-06-052). This installation is not on the List of Named Installations (10 CSR 10-6.020(3)(B), Table 2). The installation is located in Cass County, a maintenance area for ozone and an attainment area for all other criteria pollutants. 40 CFR 60 Subpart 000, "Standards of Performance for Nonmetallic Mineral Processing Plants" applies to each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station of this project and the installation.

The 1,475 horsepower generator is subject to 40 CFR 60 Subpart IIII, "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines" and 40 CFR Part 63, Subpart ZZZZ, "National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines."

The applicant is using one of the methods described in Attachment AA, "Best Management Practices," to control emissions from haul roads and vehicular activity areas.

## TABLES

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

Table 1: Permit History

Permit Number	Description
0689-008	Construction of a portable rock crushing plant
0694-011	Request to increase production
0796-010	Replacement of secondary crusher and three conveyors
0399-026	Installation of one 972 horsepower (hp) generator to replace one 460 hp generator and one 575 hp generator
102005-009	Apply Best Management Practices to control fugitive emissions from all haul roads and stockpiles
102005-009A	Allow colocation and change nearest property boundary distance
042011-005	Installation of additional 200 ton per hour rock crushing plant known as the Eagle Plant
042011-005A	Removal of duplicate attachment

The table below summarizes the emissions of this project. Because there will not be an increase in fugitive emissions from haul roads and stock piles, these emissions were not included in this project. The existing actual emissions were taken from the previous year's Emissions Inventory Questionnaire (EIQ). The potential emissions of the application represent the emissions of all new equipment and activities assuming continuous operation (8760 hours per year). The conditioned potential emissions are based on plant-wide compliance to the NAAQS for PM<sub>10</sub> emissions.

Table 2: Emissions Summary of Project (tons per year)

Air Pollutant	De Minimis Level	Existing Actual Emissions (2011 EIQ)	Potential Emissions of the Application	Conditioned Potential Emissions
PM	25.0	N/D	52.49	29.96
PM <sub>10</sub>	15.0	3.62	23.23	13.26
PM <sub>2.5</sub>	10.0	0.94	6.99	3.99
SO <sub>x</sub>	40.0	0.50	23.71	13.53
NO <sub>x</sub>	40.0	13.89	150.24	85.76
VOC	40.0	0.79	3.85	2.19
CO	100.0	3.30	39.91	22.78
Total HAPs	25.0	N/D	0.07	0.04

N/D = Not Determined

Table 3: Ambient Air Quality Impact Analysis of Primary Plant and Eagle Plant

Pollutant	<sup>1</sup> NAAQS (µg/m <sup>3</sup> )	Averaging Time	<sup>2</sup> Maximum Modeled Impact of Primary Plant (µg/m <sup>3</sup> )	<sup>2</sup> Maximum Modeled Impact of Eagle's Plant (µg/m <sup>3</sup> )	Total Limited Impact (µg/m <sup>3</sup> )	<sup>3</sup> Daily Production Limit of Primary Plant (tons/day)	<sup>3</sup> Daily Production Limit of Eagle's Plant (tons/day)	<sup>4</sup> Back-ground (µg/m <sup>3</sup> )
<sup>5</sup> PM <sub>10</sub> (same or solitary)	150.0	24-hour	266.42	37.52	115.63	4,099	4,800	34.37
<sup>6</sup> PM <sub>10</sub> (separate)	150.0	24-hour	266.42	37.52	70.0	N/A	N/A	80.0

N/A = Not Applicable

<sup>1</sup> National Ambient Air Quality Standards (NAAQS)

<sup>2</sup> Modeled impact of each plant at maximum capacity with controls at this site

<sup>3</sup> Maximum daily production for each plant when it complies with the NAAQS for PM<sub>10</sub> individually

<sup>4</sup> Background emissions include 14.37 µg/m<sup>3</sup> from an engine used overnight by the Eagle Plant, 20.0 µg/m<sup>3</sup> for haul roads and stock piles, and 45.63 µg/m<sup>3</sup> for separate owner plants, when applicable

<sup>5</sup> Solitary operation or operation with other plants that are owned by Beyer Crushed Rock Co.

<sup>6</sup> Operation with other plants that are not owned by Beyer Crushed Rock Co.

Table 4: Ambient Air Quality Impact Analysis of the Generator (EP-12A) of this Project

Pollutant	<sup>1</sup> NAAQS (µg/m <sup>3</sup> )	Increment Standard (µg/m <sup>3</sup> )	Averaging Time	<sup>2</sup> Maximum Modeled Impact (µg/m <sup>3</sup> )
NO <sub>x</sub>	100.0	25.0	Annual	10.45
NO <sub>x</sub>	188.0	N/A	1 hour	104.5

<sup>1</sup> National Ambient Air Quality Standards (NAAQS)

<sup>2</sup> Modeled impact of the generator of this project

## EMISSIONS CALCULATIONS

Emissions for the project were calculated using emission factors found in the United States Environmental Protection Agency (EPA) document *AP-42 Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources*, Fifth Edition (AP-42).

Emissions from the rock-crushing equipment were calculated using emission factors from AP-42, Section 11.19.2, "Crushed Stone Processing and Pulverized Mineral Processing," August 2004. The uncontrolled emission factors were used because the inherent moisture content of the crushed rock is less than 1.5 percent by weight.

Emissions from the diesel generator were calculated using emission factors from AP-42, Section 3.4, "Large Stationary Diesel and All Stationary Dual-fuel Engines," October 1996.

## AMBIENT AIR QUALITY IMPACT ANALYSIS

An ambient air quality impact analysis (AAQIA) was performed to determine the impact of the pollutants listed in Table 3 and Table 4. The Air Pollution Control Program requires an AAQIA of PM<sub>10</sub> for all asphalt, concrete and rock-crushing plants regardless of the level of PM<sub>10</sub> emissions if a permit is required. An AAQIA is required for other pollutants if their emissions exceed their respective de minimis or screening model action level. The AAQIA was performed using the Air Pollution Control Program's generic nomographs and when appropriate the EPA modeling software AERSCREEN. For each pollutant that was modeled, the maximum concentration that occurs at or beyond the site boundary was compared to the increment standard, NAAQS or Risk Assessment Level (RAL) for the pollutant. If during continuous operation the modeled concentration of a pollutant is greater than the applicable increment standard, NAAQS or RAL, the plant's production is limited to ensure compliance with the standard.

An AAQIA was performed on the nitrogen oxide (NO<sub>x</sub>) emissions of the generator of this project because its conditioned potential emissions exceed the 40.0 ton per year de minimis level. Because the NO<sub>x</sub> 1 hour standard is for the 95<sup>th</sup> percentile of the three year average, the maximum concentration of NO<sub>x</sub> emissions that were calculated in AERSCREEN was used.

This plant uses Best Management Practices (BMPs) to control emissions from haul roads and vehicular activity areas, so emissions from these sources were not included in the AAQIA. Instead they were addressed as a background concentration of 20.0 µg/m<sup>3</sup> of PM<sub>10</sub> in accordance with the Air Pollution Control Program's BMPs policy.

## OPERATING SCENARIOS

The plant is permitted to operate with other plants located at the site as long as the NAAQS is not exceeded. The following scenarios explain how Beyer shall demonstrate compliance with the NAAQS.

- When plants that are owned by Beyer, which are referred to as same owner plants, are located at the site, Beyer must calculate the daily impact of each plant and limit the total impact of all plants below the NAAQS using Attachment A.
- When plants that are not owned by Beyer, which are referred to as separate owner plants, are located at the site, Beyer must account for the impacts of these plants as a background concentration and add it to the total impact of all plants owned by Beyer that are operating at the site. This total is limited below the NAAQS. Beyer will limit the total impact of all plants they own and operate at the site to  $70.0 \mu\text{g}/\text{m}^3$  when any plants they do not own are located at the site. Beyer is not permitted to operate with any plant that is not owned by Beyer that has a separate owner background greater than  $45.63 \mu\text{g}/\text{m}^3$ . Beyer shall also add  $14.37 \mu\text{g}/\text{m}^3$  to the background concentration for an engine used overnight by the Eagle Plant. During this scenario, Beyer shall use Attachment B to demonstrate compliance with the NAAQS.

#### 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  $\text{PM}_{10}$  are conditioned below de minimis levels.

#### APPLICABLE REQUIREMENTS

Beyer 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.
- A modification to your Basic Operating Permit is required for this installation within 30 days of equipment startup.
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170.
- *Restriction of Emission of Odors*, 10 CSR 10-6.165.

## SPECIFIC REQUIREMENTS

- 40 CFR 60 Subpart OOO, "Standards of Performance for Nonmetallic Mineral Processing Plants" applies to each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station of this project and the installation.
- 40 CFR 60 Subpart IIII, "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines" applies to the diesel generator and all diesel generators at this installation.
- 40 CFR 63, Subpart ZZZZ, "National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines" applies to the diesel generator and all diesel generators at this installation.
- None of the National Emission Standards for Hazardous Air Pollutants apply to the proposed equipment.
- *Restriction of Emission of Sulfur Compounds*, 10 CSR 10-6.260.

## 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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Daronn Williams  
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 January 25, 2012, received January 30, 2012, designating Beyer Crushed Rock Co. as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.





## Attachment AA: Best Management Practices

Haul roads and vehicular activity areas shall be maintained in accordance with at least one of the following options when the portable plant is operating.

1. Pavement
  - A. The operator shall pave the area with materials such as asphalt, concrete or other materials approved by the Air Pollution Control Program. The pavement will be applied in accordance with industry standards to achieve control of fugitive emissions<sup>1</sup> while the plant is operating.
  - B. Maintenance and repair of the road surface will 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.
  - C. The operator shall periodically wash or otherwise clean all of the paved portions of the haul roads as necessary to achieve control of fugitive emissions from these areas while the plant is operating.
  
2. Application of Chemical Dust Suppressants
  - A. The operator shall apply a chemical dust suppressant (such as magnesium chloride, calcium chloride, lignosulfonates, etc.) to unpaved areas.
  - B. The quantities of the chemical dust suppressant shall be applied and maintained in accordance with the manufacture's recommendation (if available) and in sufficient quantities to achieve control of fugitive emissions from these areas while the plant is operating.
  - C. The operator shall record the time, date and the amount of material applied for each application of the chemical dust suppressant agent on the above areas. The operator shall keep these records with the plant for not less than five (5) years and make these records available to Department of Natural Resources personnel upon request.
  
3. Application of Water-Documented Daily
  - A. The operator shall apply water to unpaved areas. Water shall be applied at a rate of 100 gallons per day per 1,000 square feet of unpaved or untreated surface area while the plant is operating.
  - B. Precipitation may be substituted for watering if the precipitation is greater than one quarter of one inch and is sufficient to control fugitive emissions.
  - C. Watering may also be suspended when the ground is frozen, during periods of freezing conditions when watering would be inadvisable for traffic safety reasons, or when there will be no traffic on the roads.
  - D. The operator shall record the date, volume of water application and total surface area of active haul roads or the amount of precipitation that day. The operators shall also record the rationale for not watering (e.g. freezing conditions or not operating).
  - E. The operator shall keep these records with the plant for not less than five (5) years, and the operator shall make these records available to Department of Natural Resources personnel upon request.

<sup>1</sup>For purposes of this document, Control of Fugitive Emissions means to control particulate matter that is not collected by a capture system and visible emissions to the extent necessary to prevent violations of the air pollution law or regulation. (Note: control of visible emission is not the only factor to consider in protection of ambient air quality.)

Mr. Kevin Fahey  
President  
Beyer Crushed Rock Co.  
408 High Grove Road  
Grandview, MO 64030

RE: New Source Review Permit - Project Number: 2012-01-109

Dear Mr. Fahey:

Enclosed with this letter is your permit to construct. Please study it carefully. 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 have any questions regarding this permit, please do not hesitate to contact Daronn Williams, at the department's 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:dwl

Enclosures

c: Kansas City Regional Office  
PAMS File: 2012-01-109

Permit Number: