

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: 102011-012

Project Number: 2011-08-047
Installation Number: 186-0044

Parent Company: Holcim (US) Inc.

Parent Company Address: 201 Jones Road, Waltham, MA 02451

Installation Name: Holcim (US) Inc. - Ste. Genevieve Plant

Installation Address: 2942 US Hwy 61, Bloomsdale, MO 63627

Location Information: Ste. Genevieve County, T39N, R07E, S9, NE¼

Application for Authority to Construct was made for:

Holcim is planning to purchase a track-mounted crusher to facilitate on-site crushing of "road stone" (2" minus diameter). The crusher would be limited use, to produce road stone for use on-site for road dressing/maintenance.. 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.

OCT 20 2011

EFFECTIVE DATE

A handwritten signature in cursive script, reading "Kyla Z 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 #VALUE! from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within #VALUE! 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 these air contaminant sources. 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 these air contaminant sources.

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 sources(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.	2011-08-047

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."

Holcim (US) Inc. - Ste. Genevieve Plant
Ste. Genevieve County, T39N, R07E, S9, NE¼

1. Emission Limitation
 - A. Holcim (US) Inc. - Ste. Genevieve Plant shall comply with 40 CFR 60 Subpart OOO, "Standards of Performance for Nonmetallic Mineral Processing Plants" emission standards for the crusher.
2. Record Keeping and Reporting Requirements
 - A. Holcim (US) Inc. - Ste. Genevieve Plant shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after the end of the month during which any record required by this permit show an exceedance of a limitation imposed by this permit.
3. Performance Testing
 - A. Holcim (US) Inc. - Ste. Genevieve Plant shall comply with 40 CFR 60 Subpart OOO, "Standards of Performance for Nonmetallic Mineral Processing Plants" testing requirements for the crusher.
 - B. A completed Proposed Test Plan Form (enclosed) must be submitted to the Air Pollution Control Program 30 days prior to the proposed test date so that the Air Pollution Control Program may arrange a pretest meeting, if necessary, and assure that the test date is acceptable for an observer to be present. The Proposed Test Plan may serve the purpose of notification and must be approved by the Director prior to conducting the required emission testing.
 - C. Two copies of a written report of the performance test results shall be submitted to the Director within 30 days of completion of any required testing. The report must include legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required U.S. EPA Method for at least one sample run.

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SPECIAL CONDITIONS:

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

- D. The test report is to fully account for all operational and emission parameters addressed both in the permit conditions as well as in any other applicable state or federal rules or regulations

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

Project Number: 2011-08-047
Installation ID Number: 186-0044
Permit Number:

Holcim (US) Inc. - Ste. Genevieve Plant
2942 US Hwy 61
Bloomsdale, MO 63627

Complete: October 6, 2011

Parent Company:
Holcim (US) Inc.
201 Jones Road
Waltham, MA 02451

Ste. Genevieve County, T39N, R07E, S9, NE¼

REVIEW SUMMARY

- Holcim (US) Inc. - Ste. Genevieve Plant has applied for authority to install a track-mounted crusher to facilitate on-site crushing of "road stone" (2" minus diameter).
- Hazardous Air Pollutant (HAP) emissions are not expected from the proposed equipment.
- 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 (NESHAPs) apply to this installation.
- No air pollution control equipment is being used in association with the new equipment.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, Construction Permits Required. Potential emissions of particulate matter less than 10 microns in aerodynamic diameter (PM₁₀) are below de minimis levels.
- This installation is located in Ste. Genevieve County, an attainment area for all criteria pollutants.
- This installation, a Portland Cement Plant, is on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2.
- The installation's major source level is 100 tons per year and fugitive emissions are counted toward major source applicability.

- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels. Even though the permitting authority could ask (or perform) a modeling analysis on this project, that would be atypical in this situation. We believe that the modeling exercises that have been done for the facility are conservative, and that the nature of this particular project truly will be indistinguishable from the existing activities.
- Emissions testing are required for the equipment.
- This project will be incorporated in the pending Part 70 Operating Permit.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Holcim is a large cement manufacturer in the United States, with eleven Portland cement plants currently operating across the country. Holcim is a wholly owned subsidiary of Holcim Ltd. of Switzerland. This facility is a portland cement manufacturing facility east of the township of Danby in Ste. Genevieve County, Missouri. Holcim has designated the facility as the Ste. Genevieve plant.

This plant will employ approximately 220 personnel, and has an annual clinker production capacity of 4,828,074 tons. Based on present specifications in the United States, this plant will have an annual Portland cement production capacity of 5,082,183 tons. Operational units that will accommodate this level of production include an on-site quarry, raw material storage, crushing and milling, solid fuel (coal and petroleum coke) storage and milling, liquid fuel storage, one preheater/precalciner cement kiln system, product milling, product storage, and loading and unloading systems.

Cement manufacturing involves chemical and physical processing of large quantities of raw materials. The raw materials used include sources of calcium, silica, alumina and iron. These are the components necessary for the manufacture of the cement chemicals dicalcium silicate, tricalcium silicate, tricalcium aluminate, and tetra-calcium aluminoferrite. The raw feed is prepared for use in the kiln system by sizing, grinding and blending the various raw materials to produce the necessary mix for quality production. The prepared raw feed is introduced to the kiln system where it is physically and chemically transformed into cement clinker, the intermediate product of Portland cement. In the kiln system, the raw materials are exposed to temperatures reaching up to 3,500° F (degrees Fahrenheit) through a countercurrent process in the kiln and a co-current process in the preheater. The raw materials are heated to 2,650° F, the temperature required to produce quality clinker.

Raw materials utilized for cement kiln feed at the Ste. Genevieve plant will be supplied from both on-site and off-site sources. Quarry resources include limestone and shale deposits that will comprise part of the raw material blend to become clinker, the principal product. Holcim will receive other raw materials from off-site suppliers at the Lee Island plant by rail, truck, and barge via the Mississippi River. Materials received from off-site may include limestone, iron ore, clay,

bottom ash, fly ash, bauxite, diaspore, gypsum and other materials as necessary. An important source of raw materials is non-hazardous waste materials from other industries that have the proper chemical and physical properties to be used as a raw material source. The Ste. Genevieve plant is designed for, and plans to utilize, these types of materials as sources of calcium, silica, alumina and iron. Preparation of raw materials, depending on its source and physical properties, involves primary and secondary crushing, and screening, blending and grinding in the raw mills prior to entrance into the preheater tower of the cement kiln system.

Holcim is planning to use coal and petroleum coke as the primary fuels for the cement manufacturing process at this plant. Holcim will use a single coal mill to prepare raw coal/coke for firing in the precalciner and the kiln. Solid fuels will be received at the facility by truck, rail, and river barge. Holcim will not utilize hazardous wastes at the facility.

Liquid oils and similar non-hazardous materials will be used as a secondary fuel in critical situations such as start-up and back-up. The facility's equipment design will also allow Holcim to beneficially use many other sources of energy bearing, non-hazardous waste materials to fuel the process. As an example, Holcim will use whole or shredded tires as a fuel supplement, when available. As other sources of fuel become available, Holcim will review their chemical and physical properties to assess their potential for providing the necessary thermal energy to the pyroprocess.

The preheater/precalciner pyroprocess is a state-of-the-art design that features five-stage cyclone-type preheater tower, low-nitrogen oxide (NO_x) precalciners, and a rotary kiln. The preheater/precalciner portion of the system will be located in a tall tower adjacent to the kiln. The low-NO_x precalciners will be located at the base of the tower. The precalciners allow the burning fuel to be thoroughly mixed with the kiln feed. Excess heated air from the clinker cooler (tertiary air) will provide combustion air for the precalciners. Preheater/precalciner kilns feature greater thermal efficiency as compared to long dry or long wet kilns. This results in significantly lower emissions and decreased fuel consumption per ton of clinker produced. To increase energy efficiency even further, hot exhaust gases from the preheater tower will be utilized to dry kiln feed in the raw mills and fuel in the coal mill.

Holcim will prepare cooled clinker product for distribution in the finish mill system, which employs 4 vertical roller mills, dust collectors, material bins and feeders, and material handling equipment. The clinker will be mixed with gypsum and other additives, then ground to prepare Portland cement. The finished product will be loaded into trucks, railcars and barges for shipment to customers.

Virtually all areas of operation at the Lee Island plant will incorporate emission controls that serve to prevent air pollutant emissions.

The following permits have been issued to Holcim (US) Inc. - Ste. Genevieve Plant from the Air Pollution Control Program.

Table 1: Permit History

Permit Number	Description
062004-005	Original Prevention of Significant Deterioration (Section (8)) construction permit.
062004-005A	Construction permit amendment to correct for as built changes.
062004-005B	Construction permit amendment to modify the quarry haul road hours of operation, using draft US EPA emission factors.
062004-005C	Construction permit amendment to modify the quarry haul road hours of operation, using final US EPA emission factors.

PROJECT DESCRIPTION

Holcim is planning to purchase a track-mounted crusher to facilitate on-site crushing of "road stone" (2" minus diameter). The crusher would be limited use, to produce road stone for use on-site for road dressing/maintenance. Holcim has identified a track mounted crusher Metso LT1213S (2008 model) with a rated capacity of 400 tons per hour (tph). Holcim estimates producing 85,000 tons of crushed rock each year for use in maintaining our on-site roads. Holcim prefers this option over having a portable crusher located at their site for 2-3 months as they can better allocate their manpower and minimize overtime to produce the road stone. The existing crusher for the kiln operation cannot be used for this purpose, as it is not capable of producing this diameter rock. There are no control devices associated with this equipment.

EMISSIONS/CONTROLS EVALUATION

The emission factors and control efficiencies used in this analysis were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition (refer to the table below).

Table 1: PM Emissions from Holcim Ste. Genevieve Portable Crusher

Source	Production (ton/hour)	PM ₁₀ Emission Factor	Factor Units	Factor Reference	PM ₁₀ /PM _{2.5} Emissions (lbs/hour)
Loader to truck	400	0.000016	lb/ton	AP-42, Table 11.19.2-2 (truck unloading)	0.0064
Truck hauling	400	0.200000	lb/VMT	Haul Road Calc., 0.1 mile, 95 ton/truck	0.0842
Truck dump	400	0.000016	lb/ton	AP-42, Table 11.19.2-2 (truck unloading)	0.0064
Excavator to crusher	400	0.001100	lb/ton	AP-42, Table 11.19.2-2 (conveyor transfer)	0.4400
Crusher	400	0.002400	lb/ton	AP-42, Table 11.19.2-2 (tertiary crushing)	0.9600
Crusher to pile	400	0.001100	lb/ton	AP-42, Table 11.19.2-2 (conveyor transfer)	0.4400
Loader to truck	400	0.000016	lb/ton	AP-42, Table 11.19.2-2 (truck unloading)	0.0064
Truck hauling	400	0.200000	lb/VMT	Haul Road Calc., 0.1 mile, 95 ton/truck	0.0842
Truck dump	400	0.000016	lb/ton	AP-42, Table 11.19.2-2 (truck unloading)	0.0064

Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year.) The following table provides an emissions summary for this project.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2010 EIQ)	Potential Emissions of the Application
PM _{2.5}	10.0	N/D	168.4	2.03
PM ₁₀	15.0	1,038	373.7	2.03
SOx	40.0	3,041	62.8	N/A
NOx	40.0	5,806	1,891.9	N/A
VOC	40.0	798	162.3	N/A
CO	100.0	14,488	792.2	N/A
HAPs	10.0/25.0	118/126	3.5	N/A

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

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 PM₁₀ are below de minimis levels.

APPLICABLE REQUIREMENTS

Holcim (US) Inc. - Ste. Genevieve 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 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 10-6.165

SPECIFIC REQUIREMENTS

- *New Source Performance Regulations, 10 CSR 10-6.070 – New Source Performance Standards (NSPS) for Standards of Performance for Nonmetallic Mineral Processing Plants, 40 CFR Part 60, Subpart OOO*

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.

Randy E. Raymond
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated October 6, 2011, received October 5, 2011, designating Holcim (US) Inc. as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- WebFIRE, Factor Information Retrieval (FIRE) Data System.
- Southeast Regional Office Site Survey

Ms. Michelle Ferguson
Senior Environmental Manager
Holcim (US) Inc. - Ste. Genevieve Plant
2942 US Hwy 61
Bloomsdale, MO 63627

RE: New Source Review Permit - Project Number: 2011-08-047

Dear Ms. Ferguson:

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 Randy E. Raymond, 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
Permits Section Chief

KBH:rrl

Enclosures

c: Southeast Regional Office
PAMS File: 2011-08-047

Permit Number: