

STATE OF MISSOURI

PERMIT BOOK



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: 082011-002 Project Number: 2011-04-019
Installation Number: 186-0001

Parent Company: Mississippi Lime Company
Parent Company Address: 16147 U.S. Highway 61, St. Louis , MO 63127
Installation Name: Mississippi Lime Company
Installation Address: 16147 U.S. Highway 61, Ste. Genevieve, MO 63670
Location Information: Ste. Genevieve County, S29, T38N, R9E

Application for Authority to Construct was made for:
The installation of a new [REDACTED] and associated equipment. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required.*

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- Standard Conditions (on reverse) are applicable to this permit.
 - Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

AUG - 5 2011

EFFECTIVE DATE

Handwritten signature of Kyna L Moore in black ink.

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 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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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."

Mississippi Lime Company
Ste. Genevieve County, S29, T38N, R9E

1. Control Device Requirement-Baghouse
 - A. Mississippi Lime Company shall control emissions from the [REDACTED] using baghouses as specified in the permit application.
 - 1) Baghouse [REDACTED]
 - 2) Baghouse [REDACTED]
 - B. The baghouses shall be operated and maintained in accordance with the manufacturer's specifications. The baghouse 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.
 - C. Replacement filters for the baghouses 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).
 - D. Mississippi Lime Company shall monitor and record the operating pressure drop across the baghouses at least once every 24 hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
 - E. Mississippi Lime Company shall maintain an operating and maintenance log for the baghouses 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.

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SPECIAL CONDITIONS:

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

2. Control Measure – Capture Efficiency (100%)

- A. Process equipment ([REDACTED]) shall be totally enclosed, sealed with bolt down or mechanically fastened or panels, and maintained under negative pressure and exhausted to a baghouse ([REDACTED]).
- B. If any openings or holes should appear on the transfer equipment (lime weigh screw conveyor, weigh belt, hydrator feed, screw hydrator, hydrate mill feed entry and feed exit) due to wear or maintenance activities these openings or holes shall maintain negative pressure.
- C. Mississippi Lime Company shall demonstrate negative pressure at all lime handling processes by using visual indicators such as streamers, talc puff test, negative pressure gauges, flags, etc. at openings that are not closed during normal operations. All openings, when operating, must indicate the presence of negative pressure for compliance.
- D. Mississippi Lime Company shall maintain an operating and maintenance log for the storage equipment and process equipment which shall include the following:
 - 1.) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions.
 - 2.) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
 - 3.) A record of regular inspection schedule, the date and results of all inspections, including any actions or maintenance activities that result from the inspections. Either paper copy or electronic formats are acceptable.

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

Project Number: 2011-04-019
Installation ID Number: 186-0001
Permit Number:

Mississippi Lime Company
16147 U.S. Highway 61
Ste. Genevieve, MO 63670

Complete: May 31, 2011

Parent Company:
Mississippi Lime Company
16147 U.S. Highway 61
St. Louis, MO 63127

Ste. Genevieve County, S29, T38N, R9E

REVIEW SUMMARY

- Mississippi Lime Company has applied for authority to utilize the existing [REDACTED] to store lime and to increase the Maximum Hourly Design Rate (MHDR) from [REDACTED] tons per hour.
- Hazardous Air Pollutant (HAP) emissions are not expected from the proposed equipment.
- None of the New Source Performance Standards (NSPS) apply to the installation. 40 CFR 60 Subpart HH, "Standards of Performance for Lime Manufacturing Plants" applies to the equipment.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) apply to this installation. None of the currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment. 40 CFR 63, Subpart AAAAA, "National Emission Standard for Hazardous Air Pollutants for Lime Manufacturing Plants", applies to the source but not to the proposed equipment because the processed stone handling requirements apply to the limestone feed prior to the kiln and do not apply to the finished lime product.
- Baghouses are being used to control the particulate matter less than 10 microns and 2.5 microns in aerodynamic diameter (PM_{2.5} and PM₁₀) emissions from the equipment in this permit.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, Construction Permits Required. Potential emissions of Pollutant are below de minimis levels.

- This installation is located in Ste. Genevieve County, an attainment area for all criteria pollutants.
- This installation is on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation is classified as item number 11. Lime plants. 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.
- Emissions testing are not required for the equipment.
- A 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 with special conditions.

INSTALLATION DESCRIPTION

Mississippi Lime Company (Mississippi Lime) is a lime processing plant that is located near Ste. Genevieve, Missouri in Ste. Genevieve County. 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 product of the calcinations of limestone. Mississippi Lime currently holds Part 70 operating permit number OP2002-018. The following construction permits have been issued to Mississippi Lime Company from the Air Pollution Control Program.

Permit Number	Description
042010-010	A Section (5) permit issued on April 16, 2010 for a transfer loading station to transfer finished lime product to temporary storage.
042009-001	A Section (5) permit for new limestone crushing, screening, and conveying equipment for the underground mine
072004-012	Vertical kilns-(netting).
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.
102002-008	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.

Permit Number	Description
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.
0897-018	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.
0897-017	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.
0292-010	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

A new [REDACTED] is being installed and increasing the Maximum Hourly Design Rate (MHDR) of associated new and existing storage and handling equipment. Hydration is a process whereby approximately stoichiometric amounts of water and lime react to form a product, hydrate, which is a dry powder; i.e it contains less than 1% free moisture and is handled as a powder. Slaking is defined as a process whereby lime is reacted with an excess amount of water to form a lime slurry which is handled as a liquid. The process is hydration and it will utilize the [REDACTED]. [REDACTED] will now be used to store lime and increase the MHDR by [REDACTED] tons per hour. The MHDR would be [REDACTED] tons per hour of this equipment. The truck loading of [REDACTED] are existing emission points and are not included in this projects potential to emit calculation. Communication with the plant (see file) provided that no increase in these emission points was needed. The haul road emissions are calculated at [REDACTED] tons per hour. Lime from the [REDACTED] would be transferred to a [REDACTED] conveyor which feeds a new [REDACTED] which feeds a new [REDACTED] crew. The [REDACTED] will supply the new [REDACTED]). The [REDACTED] will be controlled by a baghouse dust collector. All transfer equipment is fully enclosed with negative pressure and connected to a bag house This bag house will supply draft (negative pressure) to direct emissions from the [REDACTED]. The [REDACTED].

Table 2: Lime Transfer Equipment Drop Points

Emission Unit	Description
EU-670	Drop Point (MVCCP Pellet Bin 7 & 8 to lime weigh screw conveyor)
EU-907a	Drop point (lime weigh screw conveyor to weigh belt)
EU-907b	Drop point (weigh belt to hydrator feed screw)
EU-907c	Drop point (hydrator feed screw to hydrator)
EU-908a	Drop point (hydrator to hydrate mill)
EU-640c	Drop Point (air separator 2 to DC screw Conveyor No. 2)

The [REDACTED] is a closed loop grinding process with two [REDACTED]. The fines are the product with the tailings returned to the mill. This is to achieve a [REDACTED] for construction grade materials. The product is sent to an existing [REDACTED] and sent on to finish storage bins [REDACTED] separator.

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 (AP-42). According to AP-42, Chapter 11.17 "Lime Manufacturing" (February 1998) the predictive drop-point equation provided in AP-42, Chapter 13.2.4 "Aggregate Handling and Storage Piles" (November 2006) is the recommended method for estimating material handling emissions for lime product. Therefore, the potential emissions of PM₁₀ and PM_{2.5} were calculated using the droppoint equation for aggregate storage piles. This equation accounts for moisture content and wind speed to develop an emission factor. The moisture content of lime is expected to be very low. Therefore the moisture content of limestone (0.2 percent) was used as it is considered conservative for the drop-point equation. A minimal wind speed was assumed (1.3 miles per hour) as all of the drop-points are enclosed with ductwork. The control efficiency for the baghouse () was obtained from AP-42, Appendix B.2 "Generalized Particle Size Distributions" (September 1996). An increase in haul road emissions is expected and the potential emissions were calculated using the predictive equations from AP-42, Section 13.2.2 "Unpaved Roads" (November 2006). A 95% control efficiency was allowed for the haul road potential emissions as all of the haul road emissions are controlled with paving and documented watering. 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 3: 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	New Installation Conditioned Potential
PM _{2.5}	10.0	N/D	0.39	4.49	N/A
PM ₁₀	15.0	10638.16	1,512.55	8.18	N/A
SO _x	40.0	>250	4,549.82	N/A	N/A
NO _x	40.0	7154.52	3,957.93	N/A	N/A
VOC	40.0	392.56	33.98	N/A	N/A
CO	100.0	>250	12,612.10	N/A	N/A
HAPs	10.0/25.0	38.29	29.27	N/A	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 Pollutant 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. 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

- As the potential emissions of the emission units are less than 0.5 pounds per hour, 10 CSR 10-6.400, *Restriction of Emission of Particulate Matter From Industrial Processes*, does not apply to the equipment in this permit.

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.

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 April 04, 2011, received April 07, 2011, 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, dated May 02, 2011.

Mr. Jonathan Kennedy
Environmental & Regulatory Affairs Manager
Mississippi Lime Company
16147 U.S. Highway 61
Ste. Genevieve, MO 63670

RE: New Source Review Permit - Project Number: 2011-04-019

Dear Mr. Kennedy:

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 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
New Source Review Unit Chief

KBH:thl

Enclosures

c: Southeast Regional Office
PAMS File: 2011-04-019

Permit Number: