

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: **042009-001** Project Number: 2008-02-022

Parent Company: Mississippi Lime Company

Parent Company Address: 16147 US Highway 61, Ste. Genevieve, MO 63670

Installation Name: Mississippi Lime Company

Installation Address: 16147 US Hwy 61, Ste. Genevieve, MO 63670

Location Information: Ste. Genevieve County, S29, T38N, R9E

Application for Authority to Construct was made for:

A new limestone crushing, screening and conveying system in the existing underground mine. The new system will be located closer to the working faces and long term reserves, and reduce truck haulage. 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.

APR - 1 2009

EFFECTIVE DATE


 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 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.

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

Project Number: 2008-02-022
Installation ID Number: 186-0001
Permit Number:

Mississippi Lime Company
16147 US Hwy 61
Ste. Genevieve, MO 63670

Complete: 02/11/2008

Parent Company:
Mississippi Lime Company
16147 US Highway 61
Ste. Genevieve, MO 63670

Ste. Genevieve County, S29, T38N, R9E

REVIEW SUMMARY

- Mississippi Lime Company has applied for authority to construct a new limestone crushing, screening and conveying system in the existing underground mine.
- Hazardous Air Pollutant (HAP) emissions are not expected from the proposed equipment.
- Subpart OOO, *Standards of Performance for Nonmetallic Mineral Processing Plants*, of the New Source Performance Standards (NSPS) applies to new crushing, screening, conveying, storage bins and other processing-handling equipment associated with new limestone operations being added under this permit.
- The Maximum Achievable Control Technology (MACT) standard, 40 CFR Part 63, Subpart AAAAA, *National Emission Standards for Hazardous Air Pollutants for Lime Manufacturing Plants*, does not apply to the equipment. This project encompasses equipment processing steps prior to the kiln feed storage bins. Subpart AAAAA is applicable to process stone handling systems beginning at the point of discharge from the final stone storage bin(s) and ending where the processed stone is fed into the kiln. None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) apply.
- Baghouses will be used to control the particulate matter less than ten microns in diameter (PM₁₀) emissions from the new equipment being added above ground under this permit. The large mine enclosure and wet conditions found in the mine are considered to control emissions.
- 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.

- This installation is located in Ste. Genevieve County, an attainment area for all criteria air pollutants, but the area is also a Prevention of Significant Deterioration (PSD) baseline area for PM₁₀, sulfur dioxide and NO_x.
- This installation is on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2, Number 11, Lime Plants].
- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.
- Subpart OOO, emissions testing will be required for the new transfer points and control devices that are not underground.
- Revision to the Part 70 Operating Permit application is required for this installation within 1 year of equipment startup.
- Approval of this permit is recommended without special conditions.

INSTALLATION DESCRIPTION

Mississippi Lime Company is a lime processing plant that is located near Ste. Genevieve, Missouri. The installation is a major source for construction permit purposes and a Part 70 (Title V) source for operating permit purposes. The installation produces lime which is a high temperature product of the calcination of limestone. At the time of issuance of this permit, the installation has the following types of units.

1. Mississippi Vertical Plant: Two lime hydrators.
2. Mississippi Rotary Plant: Six coal/coke fired Rotary Kilns controlled by wet venturi scrubbers, three hydrators, and two precipitated Calcium Carbonate (units).
3. Maerz Plant: Three shaft vertical lime kilns.
4. Peerless Rotary Plant: Five coal/coke fired rotary kilns controlled by baghouses.

The installation also has a number of other crushing, screening, conveying, storage units, and loading/unloading operations associated.

Mississippi Lime Company submitted a Part 70 Operating Permit application for the Lime Manufacturing Plant on May 15, 1997, and Permit No. OP2002-018 was issued on April 17, 2002. The application for renewal was received on April 18, 2007 and will expire April 16, 2012. The following New Source Review (NSR) permits have been issued to Mississippi Lime Company from the Air Pollution Control Program.

Table 1: NSR Permits Issued to Mississippi Lime Company

Permit Number	Description
122002-007	Remove Special Condition
072004-012A	True up for as built
072004-012A	Amend for stack test
122220-007A	Line Activation
12002-007A	Amend for as built.
072004-012	Vertical kilns-(netting).
092001-014	Revised emissions calculations.
122002-07	Revised emissions calculations.
052003-045	A Section (5) permit issued on May 2, 2003, for a new lime hydrator.
122002-007	A Section (8) permit for two (2) new Rotary Lime Kilns.
102002-008A	An amendment to Permit No. 102002-008 to modify equipment designations.
102002-008	A Section (5) permit issued on October 7, 2002, for a lime handling system.
082002-004	A Section (5) permit issued on August 9, 2002, for a new railcar transloading system.
092001-014	A Section (5) permit issued on September 19, 2001, for a new Vertical Kiln plant with supporting equipment.
112001-005	A Section (5) permit issued on November 6, 2001, for a new bagging operation.
052001-003	A Section (5) permit issued on May 4, 2001, to add two (2) additional hydrated lime storage silos, two (2) additional truck load out systems and one (1) additional rail load out system.
0999-009	A Section (3) Temporary Permit issued on September 14, 1999, to reclaim and remediate waste storage piles. Permit Expiration Date: July 31, 2001.
0799-015	A Section (5) permit issued on July 20, 1999, to revise Permit No. 0679-002 to account for increased potential emissions.
1198-020	A Section (5) permit issued on November 24, 1998, for a modification to the rotary kiln load out system.
0898-019	A Section (5) permit issued on August 17, 1998, for construction of a Maerz natural gas fired vertical lime kiln and ancillary equipment.
0198-006	A Section (5) permit issued on January 8, 1998, for the addition of a pneumatic conveying system from the Rotary Hydrate Plants No. 2 & No. 3 to Rotary Hydrate Plant No. 1.
0997-015	A Section (5) permit issued on September 11, 1997, for modifications to the lime handling and blending system at the Peerless Plant.
0897-035	A Section (5) permit issued on August 26, 1997, to amend Permit No. 0292-010A for a natural gas fired Maerz Vertical Lime Kiln to include an ancillary limestone feed and limestone processing system.
0897-018A	An amendment to Permit No. 0897-018 to modify a performance testing requirement.
0897-018	A Section (5) permit issued on December 2, 1997, to replace an existing natural gas fired burner of the precipitated calcium carbonate system (MRPCC-2) with a larger burner.
0897-017A	An amendment to Permit No. 0897-017 issued on November 3, 1997, to revise the Special Conditions of the original permit.
0897-017	A Section (5) permit issued on August 20, 1997, for an underground limestone crushing operation.
0395-008	A Section (5) permit issued on February 10, 1995, to construct a new hydrate bulk bagging system.
0794-014	A Section (5) permit issued on July 20, 1994, to construct a Fuller pneumatic conveying system to convey precipitated calcium carbonate (PPC) from PPC Plant No. 1 to PPC Plant No. 2.
0292-010A	A Section (5) permit issued on January 15, 1997, for the extension of Permit No. 0292-010 for a natural gas fired Maerz Vertical Lime kiln.

Permit Number	Description
0292-010	A Section (5) permit issued on February 1, 1992, for the addition of a new natural gas fired Maerz Vertical Lime kiln.
1090-006	A Section (5) permit issued on October 11, 1990, for the addition of two (2) storage silos for lime hydrate.
0889-013	A Section (5) permit issued on August 30, 1989, to add a calcium carbonate slurry operation.
0588-008A	A Section (5) permit issued on May 31, 1988, for a milling operation.
1086-005A	A Section (5) permit issued on October 1, 1986, to construct a precipitated calcium carbonate plant (MRPCC-2).
0284-008A to 010A	A Section (5) permit issued on February 21, 1984, to construct a rotary hydrator (MRH-3).
0480-006	A Section (8) permit issued on April 1, 1980, to construct two (2) rotary lime kiln systems.
0679-002	A Section (5) permit issued on June 6, 1979, for various crushing, conveying, storage and loading equipment.

PROJECT DESCRIPTION

Mississippi Lime Company proposes to build a new limestone crushing, screening and conveying system in its existing underground mine in Ste. Genevieve, Missouri. The equipment listed in Table 2 is being installed. The PM₁₀ emission rate of [REDACTED] pounds per hour activates the permitting requirements by exceeding the 1.0 pound per hour exemption for this project.

The current limestone processing system which is near the entrance of the mine will remain in place and the new system will be located closer to the working faces and long term reserves, approximately two to three miles into the mine. The purpose of this project is to increase the overall capacity and reliability of the limestone processing system and reduce transportation cost. Because of the purpose, no debottlenecking emissions of down stream lime processing were considered for this project. Benefits of the project include shorter haul distances due to increased conveying and lower PM₁₀ emissions from the process due to inherent increases in capture and control.

Justification of the use of [REDACTED] percent control for being located underground and not counting haul road emissions is based on engineering judgment. This determination was based upon conditions specific to Mississippi Lime Company. The very large mine operation appears to offer considerable control of PM₁₀ emissions. The use of a control less than [REDACTED] diminishes the physical parameters of the mine's emission sources and the observed data. However, based on the low volume of added air, a control of greater than [REDACTED] is not warranted without testing. This mining operation does not force high volumes of air through the mine and then exit high volumes of emissions out highly specific exhaust fans, as experienced at other Missouri underground operations. The volume of slightly more than 1 million cubic feet per minute of air is absorbed by this mine that covers approximately six square miles by 65 feet high. The actual open area under ground is difficult to calculate, but this operation has been ongoing for several decades. This operation uses a low volume of mine air intake added through bore holes drilled from the surface near the active mining areas. These mining areas are typically several hundreds to thousands of feet from the entrance. The nomograph values used in the quarry spreadsheets indicate those limestone sources more than

2000 feet apart usually do not interact and emissions are minimized. The mine area is substantial and prevents interaction. Distances greater than 2000 feet from the mine entrance for a haul road should not be used as these emissions are probably not escaping the mine. Emissions escaping the mine are from the primary and secondary crushing and screening operation located about 500 feet near the main vented exit of the mine. The emissions from this project are hauling to a crusher placed inside the mine. However, all emission sources other than the haul road are counted and allowed the █ percent control. For this project the control for those emission sources that are in the vicinity of the mine opening less than 800 feet are assigned █ control. No haul road emissions were counted.

Based on this group of information collected about the mining operation, the use of the haul road equation in predicting emissions from a wet underground site is invalid. The emission formula for calculating the haul road emissions is not modifiable to account for underground conditions. The calculations deriving the emission factor for the mine haul road was reviewed for this project and they do not appear to be applicable. The formula eliminates haul road emissions on days that it rains as the formula is multiplied by $(365 - \text{days of rain})/365$. The default of 105 days is used in the formula. Theoretically, it may be possible, but it does not rain in an underground mining operation some 100 to 150 feet below the surface. The day of rain factor was removed from the formula for this project for all underground emission estimating including storage piles. Another consideration in not counting the haul road emissions is the moisture content of the haul road.

The haul road emission formula uses surface moisture content of the haul road material to determine emissions. The haul roads in the Peerless Mine are very wet at all times of the year. Typically, PM_{10} emissions are not counted for wet processes. The wet operations in the underground mine are due to the mine being situated below the local water table. The muddy, wet road surface is due to water constantly dripping from the ceiling and seeping from the sides and floor at various sites through the mine. Along the very wet haul road, substantial quantities of water flow in large adjacent ditches. The water in mining areas may vary with seasons, but it is a wet mining operation. As evidence of such constant wet conditions, all vehicles observed had mud splashed upon them and employees verified that mud was a frequent issue interfering with repair of vehicles in the mine. Therefore, it is not likely that PM_{10} would be emitted from the mine haul roads.

Table 2: Equipment Installed for Project 2008-02-022.

Emission Point	Description	MHDR	Emission Factor	Control Efficiency
800	Truck Loading Fragmented Stone (Underground)	█	█	█
801	Truck Unloading Fragmented stone (underground)	█	█	█
802	Feeder	█	█	█
803	Crusher	█	█	█
804	Conveyor	█	█	█
805	Conveyor	█	█	█
806	Conveyor	█	█	█
807	Conveyor	█	█	█
808	Conveyor	█	█	█
809	Conveyor	█	█	█
810	Conveyor	█	█	█
811	Conveyor	█	█	█
812	Conveyor	█	█	█
813	Storage Pile	█	█	█
814	Feeder	█	█	█
815	Feeder	█	█	█
816	Conveyor	█	█	█
817	Conveyor	█	█	█
818	Conveyor	█	█	█
819	Screen	█	█	█
820	Conveyor	█	█	█
821	Conveyor	█	█	█
822	Storage Bin	█	█	█
823	Belt Feeder	█	█	█
824	Crusher	█	█	█
825	Conveyor	█	█	█
826	Conveyor	█	█	█
827	Conveyor	█	█	█
828	Conveyor	█	█	█
829	Storage Pile	█	█	█
830	Conveyor	█	█	█
831	Conveyor	█	█	█
832	Screen 0	█	█	█
833	Screen	█	█	█
834	Conveyor	█	█	█
835	Conveyor	█	█	█
836	Storage Bin	█	█	█
837	Belt Feeder	█	█	█
838	Crusher	█	█	█
839	Conveyor	█	█	█
840	Conveyor	█	█	█
841	Conveyor	█	█	█

Table 2 Continued: Equipment Installed for Project 2008-02-022.

Emission Point	Description	MHDR	Emission Factor	Control Efficiency
842	Conveyor			
843	Conveyor			
844	Storage Bin			
845	Conveyor			
846	Screen			
847	Screen			
848	Conveyor			
849	Conveyor			
850	Conveyor			
851	Storage Pile			
852	Conveyor			
853	Conveyor			
854	Storage Pile			
855	Conveyor			
856	Conveyor			
857	Conveyor			
858	Storage Pile			
859	Conveyor			
860	Conveyor			
861	Conveyor			
862	Conveyor			
863	Conveyor			
864	Conveyor			
865	Conveyor			
866	Conveyor			
867	Storage Pile			
868	Conveyor			
869	Conveyor			
870	Storage Bin			
871	Truck Loading Crushed Stone			
872	Truck Unloading Crushed Stone			
873	Conveyor			
874	Conveyor			
875	Storage Pile			
876	Feeder			
877	Feeder			
878	Feeder			
879	Feeder			
880	Feeder			
881	Feeder			
882	Belt Feeder			
883	Belt Feeder			
884	Feeder			
885	Feeder			
886	Feeder			
887	Feeder			
888	Conveyor			

Table 2 Continued: Equipment Installed for Project 2008-02-022.

Emission Point	Description	MHDR	Emission Factor	Control Efficiency
889	Conveyor			
890	Conveyor			
891	Conveyor			
892	Conveyor			
893	Conveyor			
894	Conveyor			
895	Conveyor			
896	Conveyor			
897	Conveyor			
898	Conveyor			
899	Storage Pile			
900	Storage Pile			
901	Storage Pile			

EMISSIONS/CONTROLS EVALUATION

The specific emission factors and control efficiencies used in this analysis have been determined to be confidential business information and are not available for review by the general public. The confidential file for this project contains a memorandum that provides the details on the emission factors and the efficiency of the control devices used in this review. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year.) The main air pollutant of concern for this project is PM₁₀. Most of the new equipment associated with this project will be enclosed and various types of dust control will be used to reduce the amount of PM₁₀ emissions from these sources.

Table 3: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions*	Existing Actual Emissions (2006 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM ₁₀	15.0	10,627.96	1,136.67	9.41	N/A
SO _x	40.0	>250	4,003.22	N/A	N/A
NO _x	40.0	7,154.52	3532.13	N/A	N/A
VOC	40.0	392.56	43.77	N/A	N/A
CO	100.0	>250	1,1742.87	N/A	N/A
HAPs	10.0/25.0	38.29	22.06	N/A	N/A

N/A = Not Applicable.

- The existing potential to emit (PTE) values listed are based on data supplied in the 1997 EIQ and do not reflect any permitting limiting conditions or any changes to the installation since that time. These values were used in permit 072004-012.

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

Mississippi Lime Company shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved.

GENERAL REQUIREMENTS

- Submission of Emission Data, Emission Fees and Process Information, 10 CSR 10-6.110
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 Nonmetallic Mineral Processing Plants*, 40 CFR Part 60, Subpart OOO applies to that equipment that is not located underground.

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 without special conditions.

Timothy Paul Hines
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated February 04, 2008, received February 06, 2008, designating Mississippi Lime Company as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Southeast Regional Office Site Survey.

Ms. Kimberly Lagomarsino, Ph. D.
Director of Environmental Affairs
Mississippi Lime Company
16147 US Hwy 61
Ste. Genevieve, MO 63670

RE: New Source Review Permit - Project Number: 2008-02-022

Dear Ms. Lagomarsino:

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 Timothy Paul Hines, 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:thl

Enclosures

c: Southeast Regional Office
PAMS File: 2008-02-022
Permit Number: