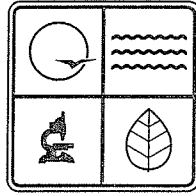


STATE OF MISSOURI

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: **06 2 0 0 6 - 0 0 2**

Project Number: **2005-09-045**

Owner: **Lafarge North America**

Owner's Address: **600 S.W. Jefferson Street, Suite 302, Lee's Summit, MO 64063**

Installation Name: **Lafarge North America - Sugar Creek Facility**

Installation Address: **2200 N. Courtney Road, Sugar Creek, MO 64050**

Location Information: **Jackson County, S13, T50N, R32W**

Application for Authority to Construct was made for:

Installation of a cement kiln dust loading system. This equipment was constructed prior to the receipt of a permit from the Air Pollution Control Program. Obtaining this 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 (listed as attachments starting on page 2) are applicable to this permit.

JUN - 2 2006

EFFECTIVE DATE

James Kawoncuik
 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. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the 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 as provided in RSMo 643.075. If you choose to appeal, the Air Pollution Control Program must receive your written declaration within 30 days of receipt of this permit.

If you choose not to appeal, this certificate, the project review, 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 Department of Natural Resources has established the Outreach and Assistance Center to help in completing future applications or fielding complaints about the permitting process. You are invited to contact them at 1-800-361-4827 or (573) 526-6627, or in writing addressed to Outreach and Assistance Center, P.O. Box 176, Jefferson City, MO 65102-0176.

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 Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention Construction Permit Unit.

Page No.	2
Permit No.	
Project No.	2005-09-045

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 North America Incorporated
Jackson County, S13, T50N, R32W

Baghouse Conditions:

1. Lafarge North America Incorporated shall control emissions from the cement kiln dust loading system (EP150-1, EP150-2, EP150-3, EP150-4, EP151, EP153, EP154-1, EP154-2 & EP157) using dust collectors as specified in the permit application. The dust collectors shall be operated and maintained in accordance with the manufacturer's specifications. The dust collectors shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that the Department of Natural Resources' employees may easily observe them. Replacement filters for the dust collectors and drum filters shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
2. Lafarge North America Incorporated shall monitor and record the operating pressure drop across the dust collectors at least once every 24 hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
3. Lafarge North America Incorporated shall maintain an operating and maintenance log for the dust collectors which shall include the following:
 - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
 - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.

Haul Road Conditions:

1. Maintenance and/or repair of the road surfaces used for cement kiln dust hauling (EP152, EP155 & EP156) 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.
2. The operator(s) shall periodically water, wash and/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.

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

Project Number: 2005-09-045
Installation ID Number: 095-0030
Permit Number:

Lafarge North America - Sugar Creek Facility
2200 N. Courtney Road
Sugar Creek, MO 64050

Complete: October 25, 2005
Reviewed: December 27, 2005

Parent Company:
Lafarge North America
600 S.W. Jefferson Street, Suite 302
Lee's Summit, MO 64063

Jackson County, S13, T50N, R32W

REVIEW SUMMARY

- Lafarge North America - Sugar Creek Facility has applied for authority to install a cement kiln dust (CKD) loading system to transfer CKD from the chlorine bypass dust collector to storage silos or loadout silos for sale of the CKD. This equipment was constructed prior to the receipt of a permit from the Air Pollution Control Program. Obtaining this permit is part of a remedial action required by the Air Pollution Control Program.
- Hazardous Air Pollutant (HAP) emissions are not expected from the proposed equipment.
- No additional New Source Performance Standards (NSPS) will apply to the installation as a result of the CKD loading system.
- The installation is currently subject to the requirements of the MACT standard for Portland Cement Manufacturing (40 CFR 63, Subpart LLL). All emission points associated with the CKD loading system, except for haul roads, are subject to the MACT.
- All transfer and loading points will be controlled by dust collectors. Haul roads are paved and periodically swept.
- The increase in potential emissions for all the criteria air pollutants and the Hazardous Air Pollutants for this project were estimated to not exceed their respective 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 the increase in potential emissions for this project did not exceed the de minimis level associated with any air pollutant.
- Emissions testing is not required for the equipment.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

The Lafarge North America Inc. - Sugar Creek Facility 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 preheater/precalciner 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 North America Inc. - Sugar Creek Facility from the Air Pollution Control Program.

Table 1: Previously Issued Permits

Permit Number	Description
092005-015	A Section (5) permit issued for the construction of a blended cement system.
112004-014	A Section (5) permit issued for the installation of a hopper and screw conveyor to reclaim weathered clinker.
072004-008	A Section (5) permit issued for the installation of a chlorine bypass system on the preheater/precalciner cement kiln.
082004-016	A Section (5) permit issued for the use of alternate fuels in the preheater/precalciner cement kiln.
012002-004	A Section (5) permit issued for the construction of a new clinker reclaim system at the old Portland cement plant.
OP2000-099	Title V Operating Permit
0897-019C	An amendment to Permit Number 0897-019 to revise the Special Conditions to address differences between the new cement plant as originally proposed and the as-built 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 Permit Number 0897-019 to revise the Special Conditions to reflect design changes in the new cement plant.
0897-019	A Section (8) permit issued for the construction of a new preheater/precalciner cement plant at the existing installation.
0596-027	A Section (5) permit issued for the construction of a deep limestone mine.
1192-016	A Section (5) permit issued 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 to process non-hazardous separated solid industrial wastes.
0790-002	A Section (5) permit issued 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 for the replacement of a finish mill with a higher capacity finish mill.

PROJECT DESCRIPTION

Lafarge North America has applied for a permit to construct a cement kiln dust (CKD) loading system at the Sugar Creek facility. The purpose of the system is to transfer CKD to storage silos or loadout silos for sale of the CKD. This equipment was constructed prior to the receipt of a permit. Obtaining this permit is part of a remedial action required by the Air Pollution Control Program.

Cement kiln dust is transferred from the chlorine bypass dust collector through a collecting screw conveyor, to a small screw conveyor and finally to a cooling screw conveyor. The dust is loaded into a truck from a loading spout. The trucks then travel to the old plant and unload the CKD either into one quadrant of the loadout silos for storage prior to sale, or into existing silos for storage. At the existing loadout silos, the dust will be pneumatically transferred into one quadrant of the loadout silo, which is controlled by an existing baghouse. The CKD can then be sold and loaded into trucks for hauling offsite. Alternately, the CKD will be pneumatically transferred into existing silos (six 300 ton silos) for storage.

EMISSIONS/CONTROLS EVALUATION

In July, 2004 the Air Pollution Control Program issued construction permit number 072004-028 to Lafarge for the installation of a chlorine bypass system on the existing preheater/precalciner cement kiln (EP 77). The system consists of a take-off duct immediately after the preheater/precalciner towers and just prior to the kiln. The take-off duct routes up to 10% of the kiln gas to an air quench unit. The cooled gas is then routed through a pulse jet baghouse (the chlorine bypass dust collector) to remove particulate matter and excess chlorine (see permit 072004-028 for more detail on the chlorine bypass system).

The Air Pollution Control Program considers installation of the CKD loading system and the chlorine bypass system the same project for the purpose of new source review. Permit 072004-028 was issued under section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required* because the potential emissions of the chlorine bypass system are below de minimis levels. The potential emissions of the chlorine bypass system combined with the CKD loading system are still below de minimis levels, therefore this permit can also be issued under section (5) of 10 CSR 10-6.060.

The pollutant of concern for the CKD loading system is PM₁₀. 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, Section 11.12 *Concrete Batching* (10/01), Section 13.2.2 *Unpaved Roads* (12/03), and EPA document Factor Information Retrieval (FIRE) V6.24, *Source Classification Codes and Emission Factors Listing for Criteria Air Pollutants*. The following maximum hourly design rates and control methods were used when estimating potential emissions.

Table 2: Maximum Hourly Design Rates and Control Devices

ID No.- Segment No.	Source Name	Activity	Hourly Rate	Units	Control Device
EP150-1	CKD Transfer to Loading Spout	Transfer from dust collector to collecting screw	1.10	Tons per hour	Bypass dust collector
EP150-2	CKD Transfer to Loading Spout	Transfer from collecting screw to small screw	1.10	Tons per hour	Bypass dust collector
EP150-3	CKD Transfer to Loading Spout	Transfer from small screw to cooling screw	1.10	Tons per hour	Bypass dust collector
EP150-4	CKD Transfer to Loading Spout	Transfer from cooling screw to loadout spout	1.10	Tons per hour	Bypass dust collector
EP151	CKD Loadout	Transfer from loading spout to truck	1.10	Tons per hour	Bypass dust collector
EP152	CKD Hauling	Truck hauling to existing loadout silo	0.60	Vehicle Miles Traveled per hour	Sweeping of paved road
EP153	CKD Transfer to Storage	Truck unloading to loadout silo	25.0	Tons per hour	Loadout Dust Collector
EP154-1	CKD Loadout	Transfer from bin to loadout spout	25.0	Tons per hour	Loadout Dust Collector
EP154-2	CKD Loadout	Transfer from loading spout to truck	25.0	Tons per hour	Loadout Dust Collector
EP155	CKD Sales Hauling	Truck hauling off property	0.60	Vehicle Miles Traveled per hour	Sweeping of paved road
EP156	CKD Hauling	Truck hauling to old plant bins	0.60	Vehicle Miles Traveled per hour	Sweeping of paved road
EP157	CKD Transfer to Storage	Truck unloading to silo	25.0	Tons per hour	Dust Collector

All CKD transfer points are fully enclosed and ventilated to dust collectors. All dust collectors were given a control efficiency of 99%. A control efficiency of 95% was allowed for the roads since they are both paved and periodically cleaned. Potential emissions are calculated assuming continuous operation (8760 hours per year). The following table provides an emissions summary for this project.

Table 3: Emissions Summary (tons per year)

Pollutant	Regulatory De Minimis Levels	Existing Potential Emissions ¹	Existing Actual Emissions (2004 EIQ)	Increased Potential Emissions of CKD Loading System	Increased Potential Emissions of CKD Loading & Chlorine Bypass Systems	New Installation Potential Emissions
PM ₁₀	15.0	632.93	216.36	2.08	4.34	635.01
SO _x	40.0	3807.95	372.44	N/A	0.95	3807.95
NO _x	40.0	2,668	1782.93	N/A	N/A	2,668
VOC	40.0	131.98	75.96	N/A	0.08	131.98
CO	100.0	1145.23	638.99	N/A	N/A	1145.23
Lead	0.60	N/D	0.05	N/A	5.67 x 10 ⁻⁴	N/D
HAPs	10.0/25.0	64.11	46.15	N/A	8.11	64.11
HAPs - HCl	10.0	6.27	N/D	N/A	6.27	6.27

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 092005-015).

PERMIT RULE APPLICABILITY

The increase in potential emissions for all the criteria air pollutants and the Hazardous Air Pollutants for this project were estimated to not exceed their respective 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 North America - Sugar Creek Facility 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
- *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
- *National Emission Standards for Hazardous Air Pollutants From the Portland Cement Manufacturing Industry, 40 CFR Part 63, Subpart LLL*

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.

Michael Van Cleave
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated September 9, 2005, received September 19, 2005, designating Lafarge North America as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- U.S. EPA Factor Information Retrieval (FIRE) data system, Version 6.23.
- Kansas City Regional Office Site Survey, dated October 11, 2005.

Mr. Steven J. Kidwell
Environmental Manager
Lafarge North America - Sugar Creek Facility
2200 N. Courtney Road
Sugar Creek, MO 64050

RE: New Source Review Permit - Project Number: 2005-09-045

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 me at (573) 751-4817, or you may write to me at the Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, Missouri 65102.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBL:mvcl

Enclosures

c: Kansas City Regional Office
PAMS File 2005-09-045

Permit Number: