



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:

0920154008

Project Number: 2015-04-078

Installation ID: 187-0072

Parent Company:

Vern Bauman Contracting Company

Parent Company Address: 21471 Highway 32, Ste. Genevieve, MO 63670

Installation Name:

Base Rock Minerals/Mineral Area Asphalt

Installation Address:

6801 Votech Road, Bonne Terre, MO 63628

Location Information:

St. Francois County, S24/25 T37N R4E

Application for Authority to Construct was made for:

The installation of a new stationary asphalt plant. 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.

*Daronn A. Williams*

*Kyra L. Moore*

Prepared by

Daronn A. Williams

New Source Review Unit

Director or Designee

Department of Natural Resources

SEP 17 2015

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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**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. **Best Management Practices Requirement**  
Base Rock Minerals/Mineral Area Asphalt 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. Base Rock Minerals/Mineral Area Asphalt 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. Base Rock Minerals/Mineral Area Asphalt shall demonstrate compliance with Special Condition 2.A using Attachment A, Attachment B or other equivalent forms that have been approved by the Air Pollution Control Program, including electronic forms. Base Rock Minerals/Mineral Area Asphalt shall account for the impacts from other sources of PM<sub>10</sub> as instructed in the attachments.
  - C. Base Rock Minerals/Mineral Area Asphalt is exempt from the requirements of Special Condition 2.B if no other plants operate at this site.
3. **Annual Emission Limit**
  - A. Base Rock Minerals/Mineral Area Asphalt's asphalt plant shall emit less than 10.0 tons of PM<sub>2.5</sub> in any 12-month period from the stationary asphalt plant.
  - B. Base Rock Minerals/Mineral Area Asphalt shall demonstrate compliance with Special Condition 3.A 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. Base Rock Minerals/Mineral Area Asphalt shall verify that the moisture content of the aggregate used is equal to or greater than 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.

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- D. The test samples shall be taken from the plant's storage pile 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 Base Rock Minerals/Mineral Area Asphalt 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, Base Rock Minerals/Mineral Area Asphalt 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, Base Rock Minerals/Mineral Area Asphalt may obtain test results that demonstrate compliance with the moisture content in Special Condition 4.A from the supplier of the aggregate.
5. Control Device Requirement-Baghouse
- A. Base Rock Minerals/Mineral Area Asphalt shall control particulate emissions from the drum dryer (EP-124) using a baghouse as specified in the permit application.
  - B. The baghouse shall be operated and maintained in accordance with the manufacturer's specifications. The baghouse shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that Department of Natural Resources' employees may easily observe them.
  - C. Replacement filters for the baghouse shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
  - D. Base Rock Minerals/Mineral Area Asphalt shall monitor and record the operating pressure drop across the baghouses at least once every 24 hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's baghouse operation and service manual.

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- E. Base Rock Minerals/Mineral Area Asphalt shall maintain a copy of the manufacturer's baghouse operation and service manual on site.
- F. Base Rock Minerals/Mineral Area Asphalt shall maintain an operating and maintenance log for the baghouses which shall include the following:
  - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
  - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
- 6. Minimum Distance to Property Boundary Requirement  
The plant's drum dryer (EP-124) shall be located at least 625 feet from the nearest property boundary.
- 7. Haul Road Usage  
The haul roads that are associated with this permit shall be independent, separate haul roads from the stationary rock-crushing plant that Base Rock Minerals/Mineral Area Asphalt operates at this site. These haul roads shall only be used to transport materials to and from the asphalt plant.
- 8. Shut Down of Existing Equipment
  - A. Base Rock Minerals/Mineral Area Asphalt has requested to keep the existing asphalt plant onsite on standby for up to 90 days after this new asphalt plant is constructed in case of operational difficulties with the proposed plant. This request is granted and Base Rock Minerals/Mineral Area Asphalt shall not operate this proposed plant with the existing asphalt plant. After this 90 day period or when the proposed plant is deemed functional and ready to take over production from the existing plant, whichever comes first, Base Rock Minerals/Mineral Area Asphalt shall dismantle and remove the existing asphalt plant.
  - B. Base Rock Minerals/Mineral Area Asphalt shall notify the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than 15 days after the following events occur:
    - 1) The date of initial start-up of the new equipment added under this permit, and
    - 2) The date the existing equipment (as indicated in Special Condition Number 8.A) was rendered inoperable.
- 9. Fuel Requirement
  - A. Base Rock Minerals/Mineral Area Asphalt shall burn diesel fuel oil with a sulfur content equal to or below 0.0015% by weight or natural gas in their drum dryer (EP-124) and their asphaltic cement heater (EP-133).

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- B. The use of diesel fuel oil with a sulfur content exceeding 0.0015% by weight in the drum dryer and asphaltic cement heater is prohibited.
  - C. Base Rock Minerals/Mineral Area Asphalt shall demonstrate compliance with Special Condition 9.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*.
  - D. Base Rock Minerals/Mineral Area Asphalt shall keep the records required by Special Condition 9.C with the unit and make them available for Department of Natural Resources' employees upon request.
10. **Superseding Condition**  
The conditions of this permit supersede Special Condition 1 from Construction Permit 072008-014 and Special Condition 2 from Construction Permit 072008-014A, which were issued by the Air Pollution Control Program.
11. **Record Keeping Requirement**  
Base Rock Minerals/Mineral Area Asphalt 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.
12. **Reporting Requirement**  
Base Rock Minerals/Mineral Area Asphalt 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: 2015-04-078  
Installation ID Number: 187-0072  
Permit Number:

Base Rock Minerals/Mineral Area Asphalt  
6801 Votek Road  
Bonne Terre, MO 63628

Complete: April 24, 2015

Parent Company:  
Vern Bauman Contracting Company  
21471 Highway 32  
Ste. Genevieve, MO 63670

St. Francois County, S24/25 T37N R4E

PROJECT DESCRIPTION

Base Rock Minerals/Mineral Area Asphalt (Base Rock) has submitted an Application For Authority To Construction for the installation of a new stationary asphalt plant. This asphalt plant will be replacing an existing stationary asphalt plant at this site. The new asphalt plant will not be placed in the same physical location as the existing asphalt plant.

Base Rock also operates an existing rock-crushing plant at this site, which will supply the aggregate for the asphalt plant. Nothing with the rock-crushing plant is changing at this time. Both plants are considered one installation and operate under Installation ID Number 187-0072.

Prior to the issuance of this permit, this installation did not use BMPs as defined in the Air Pollution Control Program's BMPs policy. As a result, particulate emissions from haul roads, storage piles and vehicular activities were counted in the ambient impact of the asphalt plant and rock-crushing plant. This new asphalt plant will be located at least 1500 feet from the crusher of the rock-crushing plant and have its own independent, separate haul roads from the rock-crushing plant. Base Rock requested to use BMPs for the new asphalt plant because the asphalt plant will have its own storage piles and the haul roads will be used exclusively for the asphalt plant. This request was granted and the BMPs policy is only applied to the asphalt plant. As a result, emissions from haul roads, storage piles and vehicular activities of the asphalt plant will be addressed as a background concentration of  $20.0 \mu\text{g}/\text{m}^3$  of  $\text{PM}_{10}$  in accordance with the program's BMPs policy. Particulate emissions from the rock-crushing plant's haul roads, storage piles and vehicular activities are still included in its ambient impact factor.

The new asphalt plant is a drum mix type plant with a MHDR of 325 tons of asphalt per

hour. The plant was manufactured by ALmix circa 1993. Particulate emissions from the drum dryer are controlled by a fabric filter. The dryer is equipped with a 125 MMBtu/hr burner and a 2 MMBtu/hr asphaltic cement (AC) heater. Both can be fueled by diesel fuel oil #2 and natural gas. Base Rock plans to use natural gas as the primary fuel source and diesel fuel oil #2 as a backup fuel during periods of curtailment or price spikes in natural gas. Since diesel fuel oil #2 has higher potential emissions, diesel fuel oil #2 with a sulfur content of 0.0015% by weight was assumed to be used during the review of this project to capture the worst case emissions.

Raw materials for making asphalt will consist of limestone rock obtained from the onsite rock-crushing plant, sand, recovered asphalt product (RAP) and AC. There will be an unpaved haul road from the rock-crushing plant to the material storage pile area for the delivery of rock by truck. This haul road is considered a part of the asphalt plant and its emissions will be controlled by BMPs. Sand, RAP and AC will be delivered by truck via a paved haul road connecting the asphalt plant and Votek Road. RAP is typically an old asphalt paving mixture that has been removed from an existing roadway. Other materials that may be used to replace a portion of the aggregate in the paving mixture include shingles or crushed glass. The emission sources for this plant are listed in Table 1.

Table 1: Summary of Emission Sources

Permit Number	Description	Permit Number	Description
EP-115	Quarry rock haul road	EP-125	Silo loading
EP-116	Sand/RAP/AC haul road	EP-126	Plant load out
EP-117	Rock storage area	EP-127	RAP bins
EP-118	Sand/RAP storage area	EP-128	Bin under conveyors
EP-119	Cold feed bins	EP-129	RAP conveyors #1
EP-120	Bin under conveyors	EP-130	RAP crusher
EP-121	Conveyor	EP-131	RAP screen
EP-122	Scalping screen	EP-132	RAP conveyor #2
EP-123	Conveyor	EP-133	AC tank heater
EP-124	Drum mix asphalt dryer	EP-134	Asphalt haul road

Base Rock plans to discontinue production at the existing stationary asphalt plant once the proposed plant is deemed functional and ready to take over production from the existing plant. Per the application, Base Rock has no intention of operating the new and existing asphalt plants at the same time and would like the existing plant to remain onsite on standby for up to 90 days in case of operational difficulties with the proposed plant. This request is hereby granted as long as Base Rock only operates one asphalt plant at a time.

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 St. Francois County, attainment status.

This installation is on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. Hot mix asphalt plants fall under Category 27. Fugitive emissions are counted toward major source applicability.

However, Category 27 does not apply to the 100 tons per year major source level thresholds for construction permits. Therefore, the major source threshold for this

asphalt plant is 250 tons per year.

## TABLES

The following permits have been issued to Base Rock for their rock-crushing plant and asphalt plant from the Air Pollution Control Program.

Table 2: Permit History

Permit Number	Description
012002-008	Increasing production (rock-crushing operation)
012002-008A	Amendment for concurrent operations (rock-crushing operation)
032003-034	Modification for concurrent operations (rock-crushing operation)
032003-034A	Amend control measures (rock-crushing operation)
032004-014	Changing portable asphalt plant to stationary plant (issued under Installation ID Number 187-0078 in error)
032004-014A	Adding the asphalt plant as part of the installation (187-0072) and reevaluating production levels.
072008-014	Adding a generator to site
072008-014A	Reevaluate ambient impact limits for concurrent operation with separate owners

The table below summarizes the emissions of this project for the new asphalt plant. The potential emissions of the process equipment for the asphalt plant exclude emissions from haul roads and wind erosion. The existing actual emissions were taken from the previous year's EIQ and includes emissions from both plants. The potential emissions of the asphalt plant represent the emissions of all equipment and activities assuming continuous operation (8760 hours per year). The conditioned potential emissions of the asphalt plant are based on a voluntary 10.0 ton PM<sub>2.5</sub> limit to avoid modeling requirements.

Table 3: Emissions Summary (tons per year)

Air Pollutant	De Minimis Level/ SMAL	<sup>a</sup> Potential Emissions of the Process Equipment for Asphalt Plant	Existing Actual Emissions (2014 EIQ)	<sup>b</sup> Potential Emissions of the Asphalt Plant	Conditioned Potential Emissions of Asphalt Plant
PM	25.0	52.84	N/D	125.84	28.36
PM <sub>10</sub>	15.0	35.87	6.62	61.07	13.76
PM <sub>2.5</sub>	10.0	33.16	1.10	44.37	< 10.00
SO <sub>x</sub>	40.0	0.95	0.16	0.95	0.21
NO <sub>x</sub>	40.0	96.49	0.33	96.49	21.75
VOC	40.0	68.49	0.33	68.49	15.43
CO	100.0	23.75	1.35	23.75	5.35
Formaldehyde	10.0/2.0 <sup>c</sup>	4.54	N/D	4.54	1.02
2-methylnapthalene <sup>d</sup>	10.0/0.01 <sup>c</sup>	0.24	N/D	0.24	0.05
Lead Compounds	10.0/0.01 <sup>c</sup>	0.02	N/D	0.02	0.005
Total HAPs	25.0	12.78	N/D	12.78	2.88

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

<sup>a</sup> Excludes emissions from haul roads and storage pile emissions

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

<sup>c</sup> SMAL

<sup>d</sup> 2-methylnapthalene is a member of the Polycyclic Organic Matter (POM) HAP group.

Table 4: Ambient Air Quality Impact Analysis

Pollutant	<sup>a</sup> NAAQS (µg/m <sup>3</sup> )	<sup>b</sup> Ambient Impact Factors (µg/m <sup>3</sup> ton)		Limited Impact (µg/m <sup>3</sup> )	<sup>c</sup> Background (µg/m <sup>3</sup> )	<sup>d</sup> Daily Limit (tons/day)
		Asphalt Plant	Rock-crushing Plant			
<sup>e</sup> PM <sub>10</sub> (Solitary)	<sup>h</sup> 150.0	0.0065	0.01638	130.0	20.0	N/A
<sup>f</sup> PM <sub>10</sub> (Same)	<sup>h</sup> 150.0	0.0065	0.01638	130.0	20.0	N/A
<sup>g</sup> PM <sub>10</sub> (Same and Separate)	<sup>h</sup> 150.0	0.0065	0.01440	114.48	55.52	N/D
Pollutant	<sup>a</sup> NAAQS (µg/m <sup>3</sup> )	Maximum Ambient Impact (µg/m <sup>3</sup> ton)		Limited Impact (µg/m <sup>3</sup> )	<sup>c</sup> Background (µg/m <sup>3</sup> )	<sup>d</sup> Daily Limit (tons/day)
2-methylnaphthalene	<sup>h</sup> 0.23	0.13		N/A	N/A	N/A
2-methylnaphthalene	<sup>i</sup> 2.3	0.005		N/A	N/A	N/A

<sup>a</sup> National Ambient Air Quality Standards (NAAQS)

<sup>b</sup> The ambient impact factor for the asphalt plant was calculated during the review of this project. The asphalt plant's PM<sub>10</sub> ambient impact factor is based on 24 hours of operation, which results in a maximum ambient impact of 51.09 µg/m<sup>3</sup>. The ambient impact factor for the rock-crushing plant was calculated during the review of Construction Permit 072008-014. Because the rock-crushing plant does not use BMPs, as defined in the program's policy, the ambient impact factor for the rock-crushing is based on a 150.0 µg/m<sup>3</sup> ambient impact.

<sup>c</sup> The asphalt plant's haul road, storage pile and vehicular activity emissions are addressed as a background concentration of 20.0 µg/m<sup>3</sup>. Emissions from plants not owned by Base Rock are addressed as a background concentration of 35.52 µg/m<sup>3</sup>.

<sup>d</sup> During the solitary operation scenario, Base Rock's rock-crushing and asphalt plant will be allowed to balance production to comply with the NAAQS for PM<sub>10</sub>. This scenario assumes both plants are operating. During the same operation scenario, all plants owned by Base Rock can balance production to comply with the NAAQS for PM<sub>10</sub>. During the same and separate operation scenario, all plants owned by Base Rock shall have a combined daily ambient impact of 114.48 µg/m<sup>3</sup>.

<sup>e</sup> Operation of the rock-crushing and asphalt plants

<sup>f</sup> Operation of the rock-crushing and asphalt plants with other plants that are owned by Base Rock

<sup>g</sup> Operation of the rock-crushing and asphalt plants with plants that are and are not owned by Base Rock

<sup>h</sup> 24-hour averaging time

<sup>i</sup> Annual averaging time

The plant's drum dryer (EP-124) was modeled using the AERSCREEN screen modeling software. The stack characteristic entered into the modeled are listed below.

Table 5: AERSCREEN Input Parameters

Equipment Description	Stack Height (m)	Stack Inside Diameter (m)	Stack Gas Exit Velocity (m/s)	Stack Gas Exit Temperature (K)	Dispersion Coefficient
Drum Dryer	12.8	1.2	19.6	393.7	Rural

## 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 drum mix asphalt plant were calculated using emission factors from AP-42 Section 11.1 "Hot Mix Asphalt Plants," April 2004. SO<sub>x</sub> emissions were calculated using the SO<sub>2</sub> and SO<sub>3</sub> emission factors from AP-42 Section 1.3 "Fuel Oil Combustion," September 1998 and assuming half of the sulfur up to 0.1 pound per ton of product is absorbed into the product. The asphalt plant is controlled by a baghouse, so the fabric filter controlled emission factor was used to calculate PM<sub>10</sub> emissions. Emissions from plant load-out were calculated using predictive equations found in AP-42 Table 11.1-14. Default values were used for asphalt volatility and mix temperature. Emissions from the asphalt heater were calculated using emission factors from AP-42 Section 1.3. Emissions from aggregate handling 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 haul roads and vehicular activity areas for the asphalt plant 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 5. 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 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  $20.0 \mu\text{g}/\text{m}^3$  of  $\text{PM}_{10}$  in accordance with the Air Pollution Control Program's BMPs 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 Base Rock Minerals/Mineral Area Asphalt shall demonstrate compliance with the NAAQS.

- If the asphalt plant is ever located at this site by itself (when no other plants are located at this site), no record keeping is required to show compliance to the NAAQS for  $\text{PM}_{10}$ .
- When only the asphalt plant and rock-crushing plants are located at this site, which is referred to as solitary operation, Base Rock must balance production of these plants and limit their impacts below the NAAQS for  $\text{PM}_{10}$  using Attachment A or another equivalent form.
- When other plants that are owned by Base Rock, which are referred to as same owner plants, are located at the site, Base Rock must calculate the daily impact of each plant and limit the total impact of all plants to not exceed the NAAQS using Attachment A.
- When plants that are not owned by Base Rock, which are referred to as separate owner plants, are located at the site, Base Rock must account for the impacts of these plants as a background concentration and add it to the total impact of all plants owned by Base Rock that are operating at the site. This total is limited to not exceed the NAAQS. Base Rock will limit the total impact of all plants they own and operate at the site to  $114.48 \mu\text{g}/\text{m}^3$  when any plants they do not own are located at the site. Base Rock is not permitted to operate with any plant that is not owned by Base Rock that has a separate owner background greater than  $35.52 \mu\text{g}/\text{m}^3$ . Emissions from haul roads and vehicular activity areas from the asphalt plant are addressed as a background concentration of  $20.0 \mu\text{g}/\text{m}^3$ . During this scenario, Base Rock 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  $\text{PM}_{10}$  are conditioned below the de minimis level and potential emissions of PM are above the de minimis level, but below major source levels.

## APPLICABLE REQUIREMENTS

Base Rock 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.
- Base Rock currently has an application for an Intermediate Operating Permit (Project Number 2013-06-081) being reviewed by program staff. At the time of the issuance of this permit, the Air Pollution Control Program is responding to public comments. An updated operating permit application that includes this new asphalt plant is required within 30 days of the issuance of this permit.
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

### SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400
- 40 CFR 60 Subpart I, "Standards of Performance for Hot Mix Asphalt Facilities" applies to the equipment of the asphalt plant.
- 40 CFR 60 Subpart OOO, "Standards of Performance for Nonmetallic Mineral Processing Plants" applies to the equipment of the rock-crushing plant.
- None of the NESHAPS or MACT 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*, it is recommend this permit be granted with special conditions.

## PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated April 23, 2015, received April 24, 2015, designating Vern Bauman Contracting Company 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>MMBtu</b> .....	Million British thermal units
<b>°F</b> .....	degrees Fahrenheit	<b>MMCF</b> .....	million cubic feet
<b>acfm</b> .....	actual cubic feet per minute	<b>MSDS</b> .....	Material Safety Data Sheet
<b>BACT</b> .....	Best Available Control Technology	<b>NAAQS</b> .....	National Ambient Air Quality Standards
<b>BMPs</b> .....	Best Management Practices	<b>NESHAPs</b> ....	National Emissions Standards for Hazardous Air Pollutants
<b>Btu</b> .....	British thermal unit	<b>NO<sub>x</sub></b> .....	nitrogen oxides
<b>CAM</b> .....	Compliance Assurance Monitoring	<b>NSPS</b> .....	New Source Performance Standards
<b>CAS</b> .....	Chemical Abstracts Service	<b>NSR</b> .....	New Source Review
<b>CEMS</b> .....	Continuous Emission Monitor System	<b>PM</b> .....	particulate matter
<b>CFR</b> .....	Code of Federal Regulations	<b>PM<sub>2.5</sub></b> .....	particulate matter less than 2.5 microns in aerodynamic diameter
<b>CO</b> .....	carbon monoxide	<b>PM<sub>10</sub></b> .....	particulate matter less than 10 microns in aerodynamic diameter
<b>CO<sub>2</sub></b> .....	carbon dioxide	<b>ppm</b> .....	parts per million
<b>CO<sub>2e</sub></b> .....	carbon dioxide equivalent	<b>PSD</b> .....	Prevention of Significant Deterioration
<b>COMS</b> .....	Continuous Opacity Monitoring System	<b>PTE</b> .....	potential to emit
<b>CSR</b> .....	Code of State Regulations	<b>RACT</b> .....	Reasonable Available Control Technology
<b>dscf</b> .....	dry standard cubic feet	<b>RAL</b> .....	Risk Assessment Level
<b>EQ</b> .....	Emission Inventory Questionnaire	<b>SCC</b> .....	Source Classification Code
<b>EP</b> .....	Emission Point	<b>scfm</b> .....	standard cubic feet per minute
<b>EPA</b> .....	Environmental Protection Agency	<b>SDS</b> .....	Safety Data Sheet
<b>EU</b> .....	Emission Unit	<b>SIC</b> .....	Standard Industrial Classification
<b>fps</b> .....	feet per second	<b>SIP</b> .....	State Implementation Plan
<b>ft</b> .....	feet	<b>SMAL</b> .....	Screening Model Action Levels
<b>GACT</b> .....	Generally Available Control Technology	<b>SO<sub>x</sub></b> .....	sulfur oxides
<b>GHG</b> .....	Greenhouse Gas	<b>SO<sub>2</sub></b> .....	sulfur dioxide
<b>gpm</b> .....	gallons per minute	<b>tph</b> .....	tons per hour
<b>gr</b> .....	grains	<b>tpy</b> .....	tons per year
<b>GWP</b> .....	Global Warming Potential	<b>VMT</b> .....	vehicle miles traveled
<b>HAP</b> .....	Hazardous Air Pollutant	<b>VOC</b> .....	Volatile Organic Compound
<b>hr</b> .....	hour		
<b>hp</b> .....	horsepower		
<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		

Mr. Kerry Bauman  
Manager  
Base Rock Minerals/Mineral Area Asphalt  
6801 Votek Road  
Bonne Terre, MO 63628

RE: New Source Review Permit - Project Number: 2015-04-078

Dear Mr. Bauman:

Base Rock Minerals/Mineral Area Asphalt (Base Rock) has submitted an Application For Authority To Construction for the installation of a new stationary asphalt plant. This asphalt plant will be replacing an existing stationary asphalt plant at this site. The new asphalt plant will not be placed in the same physical location as the existing asphalt plant.

Base Rock also operates an existing rock-crushing plant at this site, which will supply the aggregate for the asphalt plant. Nothing with the rock-crushing plant is changing at this time. Both plants are considered one installation and operate under Installation ID Number 187-0072.

The new asphalt plant is a drum mix type plant with a maximum hourly design rate of 325 tons of asphalt per hour. The plant was manufactured by ALmix circa 1993. Particulate emissions from the drum dryer are controlled by a fabric filter. The dryer is equipped with a 125 mmBtu/hr burner and a 2 mmBtu/hr asphaltic cement heater. Both can be fueled by diesel fuel oil #2 and natural gas. Base Rock plans to use natural gas as the primary fuel source and diesel fuel oil #2 as a backup fuel during periods of curtailment or price spikes in natural gas. Since diesel fuel oil #2 has higher potential emissions, diesel fuel oil #2 with a sulfur content of 0.0015% by weight was assumed to be used during the review of this project to capture the worst case emissions.

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, 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 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.ao.mo.gov/ahc](http://www.ao.mo.gov/ahc).

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: 2015-04-078

Permit Number: