

**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: **032012-008**

Project Number: 2011-11-027  
Installation ID: 113-P052

Parent Company: Central Stone Company  
Parent Company Address: 1701 5th Avenue, Moline, IL 61265  
Installation Name: Moscow Mills Quarry CS57  
Installation Address: 2181 West Outer Highway 61, Moscow Mills, MO 63362  
Location Information: Lincoln County, S17 & 18, T48N, R1E

Application for Authority to Construct was made to:  
Conduct the following changes: to replace the existing grizzly feeder, rated at 500 tons per hour, with another vibrating grizzly feeder rated at 700 tons per hour; to replace the existing primary crusher, rated at 375 tons per hour, with another crusher rated at 525 tons per hour; and to reduce the distance to the nearest property boundary from 550 feet to 400 feet. 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.

MAR 21 2012

EFFECTIVE DATE

Handwritten signature of Kym Z Moore in cursive script.  
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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**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."*

1. **Superseding Condition**  
The conditions of this permit supersede all special conditions found in the previously issued Construction Permit 032005-025 from the Air Pollution Control Program.
2. **Generic Plant Designation and Maximum Combined Hourly Design Rate**  
Moscow Mills Quarry CS57's stationary rock-crushing plant has been designated to be a Generic Plant Operation. The combined Maximum Hourly Design Rate (MHDR) of each of the following generic equipment types shall not exceed the rates and numbers listed in Table 1.

Table 1: Generic Equipment

Equipment Type	Maximum Combined Hourly Design Rate	Maximum Number of Units
Primary Unit: Feeder/Grizzly	700 tons per hour	1
Primary Crusher	525 tons per hour	1
Crusher(s) including primary crusher	990 tons per hour	4
Conveyor(s), Stacker(s)	13,000 tons per hour	65
Screen(s)	1,000 tons per hour	4
Storage Bin(s)	700 tons per hour	1

3. **Generic Plant Equipment Identification Requirement**
  - A. Moscow Mills Quarry CS57 shall submit the following information to the Air Pollution Control Program's Permitting Section and the St. Louis Regional Office within 15 days of actual startup.
    - 1) A master list of all equipment that will be permitted for use with the generic plant. This master list shall include at minimum the following information for each piece of equipment:
      - a) Manufacturer's name
      - b) Model number
      - c) Serial number
      - d) Actual MHDR
      - e) Date of manufacture
      - f) Any other additional information that is necessary to uniquely identify the equipment.

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- 2) A list of the core equipment that will always be utilized with the generic plant. The core equipment associated with the generic plant shall include at least one primary unit that controls the rate of the process flow (e.g., a primary crusher or primary screen).
    - 3) A determination of the applicability of 40 CFR Part 60, Subpart OOO, "Standards of Performance for Nonmetallic Mineral Processing Plants" for each piece of equipment indicating whether each piece of equipment is subject to Subpart OOO and justification for this determination.
    - 4) Moscow Mills Quarry CS57 shall notify the Air Pollution Control Program's Permitting Section and the St. Louis Regional Office when new equipment is added to the master list and when core equipment is changed within 30 days of the change.
  - B. Moscow Mills Quarry CS57 shall maintain a list of the specific equipment currently being utilized with the generic plant. Any arrangement of the generic plant's equipment must be such that the core equipment is not bypassed in the process flow.
4. **Equipment Identification Requirement**  
Moscow Mills Quarry CS57 shall maintain easily read permanent markings on each component of the plant. These markings shall be the equipment's serial number or a company assigned identification number that uniquely identifies the individual component.
  5. **Best Management Practices Requirement**  
Moscow Mills Quarry CS57 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.
  6. **Ambient Air Impact Limitation**
    - A. Moscow Mills Quarry CS57 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. Moscow Mills Quarry CS57 shall demonstrate compliance with Special Condition 6.A using Attachment A or other equivalent forms that have been approved by the Air Pollution Control Program, including an electronic form.
  7. **Annual Emission Limit**
    - A. Moscow Mills Quarry CS57 shall emit less than 15.0 tons of PM<sub>10</sub> in any 12-month period from the entire installation.

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- B. Moscow Mills Quarry CS57 shall demonstrate compliance with Special Condition 7.A using Attachment B or another equivalent form that has been approved by the Air Pollution Control Program, including an electronic form.
8. Moisture Content Testing Requirement
- A. Moscow Mills Quarry CS57 shall verify that the moisture content of the processed rock is greater than or equal to 1.5 percent by weight.
  - B. Testing shall be conducted according to the method prescribed by the American Society for Testing Materials 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 Moscow Mills Quarry CS57 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 8.A, another test may be performed within 15 days of the noncompliant test. If the results of that test also exceed the limit, Moscow Mills Quarry CS57 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, Moscow Mills Quarry CS57 may obtain test results that demonstrate compliance with the moisture content in Special Condition 8.A from the supplier of the aggregate.
9. Minimum Distance to Property Boundary Requirement
- The primary emission point shall be located at least 400 feet from the nearest property boundary.

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following Special Conditions:

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10. **Concurrent Operation Restriction**  
Moscow Mills Quarry CS57 is prohibited from operating whenever other plants not owned by Central Stone Company, the parent company of Moscow Mills Quarry CS57, are located at the site.
11. **Primary Equipment Requirement**  
Moscow Mills Quarry CS57 shall process all rock through the primary grizzly feeder (Emission Point 5). Bypassing the primary grizzly feeder is prohibited.
12. **Record Keeping Requirement**  
Moscow Mills Quarry CS57 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.
13. **Reporting Requirement**  
Moscow Mills Quarry CS57 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: 2011-11-027  
Installation ID Number: 113-P052  
Permit Number:

Moscow Mills Quarry CS57  
2181 West Outer Highway 61  
Moscow Mills, MO 63362

Complete: November 14, 2011

Parent Company:  
Central Stone Company  
1701 5th Avenue  
Moline, IL 61265

Lincoln County, S17 & 18, T48N, R1E

PROJECT DESCRIPTION

Moscow Mills Quarry CS57, owned by the Central Stone Company, has requested to conduct the following changes to their existing, stationary generic rock-crushing plant in Lincoln County: to replace the existing grizzly feeder (Emission Point (EP) 02), rated at 500 tons per hour, with a vibrating grizzly feeder rated at 700 tons per hour; to replace the existing primary crusher (EP-03), rated at 375 tons per hour, with another crusher rated at 525 tons per hour; and to reduce the distance to the nearest property boundary from 550 feet to 400 feet. The new equipment will be assigned the EP number of the existing equipment it replaced. This plant will be powered by line power. The new equipment will de-bottleneck the plant and, therefore, all emission points of this plant were evaluated in this permit.

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 Lincoln 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 permits have been issued to Moscow Mills Quarry CS57 from the Air Pollution Control Program.

Table 2: Permit History

Permit Number	Description
032005-025	Modification to an existing rock-crushing plant
022003-010	Installation of a new rock-crushing plant
0899-001	Reclassify the portable plant as a stationary source and add a primary crusher, grizzly feeder, under conveyor and 9 conveyors

The table below summarizes the emissions of this project. The existing potential emissions of this installation were taken from Permit Number 032005-025. 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 equipment and activities assuming continuous operation (8,760 hours per year). The conditioned potential emissions are based on a voluntary 15.0 ton per year de minimis limit of particulate matter less than ten microns in aerodynamic diameter (PM<sub>10</sub>) emissions.

Table 3: Emissions Summary (tons per year)

Air Pollutant	De Minimis Level	Existing Potential Emissions	Existing Actual Emissions (2010 EIQ)	Potential Emissions of the Application	Conditioned Potential Emissions
PM	25.0	N/D	N/D	182.46	44.39
PM <sub>10</sub>	15.0	< 50.0	11.10	61.26	< 15.00
PM <sub>2.5</sub>	10.0	N/D	N/D	26.20	6.33
SO <sub>x</sub>	40.0	N/D	N/D	N/A	N/A
NO <sub>x</sub>	40.0	< 40.0	N/D	N/A	N/A
VOC	40.0	N/D	N/D	N/A	N/A
CO	100.0	N/D	N/D	N/A	N/A
Total HAPs	25.0	N/D	N/D	N/A	N/A

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

Table 4: Ambient Air Quality Impact Analysis

Pollutant	<sup>a</sup> NAAQS (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> (solitary)	150.0	24-hour	198.10	130.0	20.0	11,893
<sup>e</sup> PM <sub>10</sub> (same)	150.0	24-hour	N/A	130.0	20.0	N/A

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

<sup>b</sup> Modeled impact of Moscow Mills Quarry CS57(113-P052) at maximum capacity with controls

<sup>c</sup> The daily production limit of Moscow Mills Quarry CS57 is indirectly based on compliance with the NAAQS. However, the daily production limit of all plants owned by the Central Stone Company that operate at this site during the same owner operating scenario is not determined because the Central Stone Company can balance production between all plants they own and operate at this site.

<sup>d</sup> Operation without other plants

<sup>e</sup> Operation with other plants that are owned by Central Stone Company

## EMISSIONS CALCULATIONS

Emissions for the project were calculated using emission factors found in the United States Environmental Protection Agency 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 equal to or greater than 1.5 percent by 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 90.0 percent control efficiency is applied to the emission calculations for the use of Best Management Practices (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 percent 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 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 SCREEN3. For each pollutant that was modeled, the maximum concentration that occurs at or beyond the site boundary was compared to the NAAQS or Risk Assessment Level (RAL) for the pollutant. If during continuous operation the modeled concentration of a pollutant is greater than the applicable National Ambient Air Quality Standards (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<sub>10</sub> are conditioned below the de minimis level and potential emissions of particulate matter are above the de minimis level, but below the major source level.

## APPLICABLE REQUIREMENTS

Moscow Mills Quarry CS57 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

- *Operating Permits, 10 CSR 10-6.065.*
- *Submission of Emission Data, Emission Fees and Process Information, 10 CSR 10-6.110.*
- *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 the equipment.
- None of the National Emission Standards for Hazardous Air Pollutants or National Emission Standards for Hazardous Air Pollutants for Source Categories applies to the proposed equipment.

## 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 November 7, 2011, received November 14, 2011, designating Central Stone Company 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. Tom Barnum  
Manager, Environmental Services  
Moscow Mills Quarry CS57  
1701 5th Avenue  
Moline, IL 61265

RE: New Source Review Permit - Project Number: 2011-11-027

Dear Mr. Barnum:

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 Daronn Williams, at the Department's Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102, by telephone at (573) 751-4817. Thank you for your time and attention to this matter.

Sincerely,

**AIR POLLUTION CONTROL PROGRAM**

Susan Heckenkamp  
New Source Review Unit Chief

SH:dwk

Enclosures

c: St. Louis Regional Office  
PAMS File: 2011-11-027