

STATE OF MISSOURI

PERMIT BOOK



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: 122014-007

Project Number: 2014-07-071

Installation ID: 031-0125

Parent Company: Heartland Materials, LLC

Parent Company Address: 1965 County Road 601, Jackson, MO 63755

Installation Name: Heartland Materials, LLC

Installation Address: 1965 County Road 601, Jackson, MO 63755

Location Information: Cape Girardeau County, Land Grant 2192, T32N, R13E

Application for Authority to Construct was made for:

The installation of a generic, stationary rip rap plant that is rated at 300 tons per hour. The rip rap plant consists of a screen, conveyor and engine. Additional storage piles and haul roads are included in this project. 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.

DEC 24 2014

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 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.

Page No.	3
Permit No.	
Project No.	2014-07-071

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. Generic Plant Designation and Maximum Combined Hourly Design Rate
Heartland Materials, LLC's rip rap plant has been designated to be a Generic Plant Operation. The combined MHDR each of the following generic equipment types shall not exceed the rates and numbers listed in Table 1.

Table 1: Generic Equipment

Equipment Type	MHDR	Maximum Number of Units
Primary Unit: Primary Screen	300 tons per hour	1
Conveyor(s), Stacker(s)	300 tons per hour	1
Total Screens	300 tons per hour	1
Engine	100 Brake Horsepower	1

2. Generic Plant Equipment Identification Requirement
 - A. Heartland Materials, LLC shall submit the following information to the Air Pollution Control Program's Permitting Section and the Southeast Regional Office within 15 days of actual startup.
 - 1) A master list of all equipment that will be permitted for use with the generic plant. This master list shall include at minimum the following information for each piece of equipment:
 - a) Manufacturer's name
 - b) Model number
 - c) Serial number
 - d) Actual MHDR
 - e) Date of manufacture
 - f) Any other additional information that is necessary to uniquely identify the equipment.
 - 2) A list of the core equipment that will always be utilized with the generic plant. The core equipment associated with the generic plant shall include at least one primary unit that controls the rate of the process flow (e.g., a primary crusher or primary screen).
 - 3) A determination of the applicability of 40 CFR Part 60, Subpart OOO, "Standards of Performance for Nonmetallic Mineral Processing Plants" for each piece of equipment indicating whether each piece of equipment is subject to Subpart OOO and justification for this determination.
 - 4) Heartland Materials, LLC shall notify the Air Pollution Control Program's Permitting Section and the Southeast Regional Office when new

Page No.	4
Permit No.	
Project No.	2014-07-071

SPECIAL CONDITIONS:

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

equipment is added to the master list and when core equipment is changed within 30 days of the change.

- B. Heartland Materials, LLC shall maintain a list of the specific equipment currently being utilized with the generic plant. Any arrangement of the generic plant's equipment must be such that the core equipment is not bypassed in the process flow.
3. **Equipment Identification Requirement**
Heartland Materials, 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.
4. **Best Management Practices Requirement**
Heartland Materials, LLC 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.
5. **Ambient Air Impact Limitation**
A. Heartland Materials, LLC shall not cause an exceedance of the NAAQS for PM₁₀ of 150.0 µg/m³ 24-hour average in ambient air.
B. Heartland Materials, LLC shall demonstrate compliance with Special Condition 5.A using Attachment A and Attachment B or other equivalent forms that have been approved by the Air Pollution Control Program, including electronic forms. Heartland Materials, LLC shall account for the impacts from other sources of PM₁₀ as instructed in the attachments.
6. **Annual Emission Limit**
A. Heartland Materials, LLC shall emit less than 15.0 tons of PM₁₀ in any 12-month period from the rip rap plant.
B. Heartland Materials, LLC shall demonstrate compliance with Special Condition 6.A using Attachment C or another equivalent form that has been approved by the Air Pollution Control Program, including an electronic form.
7. **Minimum Distance to Property Boundary Requirement**
The primary screen (EP-13) shall be located at least 500 feet from the nearest property boundary.
8. **Primary Equipment Requirement**
Heartland Materials, LLC shall process all rock processed by the rip rap plant through the primary screen (EP-13). Bypassing the primary screen is prohibited.

Page No.	5
Permit No.	
Project No.	2014-07-071

SPECIAL CONDITIONS:

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

9. Record Keeping Requirement
Heartland Materials, LLC 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
Heartland Materials, LLC 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: 2014-07-071
Installation ID Number: 031-0125
Permit Number:

Heartland Materials, LLC
1965 County Road 601
Jackson, MO 63755

Complete: August 15, 2014

Parent Company:
Heartland Materials, LLC
1965 County Road 601
Jackson, MO 63755

Cape Girardeau County, Land Grant 2192, T32N, R13E

PROJECT DESCRIPTION

Heartland Materials, LLC (Heartland) has applied for an Application for Authority to Construct for the installation of a rip rap plant that is rated at 300 tons per hour. The rip rap plant consists of a screen, conveyor and engine. Additional storage piles and haul roads are included in this project. Heartland operates an existing stationary generic rock-crushing plant where crushed rock is made commercially available. The rock for this rip rap plant will come from the quarry wall and will not come from previously crushed rock. As a result, all rock for the rip rap plant will be screened by screen (EP-13) and both plants will operate independently of each other. After the aggregate is screened by the rip rap plant, it will be stored with the crushed rock based upon its screening size. The rip rap will be sold with the other aggregate made commercially available. Both plants are considered to be a part of the same installation.

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 Cape Girardeau 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 Heartland from the Air Pollution Control Program.

Table 2: Permit History

Permit Number	Description
012011-008	Installation of a generic rock-crushing plant
012011-008A	Permit amendment to add a temporary primary crusher

The table below summarizes the emissions of this project. The existing installation's potential emissions are from Construction Permit 012011-008. 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), including haul road and storage pile emissions. The conditioned potential emissions of the rip rap plant are based on a voluntary 15.0 ton per year PM₁₀ limit to avoid modeling requirements.

Table 3: Emissions Summary (tons per year)

Air Pollutant	De Minimis Level/SMAL	Existing Installation's Potential Emissions	Existing Actual Emissions (2013 EIQ)	Potential Emissions of the Application	Conditioned Potential Emissions of Rip Rap Plant
PM	25.0	N/D	2.38	215.34	44.15
PM ₁₀	15.0	< 15.0	8.51	72.47	< 15.00
PM _{2.5}	10.0	2.62	N/D	11.00	2.28
SO _x	40.0	N/A	N/D	8.97	1.80
NO _x	40.0	N/A	N/D	3.28	0.66
VOC	40.0	N/A	N/D	1.05	0.21
CO	100.0	N/A	N/D	2.83	0.57
Total HAPs	25.0	N/A	N/D	0.01	0.002

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

Table 4: Ambient Air Quality Impact Analysis

Pollutant	NAAQS (µg/m ³)	Averaging Time	^a Maximum Modeled Impact of Rip Rap Plant (µg/m ³)	^b Maximum Modeled Impact of Rock-Crushing Plant (µg/m ³)	Limited Impact of All Plants Owned by Heartland (µg/m ³)	Back-ground (µg/m ³)	^c Daily Limit of Rip Rap Plant (tons/day)
^d PM ₁₀ (Solitary)	150.0	24-hour	222.62	225.89	130.0	20.0	4,648
^e PM ₁₀ (Same)	150.0	24-hour	N/A	N/A	130.0	20.0	N/A
^f PM ₁₀ (Separate)	150.0	24-hour	N/A	N/A	81.60	68.40	3,700

N/A = Not Applicable

^a Modeled impact of rip rap plant at maximum capacity with controls

^b Modeled impact of rock-crushing plant at maximum capacity with controls, per Construction Permit 012011-008

^c The daily production limit of Heartland's rip rap plant is indirectly based on compliance with the NAAQS for PM₁₀. However, the daily production limit of Heartland's rip rap plant during the same owner operating scenario is not determined because Heartland can balance production between all plants they own and operate at this site.

^d Operation of only one plant owned by Heartland at a time, either the rip rap plant or the rock-crushing plant

^e Operation of more than one plant that is owned by Heartland

^f Operation of plants that are owned by Heartland with plants that are not owned by Heartland

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 uncontrolled emission factors were used because the inherent moisture content of the crushed rock is less than 1.5% by weight.

Emissions from the diesel engine 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 PM₁₀ and a 40% control efficiency for PM_{2.5} 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 0.7% 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 4. 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 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.

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/m³ of PM₁₀ 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 Heartland Materials, LLC shall demonstrate compliance with the NAAQS.

- When only one plant owned by Heartland, either the rip rap plant or the rock-crushing plant, is located at this site, which is referred to as solitary operation, Heartland must calculate the daily impact of the plant and limit its impact below the NAAQS using Attachment A or another equivalent form.
- When more than one plant that is owned by Heartland is located at the site, which is referred to as same owner plants, Heartland must calculate the daily impact of each plant and limit the total impact of all plants to not exceed the NAAQS using Attachment A or another equivalent form.
- When plants that are not owned by Heartland, which are referred to as separate owner plants, are located at the site, Heartland must account for the impacts of these plants as a background concentration and add it to the total impact of all plants owned by Heartland that are operating at the site. This total is limited to not exceed the NAAQS. Heartland will limit the total impact of all plants they own and operate at the site to $61.6 \mu\text{g}/\text{m}^3$ when any plants they do not own are located at the site. Heartland is not permitted to operate with any plant that is not owned by Heartland that has a separate owner background greater than $68.40 \mu\text{g}/\text{m}^3$. Emissions from haul roads and vehicular activity areas are addressed as a background concentration of $20.0 \mu\text{g}/\text{m}^3$. During this scenario, Heartland shall use Attachment B, or another equivalent form, to demonstrate compliance with the NAAQS.

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_{10} are conditioned below the de minimis level. Potential emissions of particulate matter are above the de minimis level, but below major source levels.

APPLICABLE REQUIREMENTS

Heartland 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 commencement of operations to amend your existing operating permit to add this permit and Construction Permit 012011-008A.
- *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

- 40 CFR 60 Subpart OOO, "Standards of Performance for Nonmetallic Mineral Processing Plants" does not apply to the equipment per §60.670(a)(2) because a crusher is not used with this plant.
- 40 CFR 60 Subpart IIII, "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines" applies to the equipment.
- 40 CFR 63 Subpart ZZZZ, "National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines"
- None of the NESHAPS regulations 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 (6), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Daronn A. Williams
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 July 8, 2014, received July 28, 2014, designating Heartland Materials, 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 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

%percent	MMBtu Million British thermal units
°Fdegrees Fahrenheit	MMCFmillion cubic feet
acfm actual cubic feet per minute	MSDSMaterial Safety Data Sheet
BACT Best Available Control Technology	NAAQSNational Ambient Air Quality Standards
BMPs Best Management Practices	NESHAPs National Emissions Standards for Hazardous Air Pollutants
Btu British thermal unit	NO_xnitrogen oxides
CAM Compliance Assurance Monitoring	NSPSNew Source Performance Standards
CAS Chemical Abstracts Service	NSR New Source Review
CEMS Continuous Emission Monitor System	PMparticulate matter
CFR Code of Federal Regulations	PM_{2.5}particulate matter less than 2.5 microns in aerodynamic diameter
CO carbon monoxide	PM₁₀particulate matter less than 10 microns in aerodynamic diameter
CO₂ carbon dioxide	ppmparts per million
CO_{2e} carbon dioxide equivalent	PSDPrevention of Significant Deterioration
COMS Continuous Opacity Monitoring System	PTEpotential to emit
CSR Code of State Regulations	RACTReasonable Available Control Technology
dscf dry standard cubic feet	RALRisk Assessment Level
EQ Emission Inventory Questionnaire	SCCSource Classification Code
EP Emission Point	scfmstandard cubic feet per minute
EPA Environmental Protection Agency	SICStandard Industrial Classification
EU Emission Unit	SIPState Implementation Plan
fps feet per second	SMAL Screening Model Action Levels
ft feet	SO_xsulfur oxides
GACT Generally Available Control Technology	SO₂sulfur dioxide
GHG Greenhouse Gas	tph tons per hour
gpm gallons per minute	tpy tons per year
gr grains	VMTvehicle miles traveled
GWP Global Warming Potential	VOC Volatile Organic Compound
HAP Hazardous Air Pollutant	
hr hour	
hp horsepower	
lb pound	
lbs/hr pounds per hour	
MACT Maximum Achievable Control Technology	
µg/m³ micrograms per cubic meter	
m/s meters per second	
Mgal 1,000 gallons	
MW megawatt	
MHDR maximum hourly design rate	

Mr. Rex Meyr
Plant Manager
Heartland Materials, LLC
1965 County Road 601
Jackson, MO 63755

RE: New Source Review Permit - Project Number: 2014-07-071

Dear Mr. Meyr:

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 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 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: Southeast Regional Office
PAMS File: 2014-07-071

Permit Number:

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