PERMIT BOOK

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: 042010-001 Project Number: 2009-10-004

Parent Company: Twin States Limestone LLC

Parent Company Address: 27453 210th Avenue, Cincinnati, IA 52549

Installation Name: Twin States Limestone LLC

Installation ID: PORT-0646

Installation Address: Highway Z & Sage Road, Reger, MO 63556

Location Information: Sullivan County, S36, T62N, R21W

Application for Authority to Construct was made for:
A new portable rock crushing plant. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required.*

☐ Standard Conditions (on reverse) are applicable to this permit.

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

APR 05 2010

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 devises 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 start up of this (these) air contaminant sources(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 start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant 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.

GENERAL 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. Equipment Identification Requirement
   Twin States Limestone LLC shall maintain easily read permanent markings on each component of the plant. These markings shall be the equipment's serial number or a company assigned identification number that uniquely identifies the individual component. These identification numbers must be submitted to the Air Pollution Control Program no later than 15 days after start-up of the portable rock crushing plant.

2. Relocation of Portable Rock Crushing Plant
   A. Twin States Limestone LLC shall not be operated at any location longer than 24 consecutive months.

   B. A complete "Portable Source Relocation Request" application must be submitted to the Air Pollution Control Program prior to any relocation of this portable rock crushing plant.
      1.) If the portable rock crushing plant is moving to a site previously permitted, and if the circumstances at the site have not changed, then the application must be received by the Air Pollution Control Program at least seven days prior to the relocation.
      2.) If the portable rock crushing plant is moving to a new site, or if circumstances at the site have changed (e.g. the site was only permitted for solitary operation and now another plant is located at the site), then the application must be received by the Air Pollution Control Program at least 21 days prior to the relocation. The application must include written notification of any concurrently operating plants.

3. Record Keeping Requirement
   Twin States Limestone LLC shall maintain all records required by this permit for not less than five years and shall make them available to any Missouri Department of Natural Resources' personnel upon request.

4. Reporting Requirement
   Twin States Limestone LLC 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.

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."

PORT ID Number: PORT-0646
Site ID Number: 211-0023
Site Name: Reger Quarry
Site Address: Highway Z & Sage Road, Reger, MO 63556
Site County: Sullivan S36, T62N, R21W

1. Best Management Practices Requirement
   Twin States Limestone LLC 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.

2. Ambient Air Impact Limitation
   A. Twin States Limestone LLC 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 $\mu g/m^3$ 24-hour average in ambient air.

   B. Twin States Limestone LLC shall demonstrate compliance with special condition 2.A using Attachment A or another equivalent form that has been approved by the Air Pollution Control Program, including an electronic form. Twin States Limestone LLC PORT-0646 is prohibited from operating with other plants at this site.

3. Moisture Content Testing Requirement
   A. Twin States Limestone LLC shall verify that the moisture content of the processes rock is greater than or equal to 1.5% 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 within 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.

SITE SPECIFIC SPECIAL CONDITIONS:

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

D. The test samples shall be taken from rock that has been processed by the plant or from each original 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 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 3.A, another test may be performed with 15 days of the noncompliant test. If the results of that test also exceed the limit, Twin States Limestone LLC 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 10 days of the second noncompliant test. The wet spray devices shall be installed and operational within 40 days of the second noncompliant test.

G. In lieu of testing, Twin States Limestone LLC may obtain test results of the supplier of the aggregate that demonstrate compliance with the moisture content in special condition 3.A.

4. Minimum Distance to Property Boundary Requirement
The primary emission unit (deck screen EU-08) shall be located at least 200 feet from the nearest property boundary. Bypassing the primary emission unit for processing is prohibited.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW
Project Number: 2009-10-004
Installation ID Number: PORT-0646
Permit Number:

Twin States Limestone LLC
Highway Z & Sage Road
Reger, MO 63556

Complete: October 16, 2009

Parent Company:
Twin States Limestone LLC
27453 210th Avenue
Cincinnati, IA 52549

Sullivan County, S36, T62N, R21W

PROJECT DESCRIPTION

Twin States Limestone, LLC is constructing a new portable rock crushing plant (PORT-0646) at Reger Quarry. The plant is rated at 120 tons per hour and is powered by a 335 horsepower diesel generator. The plant itself has no control devices. Site specifically, the plant will crush rock greater than or equal to 1.5% moisture content by weight and use BMPs as controls. No other plants are permitted for the site.

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. No permits have been issued to Twin States Limestone LLC from the Air Pollution Control Program for PORT-0646.

TABLES

The table below summarizes the emissions of this project. The potential emissions of process equipment excludes emissions from haul roads and wind erosion, which are site specific, and should not vary from site to site. The potential emissions of the application represent the emissions of all equipment and activities assuming continuous operation (8,760 hours per year). The conditioned potential emissions are an indirect limit based on the NAAQS requirement.

Table 1: Emissions Summary (tons per year)

Air Pollutant	De Minimis Level	Existing Potential Emissions	Potential Emissions of the Process Equipment	Potential Emissions of the Application	Conditioned Potential Emissions
PM_{10}	15.0	N/A	4.41	11.00	7.14
SO_X	40.0	N/A	3.09	3.09	2.00
NO_X	40.0	N/A	47.02	47.02	30.47
VOC	40.0	N/A	3.84	3.84	2.49
CO	100.0	N/A	10.13	10.13	6.56
Total HAPs	25.0	N/A	0.04	0.04	0.03

N/A = Not Applicable

Table 2: Ambient Air Quality Impact Analysis (solitary operation)

Pollutant	Minimum Distance from Property Boundary (feet)	[2]NAAQS ($\mu g/m^3$)	[3]Maximum Modeled Impact ($\mu g/m^3$)	Limited Impact ($\mu g/m^3$)	Background ($\mu g/m^3$)	[4]Daily Limit (tons/day)
[1]PM_{10}	200	150.0	220.24	130.0	20.0	1,865.89

[1]Solitary operation.
[2]National Ambient Air Quality Standards (NAAQS).
[3]Modeled impact at maximum capacity with controls.
[4]Indirect limit based on compliance with NAAQS.

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% weight. Emissions from the diesel generator 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, “Aggregate Handling and Storage Piles” November 2006. The moisture content of the aggregate is 1.5% by 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 PM_{10}. The Air Pollution Control Program requires an AAQIA of PM_{10} for all asphalt, concrete and rock-crushing plants regardless of the level of PM_{10} emissions if a permit is required. The AAQIA was performed using the Air Pollution Control Program's generic nomographs. For the property boundary distance of 200 feet, the maximum concentration that occurs at or beyond the boundary was compared to the National Ambient Air Quality Standard (NAAQS) for PM_{10}. When the plant operates continuously at this distance, the modeled concentration of PM_{10} is greater than the NAAQS, so the plant's production was limited to ensure compliance with the NAAQS.

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 $\mu g/m^3$ of PM_{10} in accordance with the Air Pollution Control Program's BMPs interim policy.

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 de minimis levels by compliance with the PM_{10} NAAQS.

APPLICABLE REQUIREMENTS

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

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information,* 10 CSR 10-6.110. The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required June 1 for the previous year's emissions.

- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170

- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220

- *Restriction of Emission of Odors*, 10 CSR 10-3.090

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400

- 40 CFR 60 Subpart OOO, "Standards of Performance for Nonmetallic Mineral Processing Plants" applies to the equipment.

- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPS) or National Emission Standards for Hazardous Air Pollutants for Source Categories (MACTS) apply to the proposed equipment.

- *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.

_____ _____

David Little Date
Environmental Engineer

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated October 1, 2009, received October 2, 2009, 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.

- Northeast Regional Office Site Survey, dated October 22, 2009.

Attachment A: Ambient Impact Tracking Sheet

Twin States Limestone LLC PORT-0646
Project Number: 2009-10-004

Site Name: Reger Quarry
Site Address: Highway Z & Sage Road, Reger MO, 63556
Site County: Sullivan County, S36, T62N, R21W

This sheet covers the period from ____________________ to ____________________ (Copy as needed)
(Month, Day Year) (Month, Day Year)

	Twin States Limestone LLC PORT-0646 Project 2009-10-004			Same Owner Plant Plant Name: Plant ID: Permit #:	Same Owner Plant Plant Name: Plant ID: Permit #:	Separate Owner Plant Plant Name: Plant ID: Permit #:		
Date	Daily Production (tons)	Impact Factor (µg/m^{3}ton)	Impact[1] (µg/m^3)	Impact (µg/m^3)	Impact (µg/m^3)	Impact (µg/m^3)	Back-ground (µg/m^3)	Total Impact[2] (µg/m^3)
Example	*1,200*	*0.06967*	*83.60*	*N/A*	*N/A*	*N/A*	*20.0*	*103.60*
		0.06967		*N/A*	*N/A*	*N/A*	20.0	
		0.06967		*N/A*	*N/A*	*N/A*	20.0	
		0.06967		*N/A*	*N/A*	*N/A*	20.0	
		0.06967		*N/A*	*N/A*	*N/A*	20.0	
		0.06967		*N/A*	*N/A*	*N/A*	20.0	
		0.06967		*N/A*	*N/A*	*N/A*	20.0	
		0.06967		*N/A*	*N/A*	*N/A*	20.0	
		0.06967		*N/A*	*N/A*	*N/A*	20.0	
		0.06967		*N/A*	*N/A*	*N/A*	20.0	
		0.06967		*N/A*	*N/A*	*N/A*	20.0	
		0.06967		*N/A*	*N/A*	*N/A*	20.0	
		0.06967		*N/A*	*N/A*	*N/A*	20.0	
		0.06967		*N/A*	*N/A*	*N/A*	20.0	
		0.06967		*N/A*	*N/A*	*N/A*	20.0	
		0.06967		*N/A*	*N/A*	*N/A*	20.0	
		0.06967		*N/A*	*N/A*	*N/A*	20.0	
		0.06967		*N/A*	*N/A*	*N/A*	20.0	
		0.06967		*N/A*	*N/A*	*N/A*	20.0	
		0.06967		*N/A*	*N/A*	*N/A*	20.0	
		0.06967		*N/A*	*N/A*	*N/A*	20.0	

[1]Calculate the impact for PORT-0646 by multiplying the daily production by the impact factor.
[2]Calculate the total impact by adding the impact and background. A total of 150.0 µg/m^3 or less is necessary for compliance.

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 emissions[1] 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 rational 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.

For 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.)

Attachment BB: Emission Calculations
Twin States Limestone LLC
2009-10-004

Emission Unit	Description	[1]MHDR	MHDR Units	[2]PM_{10} EF	EF Units	Control Eff.%	Emissions (lb/hr)	[3]Modeling Rate (lb/hr)
EU 01	Storage Pile Load In	120.0000	Tons	0.011991	Tons	90.00	0.1439	0.093226087
EU 01	Storage Pile Wind Erosion	0.5000	Acres	0.089166	Acres	90.00	0.0045	0.002888451
EU 01	Storage Pile Vehicular Activity	120.0000	Tons	0.011540	Tons	90.00	0.1385	0.089722122
EU 01	Storage Pile Load Out	120.0000	Tons	0.011991	Tons	90.00	0.1439	0.093226087
EU 02	Haul Road - Pit to Crusher	1.2626	VMT	1.840658	VMT	90.00	0.2324	0.150571334
EU 03	Haul Road - Crusher to Customer	1.8939	VMT	2.176721	VMT	90.00	0.4123	0.267093472
EU 04	Apron Feeder	120.0000	Tons	0.000016	Tons	0.00	0.0019	0.001243929
EU 05	Jaw Crusher	120.0000	Tons	0.002400	Tons	75.00	0.0720	0.046647347
EU 06	Under Conveyor	120.0000	Tons	0.001100	Tons	95.80	0.0055	0.003591846
EU 07	Over Conveyor	120.0000	Tons	0.001100	Tons	95.80	0.0055	0.003591846
EU 08	Deck Screen	120.0000	Tons	0.008700	Tons	91.50	0.0887	0.057492856
EU 09	Roller Crusher	120.0000	Tons	0.002400	Tons	75.00	0.0720	0.046647347
EU 10	Under Conveyor	120.0000	Tons	0.001100	Tons	95.80	0.0055	0.003591846
EU 11	18" Conveyor to Pile 2	60.0000	Tons	0.011991	Tons	90.00	0.0719	0.046613044
EU 11	Storage Pile 2 Wind Erosion	0.2500	Acres	0.089166	Acres	90.00	0.0022	0.001444226
EU 11	Storage Pile 2 Vehicular Activity	60.0000	Tons	0.011540	Tons	90.00	0.0692	0.044861061
EU 11	Storage Pile 2 Load Out	60.0000	Tons	0.011991	Tons	90.00	0.0719	0.046613044
EU 12	24" Conveyor to Pile 3	60.0000	Tons	0.011991	Tons	90.00	0.0719	0.046613044
EU 12	Storage Pile 3 Wind Erosion	0.2500	Acres	0.089166	Acres	90.00	0.0022	0.001444226
EU 12	Storage Pile 3 Vehicular Activity	60.0000	Tons	0.011540	Tons	90.00	0.0692	0.044861061
EU 12	Storage Pile 3 Load Out	60.0000	Tons	0.011991	Tons	90.00	0.0719	0.046613044
EU 13	Cummins NT855P335	0.0178	Mgal	42.470000	Mgal	0.00	0.7547	0.48895023

[1]Maximum Hourly Design Rate (MHDR)
[2]Emission Factor (EF)
[3]The Modeling Rate is the emission rate scaled to the daily hours of operation at MHDR allowed by the permit.