

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: 122012-014

Project Number: 2012-08-073

Installation ID: 149-P016

Parent Company: Doss & Harper Stone Co., Inc.

Parent Company Address: P.O. Box 888, West Plains, MO 65775

Installation Name: Doss & Harper Stone Co., Inc.

Installation Address: County Road E-201, Alton, MO 65606

Location Information: Oregon County, S26, T23N, R4W

Application for Authority to Construct was made for:  
Replacement of two diesel engines. 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.

DEC 21 2012

EFFECTIVE DATE

*Wendy Vit for Kyril L. Moore*  
\_\_\_\_\_  
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 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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**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 all special conditions found in the previously issued construction permit 122006-007 from the Air Pollution Control Program.
2. **Best Management Practices Requirement**  
Doss & Harper Stone Co., 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.
3. **Ambient Air Impact Limitation**
  - A. Doss & Harper Stone Co., Inc. shall not cause an exceedance of the National Ambient Air Quality Standard (NAAQS) for particulate matter less than ten microns in aerodynamic diameter (PM<sub>10</sub>) of 150.0 µg/m<sup>3</sup> 24-hour average in ambient air.
  - B. Doss & Harper Stone Co., Inc. shall demonstrate compliance with Special Condition 3.A using Attachment A and Attachment B or other equivalent forms that have been approved by the Air Pollution Control Program, including an electronic forms. Doss & Harper Stone Co., Inc. shall account for the impacts from other sources of PM<sub>10</sub> as instructed in the attachments.
  - C. Doss & Harper Stone Co., Inc. is exempt from the requirements of Special Condition 2.B when no other plants or other plants that are not owned by Doss & Harper Stone Co., Inc. are operating at this site.
4. **Annual Emission Limit**
  - A. Doss & Harper Stone Co., Inc. shall emit less than 40.0 tons of NOx in any 12-month period from the entire installation.
  - B. Doss & Harper Stone Co., Inc. shall demonstrate compliance with Special Condition 4.A using Attachment C or another equivalent form that has been approved by the Air Pollution Control Program, including an electronic form.
5. **Moisture Content Testing Requirement**
  - A. Doss & Harper Stone Co., Inc. shall verify that the moisture content of the processed rock is greater than or equal to 1.5 percent by weight.

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**SPECIAL CONDITIONS:**

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

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- 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 Doss & Harper Stone Co., 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 5.A, another test may be performed within 15 days of the noncompliant test. If the results of that test also exceed the limit, Doss & Harper Stone Co., 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.
  - G. In lieu of testing, Doss & Harper Stone Co., Inc. may obtain test results that demonstrate compliance with the moisture content in Special Condition 5.A from the supplier of the aggregate.
6. Minimum Distance to Property Boundary Requirement  
The primary emission point shall be located at least 400 feet from the nearest property boundary.
7. Primary Equipment Requirement  
Doss & Harper Stone Co., Inc. shall process all rock through the primary crusher (EU-4A). Bypassing the primary crusher is prohibited.
8. Record Keeping Requirement  
Doss & Harper Stone Co., 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.

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**SPECIAL CONDITIONS:**

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

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9. Reporting Requirement

Doss & Harper Stone Co., 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 (5) REVIEW

Project Number: 2012-08-073  
Installation ID Number: 149-P016  
Permit Number:

Doss & Harper Stone Co., Inc.  
County Road E-201  
Alton, MO 65606

Complete: August 30, 2012

Parent Company:  
Doss & Harper Stone Co., Inc.  
P.O. Box 888  
West Plains, MO 65775

Oregon County, S26, T23N, R4W

PROJECT DESCRIPTION

Doss & Harper Stone Co., Inc. is replacing two engines associated with their rock crushing operation. They are replacing a Detroit 350 hp diesel engine and a Caterpillar 230 hp diesel engine at Oregon County Quarry in Alton, MO. The new engines will be a Caterpillar Model 3412 rated at 850 hp diesel engine, S/N 81Z25038, manufactured in 2000, and a Caterpillar Model D353 rated at 220 hp, S/N 46B1405, manufactured prior to 1970.

All of the other equipment associated with the rock crushing operation will remain the same. The MHDR will remain at 221 tons per hour.

The Caterpillar Model D353 rated at 220 hp is rated at less the 300 hp and therefore records will have to be kept to show maintenance requirements in order to comply with 40 CFR Part 63, Subpart ZZZZ. There are no operating limitations, fuel requirements, performance tests, or notification requirements.

The Caterpillar Model 3412 850 hp diesel engine must show compliance with MACT ZZZZ by May 3, 2013.

The applicant will continue to use 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 Oregon 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.

## TABLES

The following construction permits have been issued to Doss & Harper Stone Co., Inc. from the Air Pollution Control Program.

Table 1: Permit History

Permit Number	Description
1199-001	Add surge bins
072002-015	Crushing/Screening Plant
062002-013	Make portable components permanent
072002-015A	Daily annual impact
062002-013	Ambient Impact Factor
062002-013B	Amend concurrent operation
022005-015	Make portable stationary-(PORT-0039)
062002-013	Amend recordkeeping
022005-012	Amend recordkeeping
072002-015	Amend recordkeeping
062002-013	Add BMP's and colocation
122006-007	Add BMP's and allow colocation
122006-006	Allow colocation, Add BMP's (PORT-0467)

The table below summarizes the emissions of this project. The potential emissions of the process equipment, which excluded emissions from haul roads and wind erosion, are site specific and should not vary from site to site. The existing actual emissions were taken from the previous year's EIQ. The potential emissions of the application represent the emissions of all equipment and activities assuming continuous operation (8760 hours per year). The conditioned potential emissions include emissions from sources that will limit their production to ensure compliance with the annual emission limit.

The following tables include all the emissions for the entire rock crushing operation. This was done to establish new NOx annual limits as well as a new ambient air limit for the installation.

Currently, there are no other plants operating at the Oregon County Quarry with Doss & Harper. Doss & Harper will voluntarily limit their production to 1,600 tons per day to allow operation with other plants that are not owned by Doss & Harper Stone Co., Inc. This limit will allow them to achieve the daily ambient impact standard of 150  $\mu\text{m}^3$  for particulate matter less than ten microns in aerodynamic diameter ( $\text{PM}_{10}$ ).

Table 2: Emissions Summary (tons per year)

Air Pollutant	De Minimis Level/SMAL	Potential Emissions of Process Equipment	Existing Actual Emissions (2011 EIQ)	<sup>a</sup> Potential Emissions of the Installation	Conditioned Potential Emissions of the Installation
PM	25.0	11.61	N/D	37.69	14.61
PM <sub>10</sub>	15.0	6.31	0.08	17.19	6.66
PM <sub>2.5</sub>	10.0	3.70	0.08	6.46	2.50
SO <sub>x</sub>	40.0	0.04	0.07	0.04	0.02
NO <sub>x</sub>	40.0	103.27	1.17	103.27	<40.0
VOC	40.0	4.22	0.09	4.22	1.63
CO	100.0	26.10	0.25	26.10	10.11
Total HAPs	25.0	0.06	N/D	0.06	0.02

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

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

Table 3: Ambient Air Quality Impact Analysis

Pollutant	<sup>a</sup> NAAQS/RAL (µg/m <sup>3</sup> )	Averaging Time	<sup>b</sup> Maximum Modeled Impact (µg/m <sup>3</sup> )	Limited Impact (µg/m <sup>3</sup> )	Background (µg/m <sup>3</sup> )	<sup>c</sup> Daily Limit (tons/day)
<sup>d</sup> PM <sub>10</sub> (same)	150.0	24-hour	136.44	130.0	20.0	5,125.1
<sup>e</sup> PM <sub>10</sub> (separate)	150.0	24-hour	N/A	40.58	109.42	1,600

<sup>a</sup>National Ambient Air Quality Standards (NAAQS) and Risk Assessment Level (RAL)

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

<sup>c</sup>Indirect limit based on compliance with NAAQS.

<sup>d</sup>Solitary operation or operation with other plants that are owned by Doss & Harper Stone Co., Inc.

<sup>e</sup>Operation with other plants that are not owned by Doss & Harper Stone Co., Inc.

<sup>f</sup>Annual standard is 10 times the annual RAL

## 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 percent (%) by weight.

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

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 BMPs.

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% by 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."

## 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. In cases where the plant is providing material for a highway project, the ambient impact is evaluated in accordance with a memorandum issued by the Air Pollution Control Program titled "Permitting Asphalt/Concrete Plants for Temporary Highway Projects," dated April 10, 2000. This memorandum states that air quality should be analyzed at the nearest residence or location where the public could reasonably expected to be found instead of all ambient air. This practice generally allows for a less restrictive daily production level while protecting the public.

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 µg/m<sup>3</sup> of PM<sub>10</sub> in accordance with the Air Pollution Control Program's BMPs interim 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 Doss & Harper Stone Co., Inc. shall demonstrate compliance with the NAAQS:

- When no other plants are located.
- When plants that are owned by Doss & Harper Stone Co., Inc. which are referred to as same owner plants, are located at the site, Doss & Harper Stone Co., Inc. 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 Doss & Harper Stone Co., Inc., which are referred to as separate owner plants, are located at the site, Doss & Harper Stone Co., Inc. must account for the impacts of these plants as a background concentration and add it to the total impact of all plants owned by Doss & Harper Stone Co., Inc. that are operating at the site. This total is limited below the NAAQS. Doss & Harper Stone Co., Inc. will limit the total impact of all plants they own and operate at the site to 40.58  $\mu\text{g}/\text{m}^3$  when any plants they do not own are located at the site. Doss & Harper Stone Co., Inc. is not permitted to operate with any plant that is not owned by Doss & Harper Stone Co., Inc. that has a separate owner background greater than 89.42  $\mu\text{g}/\text{m}^3$ . During this scenario, Doss & Harper Stone Co., Inc. shall use Attachment B to demonstrate compliance with the NAAQS.

#### 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 NOx are conditioned below de minimis level.

#### APPLICABLE REQUIREMENTS

Doss & Harper Stone Co., 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.

#### GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110.
- An application to amend their 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 Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

#### SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400
- 40 CFR 60 Subpart IIII, "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines" applies to the equipment.

- MACT ZZZZ of the National Emission Standards for Hazardous Air Pollutants (NESHAPS) or National Emission Standards for Hazardous Air Pollutants for Source Categories (MACTS) applies 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 (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

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Kathy Kolb  
New Source Review Unit

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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 27, 2012, received August 30, 2012, designating Doss & Harper Stone Co., Inc. 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 manufacturer'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. Larry Carter  
Operations Manager  
Doss & Harper Stone Co., Inc.  
P.O. Box 888  
West Plains, MO 65775

RE: New Source Review Permit - Project Number: 2012-08-073

Dear Mr. Carter:

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 Kathy Kolb, 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:kk1

Enclosures

c: Southeast Regional Office  
PAMS File: 2012-080-073

Permit Number: