

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: **082012-001**

Project Number: 2012-03-034
Installation ID: 211-0023

Parent Company: Twin States Limestone LLC

Parent Company Address: 48878 Sage Road #4, Milan, MO 63556

Installation Name: Twin States Limestone LLC - Reger Quarry

Installation Address: 48878 Sage Road #4, Milan, MO 63556

Location Information: Sullivan County, S36, T62N, R21W

Application for Authority to Construct was made for:
The conversion of Twin States Limestone LLC's portable rock crushing plant to a stationary rock crushing plant. Twin States Limestone LLC is also replacing their primary rock crusher and including two diesel generators that were not previously permitted. 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.

AUG 01 2012

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 this (these) air contaminant source(s). 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 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.

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SITE SPECIFIC 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."

1. **Superseding Condition**
The conditions of this permit supersede all special conditions found in the previously issued Construction Permit 042010-001 from the Air Pollution Control Program.
2. **Best Management Practices Requirement**
Twin States Limestone LLC - Reger Quarry shall control fugitive emissions from all of the haul roads and vehicular activity areas at this site by performing Best Management Practices as defined in Attachment AA.
3. **Ambient Air Impact Limitation**
 - A. Twin States Limestone LLC - Reger Quarry shall not cause an exceedance of the National Ambient Air Quality Standard (NAAQS) for particulate matter less than ten microns in aerodynamic diameter (PM_{10}) of $150.0 \mu\text{g}/\text{m}^3$ 24-hour average in ambient air.
 - B. Twin States Limestone LLC - Reger Quarry shall demonstrate compliance with Special Condition 3.A using Attachment A and Attachment B or other equivalent forms that have been approved by the Air Pollution Control Program, including an electronic forms. Twin States Limestone LLC - Reger Quarry shall account for the impacts from other sources of PM_{10} as instructed in the attachments.
 - C. Twin States Limestone LLC - Reger Quarry is exempt from the requirements of Special Condition 3.B when no other plants are operating at this site.
4. **Annual Emission Limit**
 - A. Twin States Limestone LLC - Reger Quarry shall emit less than 40.0 tons of Nitrogen Oxides (NO_x) in any 12-month period from the entire installation.
 - B. Twin States Limestone LLC - Reger Quarry shall demonstrate compliance with Special Condition 4.A. using Attachment C or another equivalent form that has been approved by the Air Pollution Control Program, including an electronic form.
5. **Moisture Content Testing Requirement**
 - A. Twin States Limestone LLC - Reger Quarry shall verify that the moisture content of the processed rock is greater than or equal to 1.5 percent by weight.

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SITE SPECIFIC SPECIAL CONDITIONS:

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

- 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.
 - D. The test samples shall be taken from rock that has been processed by the plant or from each source of aggregate (e.g. quarry).
 - E. 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 Twin States Limestone LLC - Reger Quarry main office within 30 days of completion of the required test.
 - F. If the moisture content of either of the two tests is less than the moisture content in Special Condition 5.A., another test may be performed within 15 days of the noncompliant test. If the results of that test also exceed the limit, Twin States Limestone LLC - Reger Quarry shall either:
 - 1) Apply for a new permit to account for the revised information, or
 - 2) Submit a plan for the installation of wet spray devices to the Air Pollution Control Program Compliance Assistance section within ten days of the second noncompliant test. The wet spray devices shall be installed and operational within 40 days of the second noncompliant test.
6. **Minimum Distance to Property Boundary Requirement**
The primary emission unit shall be located at least 500 feet from the nearest property boundary.
7. **Primary Equipment Requirement**
Twin States Limestone LLC - Reger Quarry shall process all rock through the primary screen (EU-5). Bypassing the primary screen is prohibited.
8. **Record Keeping Requirement**
Twin States Limestone LLC - Reger Quarry shall maintain all records required by this permit for not less than five years and make them available to any Missouri Department of Natural Resources personnel upon request.
9. **Reporting Requirement**
Twin States Limestone LLC - Reger Quarry shall report to the Air Pollution Control Program Enforcement Section P.O. Box 176, Jefferson City, MO 65102, no later than ten days after any exceedances of the limitations imposed by this permit.

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

Project Number: 2012-03-034
Installation ID Number: 211-0023
Permit Number:

Twin States Limestone LLC - Reger Quarry
48878 Sage Road #4
Milan, MO 63556

Complete: March 12, 2012

Parent Company:
Twin States Limestone LLC
48878 Sage Road #4
Milan, MO 63556

Sullivan County, S36, T62N, R21W

PROJECT DESCRIPTION

Twin States Limestone LLC (Twin States) has requested that their current portable rock crushing plant (PORT-0646) be converted to a stationary plant. Twin States is also replacing the primary crusher at the plant and is including two diesel engines that were not included in the previous permit. The maximum hourly design of the stationary rock crushing plant is 140 tons of rock crushed per hour. This rate is based on the maximum hourly design of the deck screen (EU-05). The deck screen will be considered the primary emission unit with all rock that is processed by the plant being processed through this emission unit. The rock crushing plant will be powered by one 300 horsepower (HP), one 200 HP, and one 135 HP diesel engine. Currently there are no other plants at this site but this permit does allow concurrent operation with both same and separate owner plants. Twin States currently does not have an operating permit but is required to submit an application for a basic operating within 30 days of the issuance of this permit.

The applicant is using one of the methods described in Attachment AA, "Best Management Practices", to control emissions from haul roads and vehicular activity areas.

This installation is located in Sullivan County, an attainment area for all criteria pollutants.

This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.

TABLES

The following permits have been issued to Twin States Limestone LLC - Reger Quarry from the Air Pollution Control Program.

Table 1: Permit History

Permit Number	Description
042010-001	Portable Rock Crushing Plant

The table below summarizes the emissions of this project. The potential emissions of the process equipment, which excluded emissions from haul roads and wind erosion, are site specific should not vary from site to site. The existing actual emissions were taken from the previous year's EIQ. The potential emissions of the application represent the emissions of all equipment and activities assuming continuous operation (8760 hours per year). The conditioned potential emissions include emissions from sources that will limit their production to ensure compliance with the annual emission limit.

Table 2: Emissions Summary (tons per year)

Air Pollutant	De Minimis Level/SMAL	^a Existing Potential Emissions	Existing Actual Emissions (2010 EIQ)	^b Potential Emissions of the Application	^c Conditioned Potential Emissions
PM	25.0	N/D	N/D	46.80	20.99
PM ₁₀	15.0	7.14	0.19	22.38	10.04
PM _{2.5}	10.0	N/D	N/D	10.68	4.79
SO _x	40.0	2.00	N/D	5.86	2.63
NO _x	40.0	30.47	N/D	89.18	<40.00
VOC	40.0	2.49	N/D	7.28	3.27
CO	100.0	6.56	N/D	19.21	8.62
Total HAPs	25.0	0.03	N/D	0.08	0.04

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

^aExisting Potential Emission are the potential emissions of PORT-0646 as listed in permit number 042010-001

^bPotential Emissions of the Application include the emissions of the entire plant.

^cConditioned Potential Emissions are based on a voluntary 40.0 ton per year NO_x limit to avoid dispersion modeling requirements found in 10 CSR 10-6.060 Section (6). All other pollutants were proportionally reduced.

Table 3: Ambient Air Quality Impact Analysis

Pollutant	^a NAAQS (µg/m ³)	Averaging Time	^b Maximum Modeled Impact (µg/m ³)	Limited Impact (µg/m ³)	Background (µg/m ³)	^c Daily Limit (tons/day)
^d PM ₁₀ (same)	150.0	24-hour	118.28	N/A	20.0	N/A
^e PM ₁₀ (separate)	150.0	24-hour	N/A	65.0	85.0	2,085

^aNational Ambient Air Quality Standards (NAAQS) and Risk Assessment Level (RAL)

^bModeled impact at maximum capacity with controls

^cThe daily limit is an indirect limit based on solitary operation of the stationary plant and compliance with the NAAQS.

^dSolitary operation or operation with other plants that are owned by Twin States Limestone LLC

^eOperation with other plants that are not owned by Twin States Limestone LLC

EMISSIONS CALCULATIONS

Emissions for the project were calculated using emission factors found in the United States Environmental Protection Agency (EPA) document AP-42 *Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources*, Fifth Edition (AP-42).

Emissions from the rock-crushing equipment were calculated using emission factors from AP-42 Section 11.19.2 “Crushed Stone Processing and Pulverized Mineral Processing”, August 2004. The controlled emission factors were used because the inherent moisture content of the crushed rock is greater than 1.5 percent (%) by weight.

Emissions from the diesel engines/generators were calculated using emission factors from AP-42 Section 3.3 Gasoline and Diesel Industrial Engines,” October 1996.

Emissions from haul roads and vehicular activity areas were calculated using the predictive equation from AP-42 Section 13.2.2 “Unpaved Roads”, November 2006. A 90% control efficiency is applied to the emission calculations for the use of BMPs. Emissions from load-in and load-out of storage piles were calculated using the predictive equation from AP-42 Section 13.2.4. The moisture content of the aggregate is 1.5% weight. Emissions from wind erosion of storage piles were calculated using an equation found in the Air Pollution Control Program’s Emissions Inventory Questionnaire Form 2.8 “Storage Pile Worksheet”.

AMBIENT AIR QUALITY IMPACT ANALYSIS

An ambient air quality impact analysis (AAQIA) was performed to determine the impact of the pollutants listed in Table 3. The Air Pollution Control Program requires an AAQIA of PM₁₀ for all asphalt, concrete and rock-crushing plants regardless of the level of PM₁₀ emissions if a permit is required. An AAQIA is required for other pollutants if their emissions exceed their respective de minimis or screening model action level (SMAL). The AAQIA was performed using the Air Pollution Control Program’s generic nomographs and when appropriate the EPA modeling software AERSCREEN. For

each pollutant that was modeled, the maximum concentration that occurs at or beyond the site boundary was compared to the National Ambient Air Quality Standard (NAAQS) or Risk Assessment Level (RAL) for the pollutant. If during continuous operation the modeled concentration of a pollutant is greater than the applicable NAAQS or RAL, the plant's production is limited to ensure compliance with the standard.

This plant uses BMPs to control emissions from haul roads and vehicular activity areas, so emissions from these sources were not included in the AAQIA. Instead they were addressed as a background concentration of 20 $\mu\text{g}/\text{m}^3$ of PM_{10} in accordance with the Air Pollution Control Program's BMPs interim policy.

OPERATING SCENARIOS

The plant is permitted to operate with other plants located at the site as long as the NAAQS is not exceeded. The following scenarios explain how Twin States Limestone LLC - Reger Quarry shall demonstrate compliance with the NAAQS.

- When no other plants are located at this site Twin States Limestone LLC does not have to calculate the daily impact of their stationary rock crushing plant.
- When plants that are owned by Twin States Limestone LLC, which are referred to as same owner plants, are located at the site, Twin States Limestone LLC must calculate the daily impact of each plant and limit the total impact of all plants below the NAAQS using Attachment A.
- When plants that are not owned by Twin States Limestone LLC, which are referred to as separate owner plants, are located at the site, Twin States Limestone LLC must account for the impacts of these plants as a background concentration and add it to the total impact of all plants owned by Twin States Limestone LLC that are operating at the site. This total is limited below the NAAQS. Twin States Limestone LLC will limit the total impact of all plants they own and operate at the site to 65 $\mu\text{g}/\text{m}^3$ when any plants they do not own are located at the site. Twin States Limestone LLC - Reger Quarry is not permitted to operate with any plant that is not owned by Twin States Limestone LLC that has a separate owner background greater than 65.0 $\mu\text{g}/\text{m}^3$. During this scenario, Twin States Limestone LLC - Reger Quarry shall use Attachment B to demonstrate compliance with the NAAQS.

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 NO_x are conditioned below the de minimis level.

APPLICABLE REQUIREMENTS

Twin States Limestone LLC - Reger Quarry 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.
- A Basic Operating Permit application is required for this installation within 30 days of equipment startup.
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

SPECIFIC REQUIREMENTS

- New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart OOO, *Standards of Performance for Nonmetallic Mineral Processing Plants* applies to this installation.
- National Emission Standards for Hazardous Air Pollutants for Source Categories (MACTS) 40 CFR Part 63, Subpart ZZZZ, *National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines* applies to the diesel engines at this installation.
- *Restriction of Emission of Sulfur Compounds*, 10 CSR 10-6.260

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
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated March 9, 2012, received March 12, 2012, designating Twin States Limestone LLC as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

Attachment AA: Best Management Practices

Haul roads and vehicular activity areas shall be maintained in accordance with at least one of the following options when the portable plant is operating.

1. Pavement
 - A. The operator shall pave the area with materials such as asphalt, concrete or other materials approved by the Air Pollution Control Program. The pavement will be applied in accordance with industry standards to achieve control of fugitive emissions¹ while the plant is operating.
 - B. Maintenance and repair of the road surface will be conducted as necessary to ensure that the physical integrity of the pavement is adequate to achieve control of fugitive emissions from these areas while the plant is operating.
 - C. The operator shall periodically wash or otherwise clean all of the paved portions of the haul roads as necessary to achieve control of fugitive emissions from these areas while the plant is operating.

2. Application of Chemical Dust Suppressants
 - A. The operator shall apply a chemical dust suppressant (such as magnesium chloride, calcium chloride, lignosulfonates, etc.) to unpaved areas.
 - B. The quantities of the chemical dust suppressant shall be applied and maintained in accordance with the manufacture's recommendation (if available) and in sufficient quantities to achieve control of fugitive emissions from these areas while the plant is operating.
 - C. The operator shall record the time, date and the amount of material applied for each application of the chemical dust suppressant agent on the above areas. The operator shall keep these records with the plant for not less than five (5) years and make these records available to Department of Natural Resources personnel upon request.

3. Application of Water-Documented Daily
 - A. The operator shall apply water to unpaved areas. Water shall be applied at a rate of 100 gallons per day per 1,000 square feet of unpaved or untreated surface area while the plant is operating.
 - B. Precipitation may be substituted for watering if the precipitation is greater than one quarter of one inch and is sufficient to control fugitive emissions.
 - C. Watering may also 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.
 - D. The operator shall record the date, volume of water application and total surface area of active haul roads or the amount of precipitation that day. The operators shall also record the rationale for not watering (e.g. freezing conditions or not operating).
 - E. The operator shall keep these records with the plant for not less than five (5) years, and the operator shall make these records available to Department of Natural Resources personnel upon request.

¹For purposes of this document, Control of Fugitive Emissions means to control particulate matter that is not collected by a capture system and visible emissions to the extent necessary to prevent violations of the air pollution law or regulation. (Note: control of visible emission is not the only factor to consider in protection of ambient air quality.)

Mr. Pat Swan
Managing Member
Twin States Limestone LLC - Reger Quarry
48878 Sage Road #4
Milan, MO 63556

RE: New Source Review Permit - Project Number: 2012-03-034

Dear Mr. Swan:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions on the accompanying pages. The document entitled, "Review of Application for Authority to Construct", is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions, your new source review permit application and with your operating permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact Gerad Fox, at the department's Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102, or by telephone at (573) 751-4817. Thank you for your time and attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp
New Source Review Unit Chief

SH:gfk

Enclosures

c: Northeast Regional Office
PAMS File: 2012-03-034

Permit Number: