

# STATE OF MISSOURI

# PERMIT BOOK



## 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: 122011-011

Project Number: 2011-08-032  
Installation ID: 151-0056

Parent Company: Barrett Materials, Inc.

Parent Company Address: 3880 Boeuf Creek Road, New Haven, MO 63068

Installation Name: Barrett Materials, Inc.

Installation Address: 265 Roberts Trail, Belle, MO 65013

Location Information: Osage County, S7 T41N R7W

Application for Authority to Construct was made for:

A new stationary rock-crushing plant that is rated at 100 tons 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.

DEC 20 2011

EFFECTIVE DATE

Handwritten signature of Kyna L Moore in cursive.

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.

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Project No.	2011-08-032

**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. **Best Management Practices Requirement**  
Barrett Materials, Inc. shall control fugitive emissions from all of the haul roads and vehicular activity areas at this site by performing Best Management Practices as defined in Attachment AA.
2. **Moisture Content Testing Requirement**
  - A. Barrett Materials, Inc. shall verify that the moisture content of the processed rock is greater than or equal to 1.5% weight.
  - B. Testing shall be conducted according to the method prescribed by the American Society for Testing Materials (ASTM) D-2216, C-566 or another method approved by the Director.
  - C. The initial test shall be conducted no later than 45 days after the start of operation. A second test shall be performed the calendar year following the initial test during the months of July or August.
  - D. The test samples shall be taken from rock that has been processed by the plant or from each source of aggregate (e.g. quarry).
  - E. The written analytical report shall include the raw data and moisture content of each sample, the test date and the original signature of the individual performing the test. The report shall be filed on-site or at the Barrett Materials, Inc. main office within 30 days of completion of the required test.
  - F. If the moisture content of either of the two tests is less than the moisture content in Special Condition 2.A, another test may be performed within 15 days of the noncompliant test. If the results of that test also exceed the limit, Barrett Materials, Inc. shall either:
    - 1) Apply for a new permit to account for the revised information, or
    - 2) Submit a plan for the installation of wet spray devices to the Air Pollution Control Program Compliance Assistance section within 10 days of the second noncompliant test. The wet spray devices shall be installed and operational within 40 days of the second noncompliant test.

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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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- G. In lieu of testing, Barrett Materials, Inc. may obtain test results that demonstrate compliance with the moisture content in Special Condition 2.A from the supplier of the aggregate.
  
- 3. **Minimum Distance to Property Boundary Requirement**  
The primary crusher (EP-4) shall be located at least 950 feet from the nearest property boundary.
  
- 4. **Primary Equipment Requirement**  
Barrett Materials, Inc. shall process all rock through the primary crusher (EP-4). Bypassing the primary crusher is prohibited.
  
- 5. **Diesel Generator**  
The installation is powered by one diesel generator rated at 150 horsepower. It shall not run unless it is powering the plant's equipment.
  
- 6. **Fuel Requirement**
  - A. Barrett Materials, Inc. shall exclusively burn fuel with a sulfur content less than or equal to 0.05% by weight in the generator (EP-9).
  
  - B. Barrett Materials, Inc. 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*.
  
  - C. Barrett Materials, Inc. shall keep the records required by Special Condition 6.B at this site and make them available for Department of Natural Resources' employees upon request.
  
- 7. **Record Keeping Requirement**  
Barrett Materials, Inc. 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**  
Barrett Materials, Inc. 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: 2011-08-032  
Installation ID Number: 151-0056  
Permit Number:

Barrett Materials, Inc.  
265 Roberts Trail  
Belle, MO 65013

Complete: August 9, 2011

Parent Company:  
Barrett Materials, Inc.  
3880 Boeuf Creek Road  
New Haven, MO 63068

Osage County, S7 T41N R7W

PROJECT DESCRIPTION

Barrett Materials, Inc. proposes to construct a stationary rock-crushing plant that is rated at 100 tons per hour at 265 Roberts Trail in Belle, Missouri (S7, T41N, R7W) in Osage County, Missouri. This plant will be 950 feet away from the nearest property boundary and will consist of the emission points listed in Table 1. This rock-crushing plant is powered by one 150 horsepower diesel generator, which will be located next to the crusher. This generator is not considered a nonroad engine because it will remain in the same physical location greater than 12 consecutive months and therefore, its emissions were included in this project. There are no other plants that operate at this site.

The crusher (EP-4), screen (EP-5), and conveyors (EP-6A, EP-6B, EP-6C, and EP-6D) of the rock-crushing plant were manufactured before 1983, and therefore, is not subject to the New Source Performance Standards (NSPS) Subpart OOO. The engine (EP-9) used to power the rock-crushing plant is subject to NSPS Subpart IIII. A basic operating permit is required for this plant.

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. This installation is located in Osage 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. No permits have been issued to Barrett Materials, Inc. from the Air Pollution Control Program.

## TABLES

The emission points of this stationary rock-crushing plant are listed in Table 1.

Table 1: Summary of Emission Points

Emission Point (EP)	Description
EP-1	Drilling
EP-2	Loader Dump to Crusher
EP-3	Pit Haul Road
EP-4	Jaw Crusher
EP-5	Screen
EP-6A	Crusher Conveyor
EP-6B	Conveyor
EP-6C	Conveyor
EP-6D	Conveyor
EP-7	Customer Haul Road
EP-8	Storage Pile
EP-9	Diesel Engine (150 Horsepower)
EP-10A	Diesel Tank #1 (500 gallon)
EP-10B	Diesel Tank #2 (500 gallon)

Table 2 summarizes the emissions of this project. The potential emissions of the process equipment exclude emissions from haul roads and wind erosion. The existing actual emissions are normally taken from the installation's previous year's Emission Inventory Questionnaire (EIQ), but since this is a new, unpermitted installation it has not completed an EIQ. The potential emissions of the application represent the emissions of all equipment and activities assuming continuous operation (8760 hours per year).

Table 2: Emissions Summary (tons per year)

Air Pollutant	De Minimis Level	<sup>a</sup> Potential Emissions of Process Equipment (tons/yr)	Existing Actual Emissions	<sup>b</sup> Potential Emissions of the Application	Conditioned Potential Emissions
PM	25.0	3.30	N/A	34.44	N/A
PM <sub>10</sub>	15.0	2.17	N/A	12.14	N/A
PM <sub>2.5</sub>	10.0	1.59	N/A	6.41	N/A
SO <sub>x</sub>	40.0	1.38	N/A	1.38	N/A
NO <sub>x</sub>	40.0	21.06	N/A	21.06	N/A
VOC	40.0	2.30	N/A	2.30	N/A
CO	100.0	4.54	N/A	4.54	N/A
Total HAPs	25.0	0.02	N/A	0.02	N/A

N/A = Not Applicable

<sup>a</sup> Excludes haul road and storage pile emissions

<sup>b</sup> Includes site specific haul road and storage pile emissions

Table 3: Ambient Air Quality Impact Analysis

Pollutant	<sup>a</sup> NAAQS ( $\mu\text{g}/\text{m}^3$ )	Averaging Time	<sup>b</sup> Maximum Modeled Impact ( $\mu\text{g}/\text{m}^3$ )	Limited Impact ( $\mu\text{g}/\text{m}^3$ )	Back- ground ( $\mu\text{g}/\text{m}^3$ )	Daily Limit (tons/day)
<sup>c</sup> PM <sub>10</sub>	150.0	24-hour	13.4	130.0	20.0	N/A

N/A = Not Applicable

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

<sup>b</sup> Modeled impact at maximum capacity with controls

<sup>c</sup> Operation of Barrett Materials, Inc.'s rock-crushing plant

## 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 controlled emission factors were used because the inherent moisture content of the crushed rock is greater than 1.5% weight.

Emissions from haul roads and vehicular activity areas were calculated using the predictive equation from AP-42 Section 13.2.2 "Unpaved Roads," November 2006. A 90% control efficiency is applied to the emission calculations for the use of Best Management Practices. Emissions from load-in and load-out of storage piles were calculated using the predictive equation from AP-42 Section 13.2.4. The moisture content of the aggregate is 1.5% weight. Emissions from wind erosion of storage piles were calculated using an equation found in the Air Pollution Control Program's Emissions Inventory Questionnaire Form 2.8 "Storage Pile Worksheet."

Emissions from the diesel generator were calculated using emission factors from AP-42 Section 3.3 "Gasoline and Diesel Industrial Engines," October 1996. Emissions from the breathing loss and working loss of the two diesel tanks were calculated using emission factors from the Environmental Protection Agency document Factor Information Retrieval (FIRE) Version 6.25, *Source Classification Codes and Emission Factors Listing for Criteria Air Pollutants*. The Source Classification Codes (SCC) that correspond to the breathing loss and working loss of the two diesel tanks in FIRE are 4-03-010-05 and 4-03-010-08, respectively.

## 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. 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 (SMAL). The AAQIA was performed using the Air Pollution Control Program's generic nomographs and when appropriate the EPA modeling software SCREEN3. For each pollutant that was modeled, the maximum concentration that occurs at or beyond the site boundary was compared to the National Ambient Air Quality 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 NAAQS or RAL, the plant's production is limited to ensure compliance with the standard.

This plant uses 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 interim policy.

### 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 are above de minimis levels.

### APPLICABLE REQUIREMENTS

Barrett Materials, Inc. 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 Basic Operating Permit application 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 Visible Air Contaminants*, 10 CSR 10-6.220

- *Restriction of Emission of Odors*, 10 CSR 10-6.165

#### SPECIFIC REQUIREMENTS

- 40 CFR 60 Subpart IIII, "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines" applies to the equipment.
- 40 CFR Part 63, Subpart ZZZZ, *Maximum Achievable Control Technology (MACT) Regulations, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPS) 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 A. 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 August 4, 2011, received August 9, 2011, designating Barrett Materials, Inc. as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Northeast Regional Office Site Survey, dated August 17, 2011.
- Environmental Protection Agency's document Factor Information Retrieval (FIRE) Version 6.25, Source Classification Codes and Emission Factors Listing for Criteria Air Pollutants.

## 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. James Barrett  
President  
Barrett Materials, Inc.  
3880 Boeuf Creek Road  
New Haven, MO 63068

RE: New Source Review Permit - Project Number: 2011-08-032

Dear Mr. Barrett:

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 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 A. 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

Kendall B. Hale  
New Source Review Unit Chief

KBH:dwl

Enclosures

c: Northeast Regional Office  
PAMS File: 2011-08-032

Permit Number: