

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: **122013-009**

Project Number: 2013-08-040
Installation Number: 186-0001

Parent Company: Mississippi Lime Company

Parent Company Address: 3870 South Lindbergh Boulevard, Suite 200,
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 modification of existing kilns PRK4, PRK5 and PRK6 by way of replacing an existing baghouse with a new pulse jet baghouse, modifying the existing preheater and lime cooler and modifying some ancillary supporting facilities. 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.

DEC 30 2013

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 Department's Air Pollution Control Program of the anticipated date of startup 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 startup 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. Haul Road Dust Suppression
 - A. Mississippi Lime Company shall apply water or surfactant spray on Unpaved Fuel Haul Road (EP-614) whenever conditions exist which would cause visible fugitive emissions to enter the ambient air beyond the property boundary.
 - B. Watering may be suspended when the ground is frozen, during periods of freezing conditions when watering would be inadvisable for traffic safety reasons, or when there will be no traffic on the roads.
2. Control Device Requirement-Baghouses
 - A. Mississippi Lime Company shall control particulate emissions from the emission units in Appendix B which are stated as having baghouses by enclosing and venting each particulate emission source listed in Appendix B to a baghouse. The enclosures of the emissions units shall be constructed and maintained such that no visible emissions are allowed to occur from these sources except through the gases exiting from the baghouse.
 - 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).

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

- D. On the days when the equipment listed in Appendix B is running, Mississippi Lime Company shall conduct a daily examination on the baghouses listed in Appendix B. This shall be completed during the daily workplace examinations. During the examination, the person completing the workplace exam shall visually inspect and record that all emission control devices are working as per manufacturer's guidelines.
 - E. Mississippi Lime Company shall monitor and record the operating pressure drop across the baghouses listed in Appendix B at least once per week. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
 - F. Mississippi Lime Company shall submit manufacturers' performance specifications for the baghouses listed in Appendix B within 30 days of equipment start-up.
 - G. If at any time the baghouses listed in Appendix B do not operate within the manufactures performance specifications Mississippi Lime Company shall perform an EPA Method 22 visible emission test. If any visible emissions are present during the EPA Method 22 test Mississippi Lime Company shall implement an immediate corrective action to eliminate any excess emissions from the affected stack and report the incident on the next Mississippi Lime Company Title V Semi-Annual Report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102.
 - H. 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.
3. Control Measure – Capture Efficiency (100%)
- A. Emission units listed in Appendix B as having indirect baghouse control shall be totally enclosed and maintained under negative pressure and vented to its respective baghouse.

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SPECIAL CONDITIONS:

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

- B. If any openings or holes should appear on emission units listed in Appendix B as having indirect baghouse control due to wear or maintenance activities these openings or holes shall maintain negative pressure.
 - C. Mississippi Lime Company shall demonstrate negative pressure at all emission units listed in Appendix B as having indirect baghouse control by using visual indicators such as streamers, talc puff test, negative pressure gauges, flags, etc. at openings that are not closed during normal operations within 30 days of startup of first modified kiln. All openings, when operating, must indicate the presence of negative pressure for compliance. At any time, after the initial demonstration, an emission unit that is listed in Appendix B as having indirect baghouse control is inspected and it appears that negative pressure is not being attained Mississippi Lime Company shall perform a second visual indicator test to ensure negative pressure is occurring.
 - D. Mississippi Lime Company shall maintain an operating and maintenance log for the enclosures 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.
4. Moisture Content Testing Requirement
- A. Mississippi Lime Company shall verify that the moisture content of the coal and coke used as fuel in PRK 4 Kiln (EP-069), PRK 5 Kiln (EP-070) and PRK 6 (EP-071) is greater than or equal to 8.0 percent by weight.
 - B. Testing shall be conducted according to the method prescribed by the American Society for Testing Materials (ASTM) D-2216, C-566 or another method approved by the Director.
 - C. The initial test shall be conducted no later than 45 days after the start of operation. A second test shall be performed the calendar year following the initial test during the months of July or August.

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

- D. The written analytical report shall include the raw data and moisture content of each sample, the test date and the original signature of the individual performing the test. The report shall be filed on-site or at the Mississippi Lime Company main office within 30 days of completion of the required test.
 - E. If the moisture content of either of the two tests is less than the moisture content in Special Condition 4.A, another test may be performed within 15 days of the noncompliant test. If the second test is less than the moisture content in Special Condition 4.A Mississippi Lime Company shall evaluate what effects the exceedance would have had on the permit applicability of this project. Mississippi Lime Company shall submit the results of any such evaluation, in an amendment application, within 30 days of submitting the moisture content test results report required in Special Condition 4.D. of this permit.
 - F. In lieu of testing, Mississippi Lime Company may obtain test results that demonstrate compliance with the moisture content in Special Condition 4.A from the supplier of the coal and coke.
5. Haul Roads – Silt Loading
- A. Silt loading shall not exceed [REDACTED] grams per meter squared (g/m^2) on the following paved haul roads:
 - 1) Lime Hauling Paved Haul Road (EP-614)
 - 2) Lime Kiln Dust (LKD) Hauling Paved Haul Road (EP-614)
 - 3) Fuel Receiving Paved Haul (EP-614)
 - B. Compliance with the silt loading limitation in Special Condition 5.A. shall be demonstrated by conducting (as defined in Appendix C.1 and C.2 of AP-42 *Compilation of Air Pollution Emission Factors*, Fifth Edition) a silt loading performance test once every 12 months while the plant is operational. The silt loading test shall be representative (as defined in Appendix C of AP-42) and conducted in accordance with ASTM-C-136 method. Testing cannot be conducted immediately after cleaning. If there is a regular cleaning schedule, testing shall be conducted at the midpoint of the cleaning cycle (i.e. if cleaning is scheduled every eight hours, then testing must be done at the midpoint of four hours).

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

- C. The silt loading test shall be performed at the maximum production rate of PRK 4 Kiln (EP-069), PRK 5 Kiln (EP-070) or PRK 6 (EP-071) and within 180 days of startup of first modified kiln.
 - D. Two copies of a written report of the silt loading test results must be submitted to the Director within 90 days of completion of the testing. The report must include legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required Environmental Protection Agency (EPA) Method for at least one sample run for each air pollutant tested.
 - E. Mississippi Lime Company may make a request to the Air Pollution Control Program Director to remove the silt loading testing requirement if the following criteria are met.
 - 1) The results of the silt loading testing shows compliance with the silt loading requirement found Special Condition 5.A. for three consecutive annual tests.
 - 2) Mississippi Lime Company maintains the same haul road cleaning schedule established during the three consecutive annual compliant tests.
 - 3) If at any time Mississippi Lime Company changes the haul road cleaning schedule established they shall perform annual silt loading testing until three consecutive annual tests show compliance with Special Condition 5.A.
 - F. If the results of the silt loading testing show that the silt loading exceeds the silt loading used in the emissions analysis herein (█ g/m²), then Mississippi Lime Company shall evaluate what effects the exceedance would have had on the permit applicability of this project. Mississippi Lime Company shall submit the results of any such evaluation, in an amendment application, within 30 days of submitting the silt loading test results report required in Special Condition 5.D. of this permit.
6. As Built Requirement
Mississippi Lime Company shall clarify in their operating permit application, required within 1 year of equipment startup, and their first EIQ submittal after the completion of the first modified kiln, which method of coal/coke fuel firing, Direct or Indirect, was chosen for the modified PRK kilns (PRK 4, 5, and 6).

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

7. Record Keeping and Reporting Requirements
 - A. Mississippi Lime Company shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.
 - B. Mississippi Lime Company 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.
8. Performance Testing – PRK Kilns
 - A. Mississippi Lime Company shall conduct performance testing on at least one the three kilns: PRK 4 Kiln (EP-069), PRK 5 Kiln (EP-070) or PRK 6 (EP-071), in order to verify that the emission factors in Table 1 for PM, PM₁₀, PM_{2.5}, SO_x, NO_x, CO and CO₂ are not exceeded. The following conditions shall be measured, recorded and calculated
 - 1) Kiln emission unit.
 - 2) Coal/Coke fuel input into the kiln in pounds per hour
 - 3) Time from kiln startup to lime manufacturing process startup, and time from lime manufacturing process shutdown to kiln shutdown.
 - 4) Kiln baghouse pressure drop in inches of water column.
 - 5) Kiln baghouse exhaust flowrate range, with upper and lower limits, in DSCFM using EPA Method 2 or other Air Pollution Control Program preapproved method.
 - 6) The following outlet emission rates (lbs/hr) and emission factors (lbs/ton of stone processed)
 - a. Filterable PM, filterable and condensable PM₁₀, filterable and condensable PM_{2.5} emission rates and emission factors. Filterable particulate matter shall be tested using EPA Method 201A. Condensable particulate matter shall be tested using EPA Method 202.
 - b. SO_x. SO_x emission rate and emission factor shall be tested using EPA Method 6.
 - c. NO_x. NO_x emission rate and emission factor shall be tested using EPA Method 7.
 - d. CO. CO emission rate and emission factor shall be tested using EPA Method 10B.

SPECIAL CONDITIONS:

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

- e. CO₂. CO₂ emission rate and emission factor shall be tested using EPA Method 6A.
 - f. Other Air Pollution Control Program preapproved methods may be substituted for any of the above EPA test methods.
- 7) Total stone usage rates (tph)

Table 1: Emission Factors from the PRK Kilns

Pollutant	Control Device	MHDR Stone Feed Rate per Kiln (tph)	Controlled Emission Factors (lbs/ton of stone processed)
PM	Pulse Jet Baghouse	■	■ (Filterable Only)
PM ₁₀	Pulse Jet Baghouse		■ (Filterable and Condensable)
PM _{2.5}	Pulse Jet Baghouse		■ (Filterable and Condensable)
SO _x	N/A		■
NO _x	N/A		■
CO	N/A		■
CO ₂	N/A		■

- B. Testing shall be conducted according to the following schedule,
- 1) The permittee shall perform the initial tests within 60 days after achieving the maximum production rate, but not later than 180 days after initial start-up of PRK 4 Kiln (EP-069), PRK 5 Kiln (EP-070) or PRK 6 (EP-071) for commercial operation.
 - 2) A recurring set of testing shall be performed once every five years after the initial tests to ensure the emission factors are still within the stated maximum listed in Table1.
- C. The performance tests shall be conducted at the MHDR listed in Table 1 or within ten percent of the MHDR. If the tests are conducted below 90 percent of the MHDR, then the tested production rate is the new MHDR. If the tested production rate is below 90 percent, Mississippi Lime Company shall be allowed to operate at ten percent above the tested production rate and not have to retest. These tests shall be conducted in accordance with the Performance Test Procedures outlined in Special Condition 8.A.

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

- D. If at any time the tested production rates established during the most recent performance test are exceeded by ten percent, Mississippi Lime Company must retest the exceeding emission point to confirm the emission factors listed in Table 1 are not exceeded.
- E. 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.
- F. 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.
- G. 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.
- H. If the results of the performance testing show that the tested emission rates are greater than the emission factors (Table 1), then Mississippi Lime shall evaluate what effects these higher emission factors would have had on the permit applicability, modeling applicability, and emission factors for compliance and emission inventory. Mississippi Lime Company shall submit to the Air Pollution Control Program the results of any such evaluation in a completed Application for Authority to Construct within 30 days of submitting the Performance Test Results report required in Special Condition 8.F of this permit.
- I. If at any time the test results of the condensable particulate matter causes an exceedance of the emission factors listed in Table 1, Mississippi Lime Company shall evaluate the test results and test method for probable cause of the exceedance. Mississippi Lime Company shall submit a report within 60 days of the exceedance detailing the findings of a probable cause study to be evaluated by Air Pollution Control Program. Mississippi Lime Company shall also include a suggested course of action in the report to address the exceedances.

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

Project Number: 2013-08-040
Installation ID Number: 186-0001
Permit Number:

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

Complete: August 19, 2013

Parent Company:
Mississippi Lime Company
3870 South Lindbergh Boulevard, Suite 200
St. Louis, MO 63127

Ste. Genevieve County, S29, T38N, R9E

REVIEW SUMMARY

- Mississippi Lime Company has applied for authority to modify their existing kilns PRK4, PRK5 and PRK6 by way of replacing an existing positive displacement baghouse with a new pulse jet baghouse, modifying the existing preheater and lime cooler to reflect a more modern and efficient design and modifying some ancillary supporting facilities.
- HAP emissions are expected from the kilns being modified for this project. The majority of the HAPs being emitted is Hydrogen Chloride. Other HAPs include heavy metal HAPs and organic HAPs but only in extremely small amounts that are well below their respective SMAL.
- 40 CFR 60 Subpart HH, "Standards of Performance for Lime Manufacturing Plants" applies to PRK 4 Kiln (EP-069), PRK 5 Kiln (EP-070) and PRK 6 (EP-071) in this permit.
- 40 CFR 63, Subpart AAAAA, "National Emission Standard for Hazardous Air Pollutants for Lime Manufacturing Plants", applies to this installation.
- Baghouses are being used to control the PM, PM₁₀ and PM_{2.5} emissions from the equipment listed in Appendix B.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Emission increases of all pollutants are at 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 at de minimis levels.
- Emissions testing for PM, PM₁₀, PM_{2.5}, SO_x, NO_x, CO and CO₂ is required for the modified PRK Kilns.
- An application to amend your Part 70 Operating Permit is required for this installation within one year of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Mississippi Lime Company 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 calcination of limestone. Mississippi Lime Company currently holds Part 70 operating permit number OP2013-035. The following construction permits have been issued to Mississippi Lime Company from the Air Pollution Control Program.

Table 2: Previously Issued Construction Permits

Permit Number	Description
072013-007	Temporary Mine Crushing Operation
112012-009A	True Up to Permit 112012-009
112012-009	New Lime Hydrator
082011-002	A Section (5) permit issued on July 5, 2011 for hydration process.
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

The Mississippi Lime Company (MLC) has requested confidentiality for emission unit maximum hourly design rates and process information. This is the confidential permit. A public copy is available under project number 2013-08-040.

MLC plans to modify three existing lime kilns designated as PRK 4, PRK 5 and PRK 6. The modifications include improving the emission controls of the three kilns by replacing the existing positive displacement baghouse with a pulse jet baghouse as well as updating the existing preheaters and lime coolers to reflect a more modern design.

With the new lime cooler design it will allow the elimination of the existing baghouse that is currently controlling the lime cooler. The modified lime cooler uses considerably less air flow which allows the air exiting the cooler to be directed through the kiln as secondary combustion air. Therefore any emissions from the modified lime cooler will be channeled through the kiln and the preheater and then through the new pulse jet baghouse.

The modifications being made to PRK 4, PRK 5 and PRK 6 result in an increase in the maximum hourly design rate of the kilns. The modification to the kilns result in an increase in fuel efficiency and therefore less coal/coke fuel is being burned in the kilns. The modification also results in necessary replacement and modification to some of the ancillary facilities as well as new equipment to provide stone and fuel to the kilns and convey the finished product for storage and transport. A majority of the new and replacement ancillary equipment are controlled by baghouses. A list of the new and replacement controlled equipment can be found in Appendix B.

The first step of this project was to determine if the modification MLC is proposing constitutes reconstruction of the three kilns being modified. This project is clearly a new source review modification as it results in a physical change in, or change in the method of operation of, an existing major stationary source. A modification can be classified as reconstruction if the definition of reconstruction is met. 40 CFR 60.15 defines reconstruction as "...the replacement of components of an existing facility to such an extent that the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility. MLC contacted experienced manufacturers and contractors who are actively involved in lime kiln construction activities to obtain current pricing information for the fixed capital cost to complete the planned modifications to the three existing kilns and the fixed capital cost to construct a comparable entirely new facility. MLC's findings showed that the fixed capital cost of the modification proposed was approximately 29 percent of the fixed capital cost of constructing new three new kilns. Therefore MLC's project does not meet the definition of reconstruction and will be treated as a modification under new source review.

As a modification the analysis for this project was done in accordance with 40 CFR 52.21, which is the federal requirements for the PSD program. The first step in determining if this project is subject to the PSD program is to determine if there is a significant emission increase. Mississippi Lime stated in their application that the proposed project will not have a significant emission increase and demonstrated this using the hybrid test for the project involving existing, replacement, and new emission units. In order to be considered a replacement emission unit, the emission unit must meet the definition found in 40 CFR 52.21(b)(33) for "replacement unit." All emission units that are reference within this permit as a "replacement emission unit" meet the definition referenced above.

The first step of hybrid test is to determine the baseline actual emission (BAE) for the existing equipment affected by this project. MLC calculated the BAE in accordance with 40 CFR 52.21(b)(48) by calculating their average annual emissions over a 24 consecutive month period within the past ten years for each existing piece of equipment

that is affected by this project. The baseline period was determined to be August 22, 2003, to August 21, 2005. All emissions from this project were calculated based on the daily stone feed rate of PRK 4, PRK 5 and PRK 6. Therefore the baseline period determination was based on the actual daily stone feed of PRK 4, PRK 5 and PRK 6 using a 24 month rolling average. Mississippi Lime did not consider BAE for the replacement equipment being installed as a result of this project because it did affect the permit type determination.

The second step of the hybrid test is to determine the projected actual emissions (PAE) for the existing equipment affected by this project and any replacement equipment being installed and to determine the full potential emissions of any new equipment being installed. MLC calculated the PAE for the existing affected equipment and replacement equipment in accordance with 40 CFR 52.21(b)(41) by taking the maximum annual stone feed rate, in tons per year, at which each existing and replacement emission unit is projected to emit a regulated NSR pollutant in any one of the five years following the date the unit resumes regular operation after the project.

Demand growth (DG) was also considered for this project. DG is calculated by subtracting the BAE from the emissions the unit was capable of accommodating (COA) without the proposed project. The emissions that each unit was COA was determined by using past production numbers observed within the baseline period by Mississippi Lime. A maximum seven day rolling average scaled up to an annual usage rate of stone feed and an expected on stream time of 92 percent for each PRK kiln was used in the COA determination. Using the stone feed throughput of the existing kilns, throughputs of other affected emission units were determined and emissions that each unit was COA were calculated. Based on the projected actual of this project and demonstration through economic analysis MLC has shown that the demand growth of its product is expected to reach what each unit was COA in the past therefore allowing the demand growth calculation to be used.

This leads to the final step which is to determine the emissions increase (EI) of the project. The EI for the project is calculated by subtracting the DG and BAE from the PAE of the proposed project.

The calculation method for determining the EI of the project, while considering DG, is as follows: $EI = PAE - DG - BAE$. As stated previously DG is calculated using the following method: $DG = COA - BAE$. Using basic algebra the calculation method for determining the EI for the project can be stated as: $EI = PAE - COA$.

The following assumptions were made while calculating the BAE, COA and PAE.

- For all existing and replacement units a 92 percent on stream time was factor into the throughput of the emission points. All new emission units assumed 100 percent on stream time.
- 100 percent capture on all emission points controlled by a baghouse. Mississippi Lime is required is demonstrate 100 percent capture via Special Condition 3.

EMISSIONS/CONTROLS EVALUATION

All emission units affected by this project are listed in Appendix C. Appendix C describes whether emission unit is new, existing, replacement, or removed and also states how the EI was calculated for that emission unit.

Kilns and Lime Coolers

The emission factors used in the BAE and COA analysis of the existing PRK kilns for PM, PM₁₀, PM_{2.5}, SO_x, NO_x and CO were obtained from stack tests performed by Mississippi Lime on PRK Kilns. Test results for condensable particulate matter from the PRK kilns were not available so the emission factors used for condensable particulate matter was taken from a stack test on a similar kiln at a sister facility. Greenhouse gas (GHG) emissions were calculated using the EPA emission model for GHG reporting. The VOC emission factor was obtained from the EPA document AP-42, [REDACTED]

[REDACTED] The HAP emission factors were obtained from [REDACTED]. No HAP emission factors can be found in the Lime Manufacturing section of AP-42 therefore the [REDACTED] emission factors for the [REDACTED] were deemed most representative. All the particulate matter emission factors used for the BAE and COA analysis are considered controlled emission factors as the PRK kilns are controlled by a baghouse. BAE and COA emissions were not calculated for the existing lime coolers only the PAE of the modified lime coolers were considered for this project.

The emission factors used in the PAE analysis of the modified PRK kilns and lime coolers for PM₁₀, PM_{2.5}, SO_x, NO_x and CO were obtained from stack tests performed by Mississippi Lime on their RK kilns and vendor guarantees. The PM emission factor was obtained from PM emission standard for new lime kilns found in 40 CFR 63, Subpart AAAAA, *National Emission Standard for Hazardous Air Pollutants for Lime Manufacturing Plants*. The new PRK kiln design is expected to perform similar to the RK kiln design therefore it was assumed the emission factors would be similar. The new PRK kiln design will be controlled by a new pulse jet baghouse. The new PRK kiln design also routes emissions from the modified lime coolers to the new pulse jet baghouse and the emission factors used include the emissions from the lime coolers. All the particulate matter emission factors used for the PAE analysis are considered controlled emission factors.

Hydrogen Sulfide (H₂S) is listed as a regulated pollutant within 10 CSR10-6.060. H₂S is expected from the modified PRK Kilns however no published emission factor was found for Lime Manufacturing. Based on the fact that the same type of coal/coke will be used for the modified PRK kilns and the usage of coal/coke fuel is being reduced due to modification it was assumed that any H₂S emissions from the modified PRK kiln to be at the de minimis level.

Stone Transfer Equipment

The emission factors used in the analysis of the existing stone transfer emission units from the underground mine to the PRK stone shed were obtained from AP-42, [REDACTED].

In Mississippi Lime's construction permit 042009-001 a control efficiency of [REDACTED] percent was given to any emission unit 800 feet or greater from the mines entrance. Any emission unit less than 800 feet from the mine entrance was given control efficiency of [REDACTED] percent. These control efficiencies assumptions were also used for this project. All storage piles within the mine are loaded using a conveyor and unloaded using a stone feeder therefore it was assumed that there was no vehicular activity emissions around the storage pile. These emission factors were used for the PAE, COA emissions and BAE.

The emission factors used in the analysis of the existing stone transfer emission units from the PRK stone shed to the PRK kilns were obtained from a stack test performed by Mississippi Lime on feeder baghouse (EP-055). The uncontrolled conveyor transfer point emission factor found in AP-42, [REDACTED] was used in the analysis of the replacement stone transfer emission units from the PRK stone shed to the PRK kilns. A [REDACTED] percent control efficiency was given to the replacement equipment as these emission units are controlled by a baghouse. These emission factors and control efficiencies were used for the PAE, COA emissions and BAE.

Lime and Lime Kiln Dust Handling

The emission factors used in the analysis of the lime feeders after the kiln processing and the lime kiln dust (LKD) handling were calculated using the predictive equations found in AP-42, [REDACTED] using a mean wind speed of [REDACTED] miles per hour, as the emission points are in enclosed areas and required to demonstrate negative pressure via Special Condition 3., and moisture content of [REDACTED] percent. The emission factor used for enclosed truck loadout of LKD was obtained from AP-42, [REDACTED]. All emission points at this point in the process are controlled by a baghouse and a [REDACTED] percent control was given to these emission points. These emission factors and control efficiencies were used for the PAE, COA emissions and BAE.

The emission factors used in the analysis of the emission units associated with finished lime handling were calculated using the predictive equations found in AP-42, [REDACTED] using a mean wind speed of [REDACTED] miles per hour, as the emission points are in enclosed areas and required to demonstrate negative via Special Condition 3., and moisture content of [REDACTED] percent. Mississippi Lime performed stack testing on a baghouse of an existing screen (EP-675). Therefore the emission factor used for all screens was calculated based on the results of that stack test. The emission factor using for lime silo loading and silo loading was obtained from AP-42 [REDACTED] unloading into an elevated silo. This was determined to be the most representative as the silo and loadout points are controlled by a baghouse.

Mississippi Lime is installing new lime handling equipment and a screen that will be part of the RK Kiln production process. This new equipment is not related to PRK Kiln modification however it is included in this project. All emission factors used for the new RK Kiln handling equipment and screen are the same as the emissions factors used for the PRK lime handling equipment and screens. These emission factors were used for the PAE, COA emissions and BAE.

Fuel Handling

Within Mississippi Lime’s application they identified and quantified the emissions for two options for kiln fuel firing; direct and indirect firing. Direct firing feeds the fuel directly from the fuel mill to the kiln burner in real time whereas indirect firing uses the mill to prepare the fuel and store it in silos for delivery to the kiln burner at a later time. There are pros and cons to each system and MLC plans to decide on which option to go with after further engineering evaluation prior to construction. For the PAE of this project the worst case, which was the direct firing, was chosen to represent the PAE of the project. The emission factors used in the analysis of the coal/coke handling were calculated using the predictive equations found in AP-42 [REDACTED] using a mean wind speed of [REDACTED] miles per hour, as emission point are in enclosed areas, and moisture content of [REDACTED] percent. Emissions from wind erosion and vehicular activity areas of the coal/coke storage piles were calculated using an equation found in the Air Pollution Control Program’s Emissions Inventory Questionnaire Form 2.8 “Storage Pile Worksheet.” These emission factors were used for the PAE, COA emissions and BAE.

Haul Roads

Emissions from haul roads were calculated using the predictive equation from AP-42 [REDACTED] for unpaved roads and the predictive equation from AP-42 [REDACTED]. A [REDACTED] control efficiency for PM and PM₁₀ and a [REDACTED] control efficiency for PM_{2.5} were applied to the unpaved haul road emission calculations for the use of undocumented water.

The following table provides an emissions summary for this project. Existing potential emissions were taken from previously issued construction permit amendment 112012-009A. Existing actual emissions were taken from the installation’s 2012 EIQ. Projected Actual Emission of the Application represent the maximum annual emission rate at which each existing or replacement emission unit is projected to emit a regulated NSR pollutant in any one of the five years following the date the unit resumes regular operation after the project as well as the potential annual emission rate of any new emission unit. Actual Emissions that were Capable of Accommodating Prior to Application represent the actual annual emission rate at which each existing emission unit was capable of emitting without the proposed project. Emission Increase of the Application represents the Actual Emissions that were Capable of Accommodating Prior to Application subtracted from the Projected Actual Emission of the Application.

Table 3: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2012 EIQ)	PAE of the Application	Actual Emissions that were COA Prior to Application	Emission Increase of the Application
PM	25.0	>250.0	N/D	72.97	51.61	21.36
PM ₁₀	15.0	>250.0	1,285.00	67.48	77.04	-9.56
PM _{2.5}	10.0	>250.0	589.03	38.47	47.42	-8.95
SOx	40.0	>250.0	3,298.55	120.89	84.46	36.43

NOx	40.0	>250.0	3,747.57	574.22	535.68	38.54
VOC	40.0	>250.0	52.32	6.04	4.98	1.06
CO	100.0	>250.0	13,113.60	143.55	49.08	94.47
GHG (CO ₂ e)	75,000 / 100,000	>100,000	N/D	513,774	454,702	59,072
GHG (mass)	0.0 / 100.0 / 250.0	>250.0	N/D	511,658	452,958	58,700
Total HAPs	25.0	>25.0	28.77	0.138	0.114	0.024
HCL	10.0	N/D	N/D	0.121	0.100	0.021

N/A = Not Applicable; N/D = Not Determined; PAE = Project Actual Emissions; COA = Capable of Accommodating

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 all pollutants 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
- *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

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400 applies to the coal/coke handling emission units. These emission units are in compliance with the emission rate requirement of this rule.
- *New Source Performance Regulations*, 10 CSR 10-6.070
 - – *Standards of Performance for Lime Manufacturing Plants*, 40 CFR Part 60, Subpart HH

- *MACT Regulations*, 10 CSR 10-6.075
 - *National Emission Standard for Hazardous Air Pollutants for Lime Manufacturing Plants*, 40 CFR Part 63, Subpart AAAAA

- *Restriction of Emission of Sulfur Compounds*, 10 CSR 10-6.260. The SO₂ concentration of the modified kilns in 54.02 ppm by volume (ppmv) which is less than the required concentration of 2000 ppmv of SO₂. The combined SO₃ and sulfuric acid concentration of the modified kilns in 5.29 mg/m³ which is less than the required concentration of 70 mg/m³ of combined SO₃ and sulfuric acid

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.

Gerad Fox
New Source Review Unit

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated August 19, 2013, received August 19, 2013, 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.

APPENDIX A

Abbreviations and Acronyms

%	percent	m/s	meters per second
°F	degrees Fahrenheit	Mgal	1,000 gallons
acfm	actual cubic feet per minute	MW	megawatt
BACT	Best Available Control Technology	MHDR	maximum hourly design rate
BMPs	Best Management Practices	MMBtu	Million British thermal units
Btu	British thermal unit	MMCF	million cubic feet
CAM	Compliance Assurance Monitoring	MSDS	Material Safety Data Sheet
CAS	Chemical Abstracts Service	NAAQS ...	National Ambient Air Quality Standards
CEMS	Continuous Emission Monitor System	NESHAPs	
CFR	Code of Federal Regulations	National Emissions Standards for Hazardous Air Pollutants
CO	carbon monoxide	NO_x	nitrogen oxides
CO₂	carbon dioxide	NSPS	New Source Performance Standards
CO_{2e}	carbon dioxide equivalent	NSR	New Source Review
COMS	Continuous Opacity Monitoring System	PM	particulate matter
CSR	Code of State Regulations	PM_{2.5}	particulate matter less than 2.5 microns in aerodynamic diameter
dscf	dry standard cubic feet	PM₁₀	particulate matter less than 10 microns in aerodynamic diameter
EQ	Emission Inventory Questionnaire	ppm	parts per million
EP	Emission Point	PSD	Prevention of Significant Deterioration
EPA	Environmental Protection Agency	PTE	potential to emit
EU	Emission Unit	RACT	Reasonable Available Control Technology
fps	feet per second	RAL	Risk Assessment Level
ft	feet	SCC	Source Classification Code
GACT	Generally Available Control Technology	scfm	standard cubic feet per minute
GHG	Greenhouse Gas	SIC	Standard Industrial Classification
gpm	gallons per minute	SIP	State Implementation Plan
gr	grains	SMAL	Screening Model Action Levels
GWP	Global Warming Potential	SO_x	sulfur oxides
HAP	Hazardous Air Pollutant	SO₂	sulfur dioxide
hr	hour	tph	tons per hour
hp	horsepower	tpy	tons per year
lb	pound	VMT	vehicle miles traveled
lbs/hr	pounds per hour	VOC	Volatile Organic Compound
MACT	Maximum Achievable Control Technology		
µg/m³	micrograms per cubic meter		

Appendix B: Controlled Emission Unit Summary

Mississippi Lime Company
 Ste. Genevieve County, S29, T38N, R9E
 Project Number: 2013-08-040
 Installation Number: 186-0001

Emission Point	Description	Control Device No.	Description
EP-069	PRK 4 Kiln and Associated Lime Cooler	CD-069	Pulse Jet Baghouse
EP-070	PRK 5 Kiln and Associated Lime Cooler	CD-070	Pulse Jet Baghouse
EP-071	PRK 6 Kiln and Associated Lime Cooler	CD-071	Pulse Jet Baghouse
EP-955	Conveyor 11A (Feed for PRK 4-6)	CD-955	Baghouse (Direct)
EP-956	Conveyor (Feed for PRK 4)	CD-956	Baghouse (Direct)
EP-957	Conveyor (Feed for PRK 5)	CD-957	Baghouse (Direct)
EP-958	Conveyor (Feed for PRK 6)	CD-958	Baghouse (Direct)
EP-959	Lime feeder (PRK 4)	CD-963	Baghouse (Direct)
EP-960	Lime feeder (PRK 5)	CD-963	Baghouse (Direct)
EP-961	Lime feeder (PRK 6)	CD-963	Baghouse (Direct)
EP-693	LKD Truck Loadout	N/A	DCL Spout
EP-963	Pan Conveyor (PRK 4 lime)	CD-963	Baghouse (Direct)
EP-964	Pan Conveyor (PRK 5 lime)	CD-963	Baghouse (Direct)
EP-965	Pan Conveyor (PRK 6 lime)	CD-963	Baghouse (Direct)
EP-966	Grizzly Feeder (PRK 4)	CD-963	Baghouse (Direct)
EP-967	Grizzly Feeder (PRK 5)	CD-963	Baghouse (Direct)
EP-968	Grizzly Feeder (PRK 6)	CD-963	Baghouse (Direct)
EP-969	Conveyors (3)	CD-969	Baghouse (Direct)
EP-970	Conveyors (3)	CD-969	Baghouse (Direct)
EP-971	Conveyors (3)	CD-969	Baghouse (Direct)
EP-978	Silo 1 - granular	CD-978	Baghouse (Direct)
EP-979	Silo 2 1/2 inch	CD-978	Baghouse (Direct)
EP-980	Silo 3 - 1 inch	CD-978	Baghouse (Direct)
EP-981	Polishing Screen 2	CD-981	Baghouse (Direct)
EP-982	Polishing Screen 3	CD-981	Baghouse (Direct)
EP-983	Loadout - Silo 1	N/A	DCL Spout
EP-984	Loadout - Silo 2	N/A	DCL Spout
EP-985	Loadout - Silo 3	N/A	DCL Spout
EP-989A	New Lime conveyor from RK1 to BC08	CD-665	Baghouse (Direct)
EP-989B	New RK 2' x 1" Silo	CD-989	Baghouse (Direct)
EP-989C	Screen	CD-989	Baghouse (Direct)
EP-989D	Loadout - RK 2 x 1 Silo	N/A	DCL Spout
EP-1000	Fuel Mill	CD-1001	Baghouse (Indirect)

Emission Point	Description	Control Device No.	Description
EP-1001	Pulverized Coal Silo	CD-1001	Baghouse (Direct)
EP-1002	Pulverized Coke Silo	CD-1002	Baghouse (Direct)

Appendix C: Emission Units Affected by Project

Emission Point	Description	New (NW), Existing (EX), Replacement (RP) or Removed (RM)	MHDR (tons of stone feed per hour)	EI Calculation Method
Emission Units from Underground Mine Face to PRK Stone Shed				
EP-800	Truck Loading Fragmented Stone (Underground)	EX	See Construction Permit 042009-001	PAE - COA
EP-801	Truck Unloading Fragmented Stone (Underground)	EX		PAE - COA
EP-802	Feeder 1	EX		PAE - COA
EP-803	Crusher	EX		PAE - COA
EP-804	Conveyor 1	EX		PAE - COA
EP-805	Conveyor 2	EX		PAE - COA
EP-806	Conveyor 3	EX		PAE - COA
EP-807	Conveyor 4	EX		PAE - COA
EP-808	Conveyor 5	EX		PAE - COA
EP-809	Conveyor 6	EX		PAE - COA
EP-810	Conveyor 7	EX		PAE - COA
EP-811	Conveyor 8	EX		PAE - COA
EP-812	Conveyor 9	EX		PAE - COA
EP-813	Storage Pile - Primary	EX		PAE - COA
EP-814	Feeder 1	EX		PAE - COA
EP-815	Feeder 2	EX		PAE - COA
EP-816	Conveyor 10	EX		PAE - COA
EP-817	Conveyor 11	EX		PAE - COA
EP-818	Conveyor 12	EX		PAE - COA
EP-819	Screen 1	EX		PAE - COA
EP-820	Conveyor 13	EX		PAE - COA
EP-821	Conveyor 18	EX		PAE - COA
EP-822	Storage Bin B1	EX		PAE - COA
EP-823	Belt Feeder 4 (under fines pile)	EX		PAE - COA
EP-824	Crusher 2	EX		PAE - COA
EP-825	Conveyor 19	EX		PAE - COA
EP-826	Conveyor 14	EX		PAE - COA
EP-827	Conveyor 15	EX		PAE - COA
EP-828	Conveyor 16	EX		PAE - COA
EP-829	Storage Pile TSK	EX		PAE - COA
EP-830	Conveyor 17	EX		PAE - COA
EP-831	Conveyor 20	EX		PAE - COA
EP-832	Screen 2	EX		PAE - COA
EP-833	Screen 3	EX		PAE - COA
EP-834	Conveyor 21	EX		PAE - COA
EP-835	Conveyor 22	EX		PAE - COA
EP-836	Storage Bin B2	EX		PAE - COA
EP-837	Belt Feeder 5	EX		PAE - COA
EP-838	Crusher 3	EX		PAE - COA
EP-839	Conveyor 26	EX		PAE - COA
EP-840	Conveyor 26a	EX		PAE - COA
EP-841	Conveyor 25	EX		PAE - COA
EP-842	Conveyor 23	EX		PAE - COA
EP-843	Conveyor 24	EX		PAE - COA
EP-844	Storage Bin 3	EX		PAE - COA
EP-845	Conveyor 27	EX	PAE - COA	

Appendix C: Emission Units Affected by Project

Emission Point	Description	New (NW), Existing (EX), Replacement (RP) or Removed (RM)	MHDR (tons of stone feed per hour)	EI Calculation Method
EP-846	Screen 4	EX	See Construction Permit 042009-001	PAE - COA
EP-847	Screen 5	EX		PAE - COA
EP-848	Conveyor 39	EX		PAE - COA
EP-849	Conveyor 40	EX		PAE - COA
EP-850	Conveyor 41	EX		PAE - COA
EP-851	Storage Pile Half Inch	EX		PAE - COA
EP-852	Conveyor 37	EX		PAE - COA
EP-853	Conveyor 38	EX		PAE - COA
EP-854	Storage Pile One Inch	EX		PAE - COA
EP-855	Conveyor 34	EX		PAE - COA
EP-856	Conveyor 35	EX		PAE - COA
EP-857	Conveyor 36	EX		PAE - COA
EP-858	Storage Pile Two Inch	EX		PAE - COA
EP-859	Conveyor 30	EX		PAE - COA
EP-860	Conveyor 31	EX		PAE - COA
EP-861	Conveyor 32	EX		PAE - COA
EP-862	Conveyor 33	EX		PAE - COA
EP-863	Conveyor 44	EX		PAE - COA
EP-864	Conveyor 45	EX		PAE - COA
EP-865	Conveyor 42	EX		PAE - COA
EP-866	Conveyor 43	EX		PAE - COA
EP-867	Storage Pile #4 Fines	EX		PAE - COA
EP-868	Conveyor 46	EX		PAE - COA
EP-869	Conveyor 47	EX		PAE - COA
EP-870	Storage Bin 4	EX		PAE - COA
EP-871	Truck Loading Crushed Stone	EX		PAE - COA
EP-872	Truck Unloading Crushed Stone	EX		PAE - COA
EP-873	Conveyor 28	EX		PAE - COA
EP-874	Conveyor 29	EX		PAE - COA
EP-875	Storage Pile SSK	EX		PAE - COA
EP-876	Feeder 8 (under SSK Pile)	EX		PAE - COA
EP-877	Feeder 9 (under SSK Pile)	EX		PAE - COA
EP-878	Feeder 10 (under half inch pile)	EX		PAE - COA
EP-879	Feeder 11 (under half inch pile)	EX		PAE - COA
EP-880	Feeder 12 (under one inch pile)	EX		PAE - COA
EP-881	Feeder 13 (under one inch pile)	EX	PAE - COA	
EP-882	Belt Feeder 6 (under fines pile)	EX	PAE - COA	
EP-883	Belt Feeder 7 (under fines pile)	EX	PAE - COA	
EP-884	Feeder 4 (under TSK pile)	EX	PAE - COA	
EP-885	Feeder 5 (under TSK pile)	EX	PAE - COA	
EP-886	Feeder 14 (under two inch pile)	EX	PAE - COA	
EP-887	Feeder 15 (under two inch pile)	EX	PAE - COA	
EP-888	Conveyor 48	EX	PAE - COA	
EP-889	Conveyor 49	EX	PAE - COA	
EP-890	Conveyor 50	EX	PAE - COA	
EP-891	Conveyor 51	EX	PAE - COA	
EP-892	Conveyor 52	EX	PAE - COA	
EP-893	Conveyor 53	EX	PAE - COA	
EP-894	Conveyor 54	EX	PAE - COA	
EP-895	Conveyor 55	EX	PAE - COA	

Appendix C: Emission Units Affected by Project

Emission Point	Description	New (NW), Existing (EX), Replacement (RP) or Removed (RM)	MHDR (tons of stone feed per hour)	EI Calculation Method
EP-896	Conveyor 56	EX	See Construction Permit 042009-001	PAE - COA
EP-897	Conveyor 57	EX		PAE - COA
EP-898	Conveyor 58	EX		PAE - COA
EP-899	Pile - Peerless Stone Shed	EX		PAE - COA
EP-900	Pile - Peerless Stone Shed	EX		PAE - COA
EP-901	Pile - Peerless Stone Shed	EX		PAE - COA
Emission Unit from PRK Stone Shed to PRK Kilns				
EP-055	Feeder (under PRK stone shed bin)	EX		PAE - COA
EP-056	Feeder (under PRK stone shed bin)	EX		PAE - COA
EP-057	Feeder (under PRK stone shed bin)	EX		PAE - COA
EP-058	Conveyor 8	EX		PAE - COA
EP-059	Conveyor 9	EX		PAE - COA
EP-060	Conveyor 10	EX		PAE - COA
EP-061	Screen	EX		PAE - COA
EP-062	Conveyor 11 (Current stone feed to PRKs and RKs)	EX		PAE - COA
EP-955	Conveyor 11A (Feed for PRK 4-6)	RP		PAE only
EP-956	Conveyor (Feed for PRK 4)	RP		PAE only
EP-957	Conveyor (Feed for PRK 5)	RP		PAE only
EP-958	Conveyor (Feed for PRK 6)	RP		PAE only
EP-063 B	L Conveyor PRK 4	RM	N/A	N/A
EP-063 C	L Conveyor PRK 5	RM	N/A	N/A
EP-063 D	L Conveyor PRK 6	RM	N/A	N/A
PRK 4-6 Kilns and LKD Handling				
EP-069	PRK 4 Kiln (1200 tsf/d)	EX		PAE - COA
EP-070	PRK 5 Kiln (1200 tsf/d)	EX		PAE - COA
EP-071	PRK 6 Kiln (1200 tsf/d)	EX		PAE - COA
EP-073	PRK 4 Cooler	RM	N/A	N/A
EP-074	PRK 5 Cooler	RM	N/A	N/A
EP-075	PRK 6 Cooler	RM	N/A	N/A
EP-073A	Lime feeder (PRK 4)	RM	N/A	N/A
EP-074A	Lime feeder (PRK 5)	RM	N/A	N/A
EP-075A	Lime feeder (PRK 6)	RM	N/A	N/A
EP-959	Lime feeder (PRK 4)	RP		PAE only
EP-960	Lime feeder (PRK 5)	RP		PAE only
EP-961	Lime feeder (PRK 6)	RP		PAE only
EP-962	LKD Surge Bin	NW		Full PTE
EP-684	LKD Silo (RK)	EX		PAE - COA
EP-693	LKD Truck Loadout	RP		PAE only
EP-081	LKD Storage Silos	RM	N/A	N/A
EP-082A	LKD Truck Loadout	RM	N/A	N/A
EP-614	LKD Truck Hauling	EX	N/A	PAE only
Emission Units for Lime Handling from Peerless Plant to Loadout				
EP-963	Pan Conveyor (PRK 4 lime)	RP		PAE only
EP-964	Pan Conveyor (PRK 5 lime)	RP		PAE only
EP-965	Pan Conveyor (PRK 6 lime)	RP		PAE only
EP-966	Grizzly Feeder (PRK 4)	RP		PAE only
EP-967	Grizzly Feeder (PRK 5)	RP		PAE only
EP-968	Grizzly Feeder (PRK 6)	RP		PAE only
EP-656	North Pan Conveyor	EX		PAE - COA

Appendix C: Emission Units Affected by Project

Emission Point	Description	New (NW), Existing (EX), Replacement (RP) or Removed (RM)	MHDR (tons of stone feed per hour)	EI Calculation Method
EP-658	South Pan Conveyor	EX		PAE - COA
EP-083	Elevator 1	EX		PAE - COA
EP-084	Elevator 2	EX		PAE - COA
EP-085	Elevator 3	EX		PAE - COA
EP-675	Screen	EX		PAE - COA
EP-687	Silos	EX		PAE - COA
EP-688	Screen 2	EX		PAE - COA
EP-691	Loadout	EX		PAE - COA
EP-969	Conveyors (3)	NW		Full PTE
EP-970	Conveyors (3)	NW		Full PTE
EP-971	Conveyors (3)	NW		Full PTE
EP-978	Silo 1 - granular	NW		Full PTE
EP-979	Silo 2 1/2 inch	NW		Full PTE
EP-980	Silo 3 - 1 inch	NW		Full PTE
EP-981	Polishing Screen 2	NW		Full PTE
EP-982	Polishing Screen 3	NW		Full PTE
EP-983	Loadout - Silo 1	NW		Full PTE
EP-984	Loadout - Silo 2	NW		Full PTE
EP-985	Loadout - Silo 3	NW		Full PTE
EP-614	Lime Truck Haul Road	EX	N/A	PAE only
New Emission Unit for RK Kiln Lime Handling (Not related to PRK Kiln modification but included in this project)				
EP-989A	New Lime conveyor from RK1 to BC08	NW		Full PTE
EP-989B	New RK 2' x 1" Silo	NW		Full PTE
EP-989C	Screen	NW		Full PTE
EP-989D	Loadout - RK 2 x 1 Silo	NW		Full PTE
Direct Firing – Emission Units for Coal Coke Handling form Delivery to Kiln				
EP-614	Coal/Coke Truck Haul Road (Paved + Unpaved)	EX	N/A	PAE - COA
EP-615	Truck Unloading - Coal	EX		PAE - COA
EP-621	Truck Unloading - Coke	EX		PAE - COA
EP-616	Pile Forming - Coal	EX		PAE - COA
EP-622	Pile Forming -Coke	EX		PAE - COA
EP-617B	Storage Pile - Coal	EX		PAE - COA
EP-623B	Storage Pile - Coke	EX		PAE - COA
EP-618	Loading - Coal	EX		PAE - COA
EP-624	Loading - Coke	EX		PAE - COA
EP-625	Hopper	EX		PAE - COA
EP-626	Feeder	EX		PAE - COA
EP-631	Conveyor	EX		PAE - COA
EP-636	Conveyor	EX		PAE - COA
EP-51C	Conveyor	RM	N/A	N/A
EP-51D	Tripper Conveyor	RM	N/A	N/A
EP-52	PRK Coal/Coke Day Bins	RM	N/A	N/A
EP-990	Loading - Coal	NW		Full PTE
EP-991	Loading - Coke	NW		Full PTE
EP-992	Hopper	NW		Full PTE
EP-993	Feeder	NW		Full PTE
EP-994	Conveyor	NW		Full PTE
EP-995	Coal Silo	NW		Full PTE
EP-996	Coke Silo	NW		Full PTE

Appendix C: Emission Units Affected by Project

Emission Point	Description	New (NW), Existing (EX), Replacement (RP) or Removed (RM)	MHDR (tons of stone feed per hour)	EI Calculation Method
EP-997	Weigh feeder - Coal - PRK 4	NW		Full PTE
EP-998	Weigh Feeder - Coke - PRK 4	NW		Full PTE
EP-999	Weigh feeder - Coal - PRK 5	NW		Full PTE
EP-1000	Weigh Feeder - Coke - PRK 5	NW		Full PTE
EP-1001	Weigh feeder - Coal - PRK 6	NW		Full PTE
EP-1002	Weigh Feeder - Coke - PRK 6	NW		Full PTE
EP-1003	Conveyor to mill - PRK 4	NW		Full PTE
EP-1004	Conveyor to mill - PRK 5	NW		Full PTE
EP-1005	Conveyor to mill - PRK 6	NW		Full PTE
EP-1006	Conveyor to mill - PRK 4	NW		Full PTE
EP-1007	Conveyor to mill - PRK 5	NW		Full PTE
EP-1008	Conveyor to mill - PRK 6	NW		Full PTE
Indirect Firing – Emission Units for Coal Coke Handling form Delivery to Kiln				
EP-614	Coal/Coke Truck Haul Road (Paved + Unpaved)	EX	N/A	PAE - COA
EP-615	Truck Unloading - Coal	EX		PAE - COA
EP-621	Truck Unloading - Coke	EX		PAE - COA
EP-616	Pile Forming - Coal	EX		PAE - COA
EP-622	Pile Forming -Coke	EX		PAE - COA
EP-617B	Storage Pile - Coal	EX	N/A	PAE - COA
EP-623B	Storage Pile - Coke	EX	N/A	PAE - COA
EP-618	Loading - Coal	EX		PAE - COA
EP-624	Loading - Coke	EX		PAE - COA
EP-625	Hopper	EX		PAE - COA
EP-626	Feeder	EX		PAE - COA
EP-631	Conveyor	EX		PAE - COA
EP-636	Conveyor	EX		PAE - COA
EP-51C	Conveyor	RM	N/A	N/A
EP-51D	Tripper Conveyor	RM	N/A	N/A
EP-52	PRK Coal/Coke Day Bins	RM	N/A	N/A
EP-990	Loading - Coal	NW		Full PTE
EP-991	Loading - Coke	NW		Full PTE
EP-992	Hopper	NW		Full PTE
EP-993	Feeder	NW		Full PTE
EP-994	Conveyor	NW		Full PTE
EP-995	Coal Silo	NW		Full PTE
EP-996	Coke Silo	NW		Full PTE
EP-997	Weigh feeder - Coal	NW		Full PTE
EP-998	Weigh Feeder - Coke	NW		Full PTE
EP-999	Conveyor	NW		Full PTE
EP-1000	Fuel Mill	NW		Full PTE
EP-1001	Pulverized Coal Silo	NW		Full PTE
EP-1002	Pulverized Coke Silo	NW		Full PTE

EI = Emissions Increase; PAE = Project Actual Emissions; COA = Capable of Accommodating; PTE = Potential Emissions

Ms. Kimberly Bauman
Director - Environmental Affairs
Mississippi Lime Company
3870 South Lindbergh Boulevard, Suite 200
St. Louis, MO 63127

RE: New Source Review Permit - Project Number: 2013-08-040

Dear Ms. Bauman:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. 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 Gerad Fox, at the Department of Natural Resources' 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

Susan Heckenkamp
New Source Review Unit Chief

SH:gfk

Enclosures

c: Southeast Regional Office
PAMS File: 2013-08-040

Permit Number: