

# 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:

012016-009

Project Number: 2015-10-015

Installation ID: PORT-0727

Parent Company: Magruder Companies

Parent Company Address: 255 Watson Road, Troy, MO 63379

Installation Name: Magruder Limestone Co., Inc.

Installation Address: 255 Watson Road, Troy, MO 63379

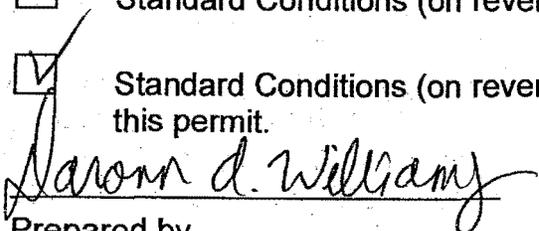
Location Information: Lincoln County, S2 T50N R1W

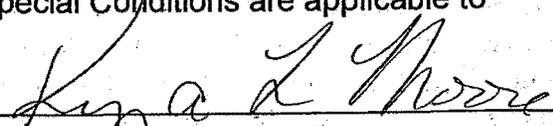
Application for Authority to Construct was made for:

The installation of a new portable generic rock-crushing plant (referred to as IROCK # 2 plant) at various quarries owned by Magruder Companies. This review was conducted in accordance with Section (6), 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.

  
Prepared by  
Daronn A. Williams  
New Source Review Unit

  
Director or Designee  
Department of Natural Resources

JAN 25 2016

Effective Date

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

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

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

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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Project No.	2015-10-015

**GENERAL SPECIAL CONDITIONS:**

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

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*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**  
Magruder Limestone Co., Inc. 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.
2. **Relocation of Portable Rock Crushing Plant**
  - A. Magruder Limestone Co., Inc. shall not be operated at any location longer than 24 consecutive months except if the Site Specific Special Conditions of this portable plant, PORT-0727, contain a nonroad engine requirement limiting the portable plant at the site specific location to 12 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**  
Magruder Limestone Co., Inc. 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**  
Magruder Limestone Co., Inc. shall report to the Air Pollution Control Program Enforcement Section P.O. Box 176, Jefferson City, MO 65102, no later than 10 days after any exceedances of the limitations imposed by this permit.

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**SITE SPECIFIC SPECIAL CONDITIONS:**

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

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*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-0727

Site ID Number: 113-0031  
Site Name: Troy Quarry  
Site Address: 255 Watson Road, Troy, MO 63379  
Site County: Lincoln County, S2 T50N R1W

Site ID Number: 113-0075  
Site Name: Foley Quarry  
Site Address: 399 Old Highway 79, Foley, MO 63347  
Site County: Lincoln County, S2 T50N R2E

Site ID Number: 113-0060  
Site Name: Silex Quarry  
Site Address: 330 Highway E, Silex, MO 63377  
Site County: Lincoln County, S2 & 11 T50N R1W

Site ID Number: 163-0022  
Site Name: Ashley Quarry  
Site Address: 13614 Pike 496, Bowling Green, MO 63334  
Site County: Pike County, S27 & 28 T52N R3W

Site ID Number: 163-0005  
Site Name: Frankford Quarry  
Site Address: 6589 Old Highway 61, Frankford, MO 63441  
Site County: Pike County, S35 & 36 T55N R4W

Site ID Number: 205-0029  
Site Name: Shelbina Quarry  
Site Address: 5799 Shelby 334, Shelbyville, MO 63469  
Site County: Shelby County, S9 T57N R10W

Site ID Number: 131-0038  
Site Name: Lake Ozark/Prewitt Quarry  
Site Address: 401 Wood River Rd., Lake Ozark, MO 65049  
Site County: Miller County, S33 T40N R15W

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Project No.	2015-10-015

**SITE SPECIFIC SPECIAL CONDITIONS:**

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

Site ID Number: 029-0050

Site Name: Sunrise Quarry

Site Address: 12729 North State Highway 5, Sunrise Beach, MO 65079

Site County: Camden County, S9 T39N R17W

Site ID Number: 163-0043

Site Name: Bowling Green Quarry

Site Address: 11190 Highway 54, Bowling Green, MO 63334

Site County: Pike County, S20 T53N R3W

1. **Best Management Practices Requirement**  
Magruder Limestone Co., Inc. shall control fugitive emissions from all of the haul roads and vehicular activity areas at this site by performing BMPs as defined in Attachment AA.
  
2. **Ambient Air Impact Limitation**
  - A. Magruder Limestone Co., Inc. shall not cause an exceedance of the NAAQS for PM<sub>10</sub> of 150.0 µg/m<sup>3</sup> 24-hour average in ambient air.
  
  - B. Magruder Limestone Co., Inc. shall demonstrate compliance with Special Condition 2.A using Attachment A or other equivalent forms that have been approved by the Air Pollution Control Program, including electronic forms. Magruder Limestone Co., Inc. shall account for the impacts from other sources of PM<sub>10</sub> as instructed in the attachments.
  
3. **Annual Emission Limit**
  1. Magruder Limestone Co., Inc. shall emit less than 10.0 tons of PM<sub>2.5</sub> in any 12-month period from this portable plant at each of the following sites: Troy, Silex, Ashley, Frankford, Lake Ozark/Prewitt and Sunrise Beach Quarry.
  
  - B. Magruder Limestone Co., Inc. shall demonstrate compliance with Special Condition 3.A using a separate Attachment B, or another equivalent form that has been approved by the Air Pollution Control Program, including an electronic form, for each site. Magruder Limestone Co., Inc. shall use the PM<sub>2.5</sub> emission factor for the corresponding site as listed in the table below.

Table 1: PM<sub>2.5</sub> Emission Factors for Record Keeping

Site Name	PM <sub>2.5</sub> emission factors
Troy Quarry	0.0198 lb/ton
Silex Quarry	0.0247 lb/ton
Ashley Quarry	0.0302 lb/ton
Frankford Quarry	0.0154 lb/ton
Lake Ozark/Prewitt Quarry	0.0203 lb/ton
Sunrise Beach Quarry	0.0154 lb/ton

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**SITE SPECIFIC SPECIAL CONDITIONS:**

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

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- C. Magruder Limestone Co., Inc. shall emit less than 40.0 tons of NO<sub>x</sub> in any 12-month period from this portable plant at each of the following sites: Bowling Green, Shelbina and Foley Quarry.
  - D. Magruder Limestone Co., Inc. shall demonstrate compliance with Special Condition 3.C using Attachment C or another equivalent form that has been approved by the Air Pollution Control Program, including an electronic form.
4. Moisture Content Testing Requirement
- A. Magruder Limestone Co., Inc. shall verify that the moisture content of the processed rock at each site listed in this permit is greater than or equal to 1.5 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.
  - 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 Magruder Limestone Co., Inc. 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 4.A, another test may be performed within 15 days of the noncompliant test. If the results of that test is less than the moisture content in Special Condition 4.A, Magruder Limestone Co., Inc. 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 Compliance/Enforcement Section of the Air Pollution Control Program 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, Magruder Limestone Co., Inc. may obtain test results that demonstrate compliance with the moisture content in Special Condition 4.A from the supplier of the aggregate.

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**SITE SPECIFIC SPECIAL CONDITIONS:**

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

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5. **Minimum Distance to Property Boundary Requirement**  
The primary crusher (EP-5) shall be located at least 500 feet from the nearest property boundary at each site listed in this permit.
6. **Primary Equipment Requirement**  
Magruder Limestone Co., Inc. shall process all rock processed by PORT-0727 through the primary crusher (EU-5). Bypassing the primary crusher is prohibited.
7. **Concurrent Operation Restriction**  
Magruder Limestone Co., Inc. is prohibited from operating PORT-0727 at the sites listed in this permit whenever plants they do not own are located at the site.
8. **Fuel Requirement – Engines**
  - A. Magruder Limestone Co., Inc. shall burn exclusively low sulfur diesel fuel in their engines (EU-1 and EU-2) with a sulfur content less than or equal to 15 parts per million by weight.
  - B. Magruder Limestone Co., Inc. shall demonstrate compliance with Special Condition 8.A by obtaining records of the fuel's sulfur content from the vendor for each shipment of fuel received or by testing each shipment of fuel for the sulfur content in accordance with the method described in 10 CSR 10-6.040 *Reference Methods*.
  - C. Magruder Limestone Co., Inc. shall keep the records required by Special Condition 8.B with the unit and make them available for Department of Natural Resources' employees upon request.
9. **Record Keeping Requirement**  
Magruder Limestone Co., Inc. 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.
10. **Reporting Requirement**  
Magruder Limestone Co., Inc. shall report to the Air Pollution Control Program, Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than 10 days after any exceedances of the limitations imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE  
SECTION (6) REVIEW

Project Number: 2015-10-015  
Installation ID Number: PORT-0727  
Permit Number:

Parent Company:  
Magruder Companies  
255 Watson Road  
Troy, MO 63379

Complete: October 6, 2015

PROJECT DESCRIPTION

Magruder Limestone Co., Inc. has submitted an Application for Authority to Construct for the installation of PORT-0727, a new portable generic rock-crushing plant (also referred to as IROCK # 2 plant) at following nine quarries owned by Magruder Companies: Troy Quarry (113-0031), Foley Quarry (113-0075), Silex Quarry (113-0060), Ashley Quarry (163-0022), Frankford Quarry (163-0005), Shelbina Quarry (205-0029), Lake Ozark/Prewitt Quarry (131-0038), Sunrise Quarry (029-0050), and Bowling Green Quarry (163-0043). This portable plant has a MHDR of 400 tons per hour and will be powered by two engines, one rated at 520 brake horsepower to power the plant's crusher and one rated at 142 brake horsepower to power the plant's screen. A summary of the emission units associated with this plant is listed below.

Table 2: Equipment Summary

Emission Unit	Equipment Type	MHDR
EP-1	Engine 1	520 brake horsepower
EP-2	Engine 2	142 brake horsepower
EP-3	Storage Pile	400 tons per hour
EP-4	Grizzly Feeder	400 tons per hour
EP-5	Primary Crusher	400 tons per hour
EP-6a, b, c & d	Conveyors	1,600 tons per hour
EP-7	Screen	400 tons per hour
EP-8	Loading into Grizzly	400 tons per hour

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. All of the counties listed in the Site-Specific Special Conditions where this plant will operate have an attainment status for all criteria pollutants. This installation is not on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2].

No permits have been issued to Magruder Limestone Co., Inc.'s PORT-0727 from the Air Pollution Control Program.

## TABLES

The tables below summarize the emissions of this project at each site listed in this permit. The potential emissions of the process equipment, which excluded emissions from haul roads and wind erosion, are not 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 (8760 hours per year). The conditioned potential emissions are based on a voluntary daily PM<sub>10</sub> emission limit to comply with the NAAQS and a voluntary annual limit on either PM<sub>2.5</sub> or NO<sub>x</sub> emissions to avoid refined modeling.

**Table 3: Emissions Summary at Troy Quarry (tons per year)**

Air Pollutant	De Minimis Level	<sup>a</sup> Potential Emissions of Process Equipment	Existing Actual Emissions	<sup>b</sup> Potential Emissions of the Application	Conditioned Potential Emissions
PM	25.0	13.07	N/A	191.90	55.4
PM <sub>10</sub>	15.0	8.70	N/A	66.96	19.3
PM <sub>2.5</sub>	10.0	6.35	N/A	34.65	< 10.0
SO <sub>x</sub>	40.0	5.74	N/A	5.74	1.7
NO <sub>x</sub>	40.0	87.24	N/A	87.24	25.2
VOC	40.0	7.12	N/A	7.12	2.1
CO	100.0	18.79	N/A	18.79	5.4
Total HAPs	25.0	0.08	N/A	0.08	0.02

N/A = Not Applicable

<sup>a</sup> Potential Emissions of Process Equipment exclude haul road and storage pile emissions

<sup>b</sup> Includes site specific haul road and storage pile emissions

**Table 4: Emissions Summary at Foley Quarry (tons per year)**

Air Pollutant	De Minimis Level	<sup>a</sup> Potential Emissions of Process Equipment	Existing Actual Emissions	<sup>b</sup> Potential Emissions of the Application	Conditioned Potential Emissions
PM	25.0	13.07	N/A	83.82	38.43
PM <sub>10</sub>	15.0	8.70	N/A	35.06	16.08
PM <sub>2.5</sub>	10.0	6.35	N/A	15.51	7.11
SO <sub>x</sub>	40.0	5.74	N/A	5.74	2.63
NO <sub>x</sub>	40.0	87.24	N/A	87.24	< 40.00
VOC	40.0	7.12	N/A	7.12	3.27
CO	100.0	18.79	N/A	18.79	8.62
Total HAPs	25.0	0.08	N/A	0.08	0.04

N/A = Not Applicable

<sup>a</sup> Potential Emissions of Process Equipment exclude haul road and storage pile emissions

<sup>b</sup> Includes site specific haul road and storage pile emissions

Table 5: Emissions Summary at Silex Quarry (tons per year)

Air Pollutant	De Minimis Level	<sup>a</sup> Potential Emissions of Process Equipment	Existing Actual Emissions	<sup>b</sup> Potential Emissions of the Application	Conditioned Potential Emissions
PM	25.0	13.07	N/A	240.53	55.4
PM <sub>10</sub>	15.0	8.70	N/A	81.32	18.7
PM <sub>2.5</sub>	10.0	6.35	N/A	43.26	< 10.0
SO <sub>x</sub>	40.0	5.74	N/A	5.74	1.3
NO <sub>x</sub>	40.0	87.24	N/A	87.24	20.1
VOC	40.0	7.12	N/A	7.12	1.6
CO	100.0	18.79	N/A	18.79	4.3
Total HAPs	25.0	0.08	N/A	0.08	0.02

N/A = Not Applicable

<sup>a</sup> Potential Emissions of Process Equipment exclude haul road and storage pile emissions

<sup>b</sup> Includes site specific haul road and storage pile emissions

Table 6: Emissions Summary at Ashley Quarry (tons per year)

Air Pollutant	De Minimis Level	<sup>a</sup> Potential Emissions of Process Equipment	Existing Actual Emissions	<sup>b</sup> Potential Emissions of the Application	Conditioned Potential Emissions
PM	25.0	13.07	N/A	294.57	55.76
PM <sub>10</sub>	15.0	8.70	N/A	97.27	18.41
PM <sub>2.5</sub>	10.0	6.35	N/A	52.83	< 10.0
SO <sub>x</sub>	40.0	5.74	N/A	5.74	1.09
NO <sub>x</sub>	40.0	87.24	N/A	87.24	16.51
VOC	40.0	7.12	N/A	7.12	1.35
CO	100.0	18.79	N/A	18.79	3.56
Total HAPs	25.0	0.08	N/A	0.08	0.01

N/A = Not Applicable

<sup>a</sup> Potential Emissions of Process Equipment exclude haul road and storage pile emissions

<sup>b</sup> Includes site specific haul road and storage pile emissions

Table 7: Emissions Summary at Frankford Quarry (tons per year)

Air Pollutant	De Minimis Level	<sup>a</sup> Potential Emissions of Process Equipment	Existing Actual Emissions	<sup>b</sup> Potential Emissions of the Application	Conditioned Potential Emissions
PM	25.0	13.07	N/A	148.66	55.1
PM <sub>10</sub>	15.0	8.70	N/A	54.20	20.1
PM <sub>2.5</sub>	10.0	6.35	N/A	26.99	< 10.0
SO <sub>x</sub>	40.0	5.74	N/A	5.74	2.1
NO <sub>x</sub>	40.0	87.24	N/A	87.24	32.3
VOC	40.0	7.12	N/A	7.12	2.6
CO	100.0	18.79	N/A	18.79	7.0
Total HAPs	25.0	0.08	N/A	0.08	0.03

N/A = Not Applicable

<sup>a</sup> Potential Emissions of Process Equipment exclude haul road and storage pile emissions

<sup>b</sup> Includes site specific haul road and storage pile emissions

Table 8: Emissions Summary at Shelbina Quarry (tons per year)

Air Pollutant	De Minimis Level	<sup>a</sup> Potential Emissions of Process Equipment	Existing Actual Emissions	<sup>b</sup> Potential Emissions of the Application	Conditioned Potential Emissions
PM	25.0	13.07	N/A	111.38	51.1
PM <sub>10</sub>	15.0	8.70	N/A	43.20	19.8
PM <sub>2.5</sub>	10.0	6.35	N/A	20.39	9.3
SO <sub>x</sub>	40.0	5.74	N/A	5.74	2.6
NO <sub>x</sub>	40.0	87.24	N/A	87.24	< 40.0
VOC	40.0	7.12	N/A	7.12	3.3
CO	100.0	18.79	N/A	18.79	8.6
Total HAPs	25.0	0.08	N/A	0.08	0.04

N/A = Not Applicable

<sup>a</sup> Potential Emissions of Process Equipment exclude haul road and storage pile emissions

<sup>b</sup> Includes site specific haul road and storage pile emissions

Table 9: Emissions Summary at Lake Ozark/Prewitt Quarry (tons per year)

Air Pollutant	De Minimis Level	<sup>a</sup> Potential Emissions of Process Equipment	Existing Actual Emissions	<sup>b</sup> Potential Emissions of the Application	Conditioned Potential Emissions
PM	25.0	13.07	N/A	197.30	55.4
PM <sub>10</sub>	15.0	8.70	N/A	68.56	19.3
PM <sub>2.5</sub>	10.0	6.35	N/A	35.60	< 10.0
SO <sub>x</sub>	40.0	5.74	N/A	5.74	1.6
NO <sub>x</sub>	40.0	87.24	N/A	87.24	24.5
VOC	40.0	7.12	N/A	7.12	2.0
CO	100.0	18.79	N/A	18.79	5.3
Total HAPs	25.0	0.08	N/A	0.08	0.02

N/A = Not Applicable

<sup>a</sup> Potential Emissions of Process Equipment exclude haul road and storage pile emissions

<sup>b</sup> Includes site specific haul road and storage pile emissions

Table 10: Emissions Summary at Sunrise Beach Quarry (tons per year)

Air Pollutant	De Minimis Level	<sup>a</sup> Potential Emissions of Process Equipment	Existing Actual Emissions	<sup>b</sup> Potential Emissions of the Application	Conditioned Potential Emissions
PM	25.0	13.07	N/A	148.12	55.1
PM <sub>10</sub>	15.0	8.70	N/A	54.05	20.1
PM <sub>2.5</sub>	10.0	6.35	N/A	26.89	< 10.0
SO <sub>x</sub>	40.0	5.74	N/A	5.74	2.1
NO <sub>x</sub>	40.0	87.24	N/A	87.24	32.4
VOC	40.0	7.12	N/A	7.12	2.6
CO	100.0	18.79	N/A	18.79	7.0
Total HAPs	25.0	0.08	N/A	0.08	0.03

N/A = Not Applicable

<sup>a</sup> Potential Emissions of Process Equipment exclude haul road and storage pile emissions

<sup>b</sup> Includes site specific haul road and storage pile emissions

Table 11: Emissions Summary at Bowling Green Quarry (tons per year)

Air Pollutant	De Minimis Level	<sup>a</sup> Potential Emissions of Process Equipment	Existing Actual Emissions	<sup>b</sup> Potential Emissions of the Application	Conditioned Potential Emissions
PM	25.0	13.07	N/A	83.82	38.4
PM <sub>10</sub>	15.0	8.70	N/A	35.06	16.1
PM <sub>2.5</sub>	10.0	6.35	N/A	15.51	7.1
SO <sub>x</sub>	40.0	5.74	N/A	5.74	2.6
NO <sub>x</sub>	40.0	87.24	N/A	87.24	< 40.0
VOC	40.0	7.12	N/A	7.12	3.3
CO	100.0	18.79	N/A	18.79	8.6
Total HAPs	25.0	0.08	N/A	0.08	0.04

N/A = Not Applicable

<sup>a</sup> Potential Emissions of Process Equipment exclude haul road and storage pile emissions

<sup>b</sup> Includes site specific haul road and storage pile emissions

Table 12: Ambient Air Quality Impact Analysis for All Sites

Pollutant	NAAQS (µg/m <sup>3</sup> )	Averaging Time	<sup>a</sup> Maximum Modeled Impact (µg/m <sup>3</sup> )	Limited Impact (µg/m <sup>3</sup> )	Background (µg/m <sup>3</sup> )	<sup>b</sup> Daily Production (tons/day)
<sup>c</sup> PM <sub>10</sub> (Same and Solitary)	150.0	24-hour	137.82	130.00	20.0	9,214.5

<sup>a</sup>Modeled impact at maximum capacity with controls

<sup>b</sup>Indirect limit based on compliance with NAAQS, annual emission limit and solitary operation

<sup>c</sup>Solitary operation or operation with other plants that are owned by Magruder Companies

## EMISSIONS CALCULATIONS

Emissions for the project were calculated using emission factors found in the United States 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 equal to or greater than 1.5 % by weight.

Emissions from the diesel engines 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 for PM and PM<sub>10</sub> and a 40% control efficiency for PM<sub>2.5</sub> were 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% 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 the pollutants listed in Table 12. The Air Pollution Control Program requires an AAQIA of PM<sub>10</sub> for all asphalt, concrete and rock-crushing plants regardless of the level of PM<sub>10</sub> emissions if a permit is required. An AAQIA is required for other pollutants if their emissions exceed their respective de minimis or 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 NAAQS or 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.

In cases where the plant is providing material for a highway project and not located at an existing quarry, the ambient impact is evaluated in accordance with a memorandum issued by the Air Pollution Control Program titled "Permitting Asphalt/Concrete Plants for Temporary Highway Projects," dated April 10, 2000. This memorandum states that air quality should be analyzed at the nearest residence or location where the public could reasonably expected to be found instead of all ambient air. This practice generally allows for a less restrictive daily production level while protecting the public.

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 20.0 µg/m<sup>3</sup> of PM<sub>10</sub> 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 Magruder Limestone Co., Inc. shall demonstrate compliance with the NAAQS.

- When PORT-0726 is located at any site listed in this permit by itself or with other plants that are owned by Magruder Companies, which are referred to as same owner plants, Magruder Companies must calculate the daily impact of each plant and limit the total impact of all plants to not exceed the NAAQS using Attachment A.

## PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM and PM<sub>10</sub> are above the de minimis level, but below major source levels.

## APPLICABLE REQUIREMENTS

Magruder Limestone Co., Inc. 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.
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170

### SPECIFIC REQUIREMENTS

- 40 CFR 60 Subpart OOO, "Standards of Performance for Nonmetallic Mineral Processing Plants" applies to rock-crushing equipment.
- 40 CFR 60 Subpart IIII, "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines" applies to the engines.
- 40 CFR 63 Subpart ZZZZ, "National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines" applies to the engines.

## STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (6), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, it is recommend this permit be granted with special conditions.

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated September 30, 2015, received October 6, 2015, designating Magruder Companies as the owner and operator of the installation.







## 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 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 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 manufacturer'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.

## APPENDIX A

### Abbreviations and Acronyms

<b>%</b> .....	percent		
<b>°F</b> .....	degrees Fahrenheit		
<b>acfm</b> .....	actual cubic feet per minute	<b>MMBtu</b> .....	Million British thermal units
<b>BACT</b> .....	Best Available Control Technology	<b>MMCF</b> .....	million cubic feet
<b>BMPs</b> .....	Best Management Practices	<b>MSDS</b> .....	Material Safety Data Sheet
<b>Btu</b> .....	British thermal unit	<b>NAAQS</b> .....	National Ambient Air Quality Standards
<b>CAM</b> .....	Compliance Assurance Monitoring	<b>NESHAPs</b> ..	National Emissions Standards for Hazardous Air Pollutants
<b>CAS</b> .....	Chemical Abstracts Service	<b>NO<sub>x</sub></b> .....	nitrogen oxides
<b>CEMS</b> .....	Continuous Emission Monitor System	<b>NSPS</b> .....	New Source Performance Standards
<b>CFR</b> .....	Code of Federal Regulations	<b>NSR</b> .....	New Source Review
<b>CO</b> .....	carbon monoxide	<b>PM</b> .....	particulate matter
<b>CO<sub>2</sub></b> .....	carbon dioxide	<b>PM<sub>2.5</sub></b> .....	particulate matter less than 2.5 microns in aerodynamic diameter
<b>CO<sub>2e</sub></b> .....	carbon dioxide equivalent	<b>PM<sub>10</sub></b> .....	particulate matter less than 10 microns in aerodynamic diameter
<b>COMS</b> .....	Continuous Opacity Monitoring System	<b>ppm</b> .....	parts per million
<b>CSR</b> .....	Code of State Regulations	<b>PSD</b> .....	Prevention of Significant Deterioration
<b>dscf</b> .....	dry standard cubic feet	<b>PTE</b> .....	potential to emit
<b>EQ</b> .....	Emission Inventory Questionnaire	<b>RACT</b> .....	Reasonable Available Control Technology
<b>EP</b> .....	Emission Point	<b>RAL</b> .....	Risk Assessment Level
<b>EPA</b> .....	Environmental Protection Agency	<b>SCC</b> .....	Source Classification Code
<b>EU</b> .....	Emission Unit	<b>scfm</b> .....	standard cubic feet per minute
<b>fps</b> .....	feet per second	<b>SDS</b> .....	Safety Data Sheet
<b>ft</b> .....	feet	<b>SIC</b> .....	Standard Industrial Classification
<b>GACT</b> .....	Generally Available Control Technology	<b>SIP</b> .....	State Implementation Plan
<b>GHG</b> .....	Greenhouse Gas	<b>SMAL</b> .....	Screening Model Action Levels
<b>gpm</b> .....	gallons per minute	<b>SO<sub>x</sub></b> .....	sulfur oxides
<b>gr</b> .....	grains	<b>SO<sub>2</sub></b> .....	sulfur dioxide
<b>GWP</b> .....	Global Warming Potential	<b>tph</b> .....	tons per hour
<b>HAP</b> .....	Hazardous Air Pollutant	<b>tpy</b> .....	tons per year
<b>hr</b> .....	hour	<b>VMT</b> .....	vehicle miles traveled
<b>hp</b> .....	horsepower	<b>VOC</b> .....	Volatile Organic Compound
<b>lb</b> .....	pound		
<b>lbs/hr</b> .....	pounds per hour		
<b>MACT</b> .....	Maximum Achievable Control Technology		
<b>µg/m<sup>3</sup></b> .....	micrograms per cubic meter		
<b>m/s</b> .....	meters per second		
<b>Mgal</b> .....	1,000 gallons		
<b>MW</b> .....	megawatt		
<b>MHDR</b> .....	maximum hourly design rate		

## APPENDIX A

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Mr. Dan Niederhelm  
Safety Manager  
Magruder Limestone Co., Inc.  
255 Watson Road  
Troy, MO 63379

RE: New Source Review Permit - Permit Number:  
Project Number: 2015-10-015; Installation Number: PORT-0727

Dear Mr. Niederhelm:

The Missouri Air Pollution Control Program received Magruder Limestone Co., Inc.'s Application for Authority to Construct for the installation of PORT-0727, a new portable generic rock-crushing plant at following nine quarries owned by Magruder Companies: Troy Quarry (113-0031), Foley Quarry (113-0075), Silex Quarry (113-0060), Ashley Quarry (163-0022), Frankford Quarry (163-0005), Shelbina Quarry (205-0029), Lake Ozark/Prewitt Quarry (131-0038), Sunrise Quarry (029-0050), and Bowling Green Quarry (163-0043). This portable plant has a maximum hourly design rate of 400 tons per hour and will be powered by two engines, one rated at 520 brake horsepower and one rated at 142 brake horsepower.

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 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 and your new source review permit application 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 were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty 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 administrative hearing commission, whose contact information is: Administrative Hearing Commission, Truman State Office Building, Room 640, 301 W. High Street, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: [www.oa.mo.gov/ahc](http://www.oa.mo.gov/ahc).

Mr. Dan Niederhelm  
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If you have any questions regarding this permit, please do not hesitate to contact Daronn A. Williams, at the department's Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp  
New Source Review Unit Chief

SH:dwl

Enclosures

c: St. Louis Regional Office  
PAMS File: 2015-10-015

Permit Number: