

STATE OF MISSOURI

FILE COPY



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: 11 2 0 0 8 - 0 1 1 Project Number: 2002-09-156

Parent Company: Lafarge North America, Inc.

Parent Company Address: 600 S.W. Jefferson Street, Suite 302, Lee's Summit, MO 64036

Installation Name: Lafarge Corporation - Sugar Creek Plant

Installation Address: 2200 North Courtney Road, Sugar Creek, MO 64050

Location Information: Jackson County, 1/4: SW, 1/4: SW, S13, T50N, R32W

Application for Authority to Construct was made for:

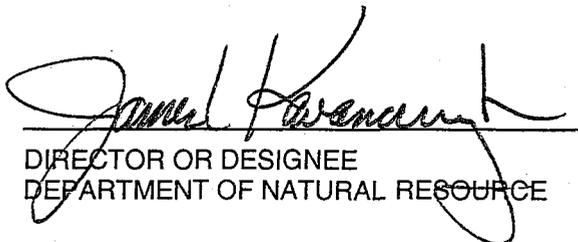
The addition of a new bottom ash storage pile and an expansion of an existing coal storage pile at the portland cement plant. In addition, one (1) new primary crusher will be added at the aggregate plant. The new primary crusher at the aggregate was constructed prior to receipt of a permit from the Missouri Department of Natural Resources. Obtaining a permit is part of a remedial action required by the Air Pollution Control Program. 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.

NOV 24 2008

EFFECTIVE DATE


DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCE

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 not more than 60 days but at least 30 days in advance of this date. 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.	2002-09-156

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."

Lafarge Corporation - Sugar Creek Plant
Jackson County, 1/4: SW, 1/4: SW, S13, T50N, R32W

1. Pavement of Haul Road(s)
 - A. Lafarge Corporation - Sugar Creek Plant shall pave the specified haul roads with materials such as asphalt, concrete, and/or other material(s) after receiving approval from the Program. The pavement will be applied in accordance with industry standards for such pavement so as to achieve "Control of Fugitive Emissions" while the plant is operating. The following haul road(s) are to be paved: Additional Ash Pile Hauling (EP-95).
 - B. Maintenance and/or repair of the surfaces 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. Lafarge Corporation - Sugar Creek Plant shall periodically water, wash and/or otherwise clean all of the paved portions of the haul road(s) as necessary to achieve control of fugitive emissions from these areas while the plant is operating.
 - D. Lafarge Corporation - Sugar Creek Plant shall pave the affected haul road(s) within 30 days after the commencement of the plant's operations at this site. This 30-day deadline to pave the haul road(s) may be extended upon approval of the Director.

2. Usage of Undocumented Watering on Haul Road(s)

Lafarge Corporation - Sugar Creek Plant shall control the emission of particulate matter from the haul road(s) and vehicular activity area(s) around the storage pile(s). Lafarge Corporation - Sugar Creek Plant shall apply a water spray on these sources whenever conditions exists that would allow visible fugitive emissions to enter the ambient air beyond the property boundaries. Undocumented watering is to be used on the following haul road(s) and vehicular activity area(s): Haul Road – Mine Entrance to Primary Hopper (EP-105) and the vehicle area around Bottom Ash Pile (EP-133).

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SPECIAL CONDITIONS:

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

3. Moisture Content Testing Requirement for Inherent Moisture Content
 - A. The inherent moisture content of the rock will reduce particulate emissions. Lafarge Corporation - Sugar Creek Plant claimed the inherent moisture content of the processed rock to be greater than or equal to 1.5 wt.%, which shall be verified by testing.
 - B. Testing shall be conducted according to approved methods, such as those prescribed by the *American Society for Testing Materials (ASTM D-2216 or C-566)*, EPA AP-42 Appendix C.2, or other method(s) approved by the Director. The first test shall be no later than 45 days after startup. Testing shall be conducted at least once every two years after the initial test, during the months of June through September, while the portable rock crushing plant is active at this site.
 - C. Test samples shall be obtained before processing (before entering the Primary Crusher at Aggregate Plant, EP-137) and after processing (prior to load-in to bins and/or storage piles). During the sample processing run only, any spray devices shall be turned off during the processing from which test samples are obtained. The written analytical report shall include the raw data and moisture content (wt.%) of each sample, the test date, and the original signature of the individual performing the test. Within 30 days of completion of the required tests, the report shall be filed on-site or at the Lafarge Corporation - Sugar Creek Plant main office.
 - D. If the inherent moisture content result of the first test is less than 1.5 wt.%, a second test must be performed within 30 days. If the result of the second test is less than 1.5 wt.%, Lafarge Corporation - Sugar Creek Plant shall apply for a new construction permit to account for the revised information or install wet spray devices on the affected units.
4. Usage of Wet Suppression Control System on Equipment
 - A. Lafarge Corporation - Sugar Creek shall install and operate wet spray devices to restrict the emission of particulate matter. These wet spray devices must be used to control fugitive emissions whenever these units are in operation. The wet spray devices shall be installed on the following units:
 - 1.) Primary Crusher at Aggregate Plant (EP-137)
 - 2.) Secondary Crusher CR2 at Aggregate Plant (EP-132)
 - 3.) S1/S2 Screens 1 and 2 at Aggregate Plant (EP-110)
 - B. Watering may be suspended during periods of freezing conditions, when use of the wet spray devices may damage the equipment. During these conditions, the operator(s) shall adjust the production rate to control fugitive emissions from these units. The operator shall record a brief description of such events in a daily log.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2002-09-156
Installation ID Number: 095-0030
Permit Number:

Lafarge Corporation - Sugar Creek Plant
2200 North Courtney Road
Sugar Creek, MO 64050

Complete: November 12, 2002
Reviewed: January 28, 2003

Parent Company:
Lafarge North America, Inc.
600 S.W. Jefferson Street, Suite 302
Lee's Summit, MO 64036

Jackson County, 1/4: SW, 1/4: SW, S13, T50N, R32W

REVIEW SUMMARY

- Lafarge Corporation - Sugar Creek Plant has applied for authority to add a new bottom ash storage pile and to expanded the area of an existing coal storage pile at the portland cement plant. In addition, one (1) new primary crusher will be added at the aggregate plant.
- Hazardous Air Pollutant (HAP) emissions are not expected from the new equipment or the modified storage piles associated with this project.
- Subpart OOO of the New Source Performance Standards (NSPS) will apply to the new primary crusher and some of the other crushing, screening and conveying equipment at the aggregate plant. The expansion of the coal storage pile will not be subject to the requirements of NSPS Subpart Y as the standard applies to coal handling/preparation operations.
- The Maximum Achievable Control Technology (MACT) standard, 40 CFR Part 63, Subpart LLL *National Emission Standards for Portable Cement Manufacturing* applies to the Portland cement plant at this installation.
- PM₁₀ emissions will be controlled at the new primary crusher by the inherent moisture content of the aggregate (greater than 1.5% by weight). Fugitive PM₁₀ emissions will still be controlled on the expanded coal storage pile through the use of wind screens or partial enclosures.
- The potential emissions of all air pollutants for this project do not exceed de minimis levels. Therefore, this review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.
- This installation is located in Jackson County, a maintenance area for ozone (O₃) and an attainment area for all other criteria air pollutants.

- This installation is on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2, Number 3, *Portland Cement Plants*].
- Ambient air quality modeling was not performed since potential emissions of the application do not exceed de minimis levels.
- Emissions testing is required for the new equipment subject to the performance testing requirements of the NSPS OOO standard.
- A Part 70 Operating Permit application is required for the modifications to this installation within 1 year of issuance of this permit.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

This Lafarge Corporation installation operates both a Portland Cement plant and an aggregate production plant at this same site located in Sugar Creek, Missouri. The existing installation is considered to be a major source of air emissions by both the Construction and Operating permit units. The installation was issued a Part 70 Operating Permit (Number OP2000-099) on September 22, 2000.

The Portland cement plant produces a fine powder (cement) that consists of a mixture of hydraulic cement materials comprising primarily of calcium silicates, aluminates and aluminoferrites. Most of the above raw materials for the cement plant are obtained from an on-site mining operation. The raw materials from the mine and other sources undergo a variety of sizing, material handling and blending operations to process these raw materials into the desired consistency before the raw materials are fed to the cement kiln in the appropriate proportions.

In the cement kiln, the raw materials are chemically combined through the application of high temperatures (up to 2,750 °F) and eventually leave the cement kiln as a spherically shaped nodules called clinker. This clinker is then ground and blended with gypsum to form the finished Portland Cement product. The final Portland Cement product(s) is stored in cement silos and eventually transported off-site.

The aggregate plant will process quarried stone by crushing, screening and conveying the rock into a number of various sizes that will vary depending on the final end use for the rock. After processing the rock, the sized rock will be stored in open storage piles and eventually loaded onto haul trucks to be taken off-site.

The following permits have been issued to Lafarge Corporation - Sugar Creek Plant from the Air Pollution Control Program.

Table 1: Previously Issued Construction Permits

Permit Number	Description
0897-019C	Correction to Permit Number 0897-019 to rectify emissions of PM ₁₀
012002-004	A Section (5) permit issued on January 9, 2002 for the construction of a new clinker reclaim system at the old Portland cement plant.
0897-019B	An amendment to Permit Number 0897-019 to revise language in the permit to allow for an increase in the maximum daily amount of aggregate production.
0897-019A	An amendment to revise the Special Conditions of Permit Number 0897-019 to reflect design changes in the new cement plant.
0897-019	A Section (8) permit issued on August 20, 1997 for the construction of a new Portland cement plant at the existing installation.
0596-027	A Section (5) permit issued on May 16, 1996 for the construction of a deep limestone mine.
1192-016	A Section (5) permit issued on November 5, 1992 for a new hopper and weigh feeder for clay.
0891-005A	An amendment to Permit Number 0891-005 to revise the Special Conditions.
0891-005Am	An amendment to Permit Number 0891-005 to revise the Special Conditions.
0891-005	A Section (5) permit issued on August 13, 1991 to process of non-hazardous separated solid industrial waste.
0790-002	A Section (5) permit issued on July 9, 1990 to replace up to 10% of the well water used for cooling with non-hazardous wastewater from other industries.
0184-055	A Section (5) permit issued on January 30, 1984 for the replacement of a finish mill with a higher capacity finish mill.

This new primary crusher at the aggregate plant was constructed prior to receipt of a permit from the Missouri Department of Natural Resources. Notice of Violation (NOV) Number 1792KC was issued on June 19, 2002 for not obtaining construction permit. Obtaining a permit is part of a remedial action required by the Air Pollution Control Program. In addition, NOV Number 1793KC and Notice of Excess Emissions Number 1790KC were also issued on June 19, 2002 for the primary crusher for not complying with the performance testing requirements and exceeding the 15% opacity limit of NSPS Subpart OOO, respectively.

PROJECT DESCRIPTION

On September 30, 2002, the Missouri Air Pollution Control Program (APCP) received a permit application for two (2) separate permitting projects. The projects were divided into this project (Project Number 2002-09-156), for the crusher, and Project #2003-01-056, for the amendment of a previously issued Prevention of Significant Deterioration (PSD) permit (Permit #0897-019C). The amendment reviewed administrative corrections to the Special Conditions of Permit Number 0897-019.

Although the new equipment and expansion was not considered part of the original PSD review, the new crusher and storage pile expansion affected modeling previously performed during the PSD review. Therefore, Lafarge was required to re-evaluate air quality impacts using the new configuration. During this time, Lafarge conducted stack testing for PM₁₀ on the kiln and discovered that they had not been properly accounting for condensable particulate matter. As a result, Lafarge requested that the PM₁₀ limit on the kiln be increased to allow for condensable particulate matter. The refined modeling was modified to account for the corrected PM₁₀ limit and the limit correction was issued on November 6, 2006.

This permit addresses the addition of a new bottom ash storage pile and the expansion of an existing coal storage pile at the portland cement plant and the addition of one (1) new primary crusher at the aggregate plant.

EMISSIONS/CONTROLS EVALUATION

PM₁₀ is the main air pollutant of concern that will be emitted from the new equipment, the new bottom ash storage pile and the expansion of the coal storage pile. PM₁₀ will be emitted from the new primary crusher at the aggregate plant unit and fugitive PM₁₀ emissions will be released from the load in/out of material to/from the storage piles, from the vehicular traffic activities occurring around the storage piles and wind erosion of the open storage piles at the cement plant. The expansion of the coal storage pile only considered the fugitive emissions from the wind erosion of the larger open storage pile.

The emission factors used in this review were obtained from the U.S. Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors; Volume I, Stationary Point and Area Sources, Fifth Edition*. The emission factors used in this review were obtained from the following AP-42 sections:

1. Section 11.19.2, *Crushed Stone Processing (1/95)* for the rock crushing/screening/handling operations; and
2. Section 13.2.4 *Aggregate Handling and Storage Piles, (1/95)* for the load out of material from the storage pile operations.

The wind erosion PM₁₀ emission factors are from current Air Pollution Control Program guidance on open storage piles. The PM₁₀ emission factors for vehicular activity around the storage pile was obtained from the Noyes Data Corp. book, Orlemann et al.1983, *Fugitive Dust Control*.

The controlled PM₁₀ emission factors from AP-42 Section 11.19.2, "Crushed Stone Processing" were used in this review to calculate the PM₁₀ emissions from all crushing, screening and handling operations. The controlled PM₁₀ emissions factors may be used if the moisture content of the rock is equal to or greater than 1.5% by weight. The application also indicated the new equipment may also be using a wet suppression system (spray bars) to control PM₁₀ emissions which would result in the same emission rate from the new equipment as the elevated moisture content.

Best Achievable Control Technology (BACT) for the coal storage pile (EP 133) had previously been determined to be the use of wind screens or partial enclosures in the Prevention of Significant Deterioration (PSD) permit (Number 0897-019). The expansion of the bottom ash pile reviewed under this project will still be required to achieve the same BACT level of BACT control. In the original PSD permit, a 50% control efficiency was allowed for the use of these wind screens or partial enclosures on the storage piles, so 50% control was also used in this review.

The potential emissions of the application for this review were calculated by using the

maximum design rate of the equipment, the appropriate emission factor, the usage of any control measures and assuming continuous year round operation (8760 hours per year).

The following table provides an emissions summary for this project.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory De Minimis Levels	Existing Potential Emissions ¹	Existing Actual Emissions (2001 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM ₁₀	15.0	618.50	212.12	9.24	N/A
SO _x	40.0	3,767.00	1,303.67	N/A	N/A
NO _x	40.0	2,668.00	935.36	N/A	N/A
VOC	40.0	117.00	23.26	N/A	N/A
CO	100.0	1.101	247.86	N/A	N/A
Lead	0.6	N/D	0.13	N/A	N/A
HAPs	10.0/25.0	56.00	5.85	N/A	N/A

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

Note1: The existing potential emissions for the installation were obtained from information contained in the most recent APCP permit issued to this installation (Permit Number 012002-004).

PERMIT RULE APPLICABILITY

The potential emissions of all air pollutants for this project do not exceed de minimis levels. Therefore, this review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

APPLICABLE REQUIREMENTS

Lafarge Corporation - Sugar Creek Plant shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required June 1 for the previous year's emissions.
- *Operating Permits*, 10 CSR 10-6.065

- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-3.090

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400
- *New Source Performance Regulations*, 10 CSR 10-6.070 – *New Source Performance Standards (NSPS) for the new crushing, screening and conveying equipment at the aggregate plant*, 40 CFR Part 60, Subpart OOO
- *Maximum Achievable Control Technology (MACT) Regulations*, 10 CSR 10-6.075, *National Emission Standards for Portable Cement Manufacturing*, 40 CFR Part 63, Subpart LLL

AMBIENT AIR QUALITY IMPACT ANALYSIS

Ambient air quality modeling was not performed for this project since the potential emissions of the permit application do not exceed de minimis levels for any air pollutant. However, an amendment to the PSD permit included a refined modeling analysis of all the equipment at the installation including the equipment included in this permit. The results indicated compliance with the National Ambient Air Quality Standards for PM₁₀ (see Project #2004-11-106).

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.

Emily E. Wilbur
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The original Application for Authority to Construct form, dated September 27, 2002, received September 30, 2002, and a second Application for Authority to Construct form with revisions, received November 12, 2002, designating Lafarge North America, Inc. as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factor; Volume I, Stationary Point and Area Sources, Fifth Edition*.
- Noyes Data Corp., Orlemann et al. 1983, *Fugitive Dust Control*.
- Kansas City Regional Office Site Survey, dated October 7, 2002.

Mr. Steven J. Kidwell
Manager, Environmental and Public Affairs
Lafarge Corporation - Sugar Creek Plant
2200 North Courtney Road
Sugar Creek, MO 64050

RE: New Source Review Permit - Project Number: 2002-09-156

Dear Mr. Kidwell:

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 Emily Wilbur, at the departments' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:ewl

Enclosures

c: Kansas City Regional Office
PAMS File 2002-09-156

Permit Number: