

**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: 102011-004

Project Number: 2011-06-044  
Installation ID: 169-0027

Parent Company: Willard Quarries, Inc.

Parent Company Address: P.O. Box 869, Lebanon, MO 65536

Installation Name: Willard Asphalt Paving, Inc.

Installation Address: 13700 Tacoma Rd., St. Robert, MO 65584

Location Information: Pulaski County, S24 T36N R11W

Application for Authority to Construct was made for:  
Addition of a Recycled Asphalt Shingles (RAS) grinding operation to an existing stationary asphalt plant located at the St. Robert Quarry. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

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

OCT 05 2011

\_\_\_\_\_  
EFFECTIVE DATE

*Wendy T. for Kyrna L. Moore*  
\_\_\_\_\_  
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 Departments' 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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#### 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."*

1. **Superseding Condition**  
The conditions of this permit supersede Special Condition 5 in construction permit 062004-014A that was issued from the Air Pollution Control Program.
2. **Best Management Practices (BMPs) Requirement**  
Willard Asphalt Paving, 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.
3. **Ambient Air Impact Limitation**
  - A. All plants owned by Willard Quarries, Inc. that operate at the St. Robert Quarry shall not cause an exceedance of the National Ambient Air Quality Standard (NAAQS) for particulate matter less than ten microns in aerodynamic diameter (PM<sub>10</sub>) of 150.0 µg/m<sup>3</sup> 24-hour average in ambient air.
  - B. Willard Asphalt Paving, Inc., the operator of the RAS grinder and the stationary asphalt plant, shall demonstrate compliance with Special Condition 3.A using Attachment A or another equivalent form that has been approved by the Air Pollution Control Program, including an electronic form. Willard Asphalt Paving, Inc. shall account for the impacts from other sources of PM<sub>10</sub> as instructed in Attachment B.
  - C. Willard Asphalt Paving, Inc. is exempt from the requirements of Special Condition 3.B when only the RAS grinder and the stationary asphalt plant are operating at this site.
4. **Annual Emission Limit - NO<sub>x</sub>**
  - A. Willard Asphalt Paving, Inc. shall emit less than 40.0 tons of NO<sub>x</sub> in any 12-month period from the entire installation.
  - B. Willard Asphalt Paving, Inc. shall demonstrate compliance with Special Condition 4.A using Attachment C or another equivalent form that has been approved by the Air Pollution Control Program, including an electronic form.
5. **Minimum Distance to Property Boundary Requirement**  
The primary emission point of the RAS operation, which is the shingle grinder, shall be located at least 2,000 feet from the nearest property boundary.

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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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6. Record Keeping Requirement  
Willard Asphalt Paving, 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.
  
7. Reporting Requirement  
Willard Asphalt Paving, Inc. shall report to the Air Pollution Control Program Enforcement Section P.O. Box 176, Jefferson City, MO 65102, no later than ten days after any exceedances of the limitations imposed by this permit.

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

Project Number: 2011-06-044  
Installation ID Number: 169-0027  
Permit Number:

Willard Asphalt Paving, Inc.  
13700 Tacoma Rd.  
St. Robert, MO 65584

Complete: June 16, 2011

Parent Company:  
Willard Quarries, Inc.  
P.O. Box 869  
Lebanon, MO 65536

Pulaski County, S24 T36N R11W

### PROJECT DESCRIPTION

Willard Asphalt Paving, Inc., a subsidiary of Willard Quarries, Inc., has requested authority to add a Recycled Asphalt Shingles (RAS) grinding operation to its existing stationary asphalt plant at the St. Robert Quarry (169-0027) in St. Robert, Missouri. Willard Quarries, Inc. also operates a stationary rock-crushing plant and often operates portable rock-crushing plant PORT-0554 at this site. The RAS crushing operation will consist of one asphalt shingle grinder, one discharge conveyor belt, and one 600 horsepower diesel generator. The shingles will be transported on site by a truck and trailer and also stored in storage piles on site. Willard Asphalt Paving, Inc. will use the RAS as a substitute for some of the aggregate that is used to produce asphalt.

A detailed evaluation was not conducted on the engine of the generator to verify if it meets the definition of a nonroad engine. However, this engine was conservatively considered not a nonroad engine and, therefore, the emissions of this engine were included in this project. 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 Pulaski County, an attainment area for all criteria pollutants. The asphalt plant of this installation is on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. This asphalt plant's major source level is 100 tons per year and fugitive emissions are counted toward major source applicability.

The equipment of the RAS grinding operation may be owned by a company not owned by Willard Quarries, Inc. However, because the RAS grinding operation is a support facility of the asphalt plant, it shall be considered the same installation as Willard Asphalt Paving, Inc.'s asphalt plant.

## TABLES

The following construction permits have been issued to Willard Quarries, Inc. from the Air Pollution Control Program.

Table 1: Permit History

Permit Number	Description
0697-011	Add equipment, production increase
0692-003A	Relocation of PORT-008209
0198-031	Increase production
0599-011	Install rip rap plant
0599-011A	Corrections to Permit 0599-011
032000-013	Install asphalt plant
032000-013A	IR corrections to Permit 032000-013
022004-016	Increase portable plant production
022004-014	Modify asphalt plant
062004-014	Modify asphalt plant
062004-017	Modify rock-crushing plant
062004-014	Amend for natural gas
062004-017A	Allow portable plant to collocate with rock-crushing plant
052006-008	Install portable rock-crushing plant
062004-014A	Amend asphalt plant for collocation

The table below summarizes the emissions of this project. The potential emissions of process equipment exclude emissions from haul roads and storage piles, which are site specific. The existing actual emissions were taken from the previous year's Emissions Inventory Questionnaire (EIQ). The potential emissions of the application represent the emissions of all equipment and activities assuming continuous operation (8760 hours per year). The conditioned potential emissions are based on a 40.0 ton per year limit of NO<sub>x</sub>.

Table 2: Emissions Summary (tons per year)

Pollutant	<i>De Minimis</i> Level	Potential Emissions of Process Equipment <sup>a</sup>	Existing Actual Emissions <sup>b</sup> (2010 EIQ)	Potential Emissions of the Application <sup>c</sup>	Conditioned Potential Emissions <sup>d</sup>
PM	25.0	2.62	N/D	15.73	10.30
PM <sub>10</sub>	15.0	1.69	8.54	5.61	3.67
PM <sub>2.5</sub>	10.0	1.24	0.38	2.48	1.63
SO <sub>x</sub>	40.0	7.72	0.35	7.72	5.05
NO <sub>x</sub>	40.0	61.11	2.69	61.11	< 40.00
VOC	40.0	1.56	3.98	1.56	1.02
CO	100.0	16.23	13.50	16.23	10.63
Total HAPs	25.0	0.03	0.01	0.03	0.02

N/D = Not Determined

<sup>a</sup> Excludes haul road and storage pile emissions

<sup>b</sup> Includes emissions from stationary rock-crushing plant and stationary asphalt plant

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

<sup>d</sup> The conditioned potential emissions are based on a 40.0 ton per year limit of NO<sub>x</sub>

Table 3: Ambient Air Quality Impact Analysis

Pollutant	NAAQS <sup>a</sup> ( $\mu\text{g}/\text{m}^3$ )	Averaging Time	RAS Operation's Maximum Modeled Impact <sup>b</sup> ( $\mu\text{g}/\text{m}^3$ )	Asphalt Plant's Maximum Modeled Impact <sup>c</sup> ( $\mu\text{g}/\text{m}^3$ )	Rock-crushing Plant's Maximum Modeled Impact <sup>d</sup> ( $\mu\text{g}/\text{m}^3$ )	Limited Impact for all sources owned by Willard Quarries, Inc. <sup>e</sup> ( $\mu\text{g}/\text{m}^3$ )	Background ( $\mu\text{g}/\text{m}^3$ )
PM <sub>10</sub> <sup>f</sup> (same)	150.0	24-hour	3.27	41.69	49.15	130.0	20.0

<sup>a</sup> National Ambient Air Quality Standards (NAAQS) and Risk Assessment Level (RAL)

<sup>b</sup> Modeled impact of the RAS Operation at maximum capacity with controls

<sup>c</sup> Modeled impact of the stationary asphalt plant at maximum capacity with controls per Permit # 062004-014A

<sup>d</sup> Modeled impact of the stationary rock-crushing plant at maximum capacity with controls per Permit # 062004-017A

<sup>e</sup> The operator(s) must balance production among concurrently operating sources to ensure compliance with NAAQS

<sup>f</sup> Operation with other plants that are owned by Willard Quarries, Inc.

## EMISSIONS CALCULATIONS

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

Emissions from RAS processing were calculated using the controlled emission factors from AP-42 Section 11.19.2, "Crushed Stone Processing and Pulverized Mineral Processing," August 2004. The liquid oil contained in the RAS acts as a dust suppressant during crushing and transferring so the controlled emission factors were used to calculate the particulate matter (PM), particulate matter less than 10 microns in aerodynamic diameter (PM<sub>10</sub>) and particulate matter less than 2.5 microns in aerodynamic diameter (PM<sub>2.5</sub>) potential emissions for the new pieces of equipment. The tertiary crushing controlled emission factor was used for the RAS grinder emission point and the controlled conveyor emission factor was used for the discharge belt emission point.

Emissions from the diesel generator were calculated using emission factors from AP-42 Section 3.4 "Large Stationary Diesel and All Stationary Dual-fuel Engines," October 1996.

Emissions from haul roads and vehicular activity areas were calculated using the predictive equation from AP-42 Section 13.2.1 "Paved Roads," January 2011. A 90% control efficiency is applied to the emission calculations for the storage pile's vehicular activities. Emissions from load-in and load-out of storage piles were calculated using the predictive equation from AP-42 Section 13.2.4. Emissions from wind erosion of storage piles were calculated using an equation found in the Air Pollution Control Program's Emissions Inventory Questionnaire Form 2.8 "Storage Pile Worksheet."

## AMBIENT AIR QUALITY IMPACT ANALYSIS

An ambient air quality impact analysis (AAQIA) was performed to determine the impact of the pollutants listed in Table 3. The Air Pollution Control Program requires an AAQIA of 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 SCREEN3. For each pollutant that was modeled, the maximum concentration that occurs at or beyond the site boundary was compared to the National Ambient Air Quality Standard (NAAQS) or Risk Assessment Level (RAL) for the pollutant. If during continuous operation the modeled concentration of a pollutant is greater than the applicable NAAQS or RAL, the plant's production is limited to ensure compliance with the standard.

This installation uses Best Management Practices (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.

## PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of NO<sub>x</sub> are conditioned below de minimis levels.

## APPLICABLE REQUIREMENTS

Willard Asphalt Paving, 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. 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 modification to your Basic Operating Permit is required for this installation within



30 days of equipment startup.

- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

#### SPECIFIC REQUIREMENTS

- 40 CFR 60, New Source Performance Standards (NSPS), Subpart IIII, "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines."
- 40 CFR Part 63, Maximum Achievable Control Technology (MACT) Regulations, Subpart ZZZZ, "National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines."
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPS) apply to the proposed equipment.
- *Restriction of Emission of Sulfur Compounds*, 10 CSR 10-6.260

#### STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with Special Conditions.

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Daronn A. Williams  
Environmental Engineer

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Date

## PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated June 8, 2011, received June 16, 2011, designating Willard Quarries, Inc. as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Southeast Regional Office Site Survey, dated June 28, 2011.







## Attachment AA: Best Management Practices

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

1. Pavement
  - A. The operator shall pave the area with materials such as asphalt, concrete or other materials approved by the Air Pollution Control Program. The pavement will be applied in accordance with industry standards to achieve control of fugitive emissions<sup>1</sup> while the plant is operating.
  - B. Maintenance and repair of the road surface will be conducted as necessary to ensure that the physical integrity of the pavement is adequate to achieve control of fugitive emissions from these areas while the plant is operating.
  - C. The operator shall periodically wash or otherwise clean all of the paved portions of the haul roads as necessary to achieve control of fugitive emissions from these areas while the plant is operating.
  
2. Application of Chemical Dust Suppressants
  - A. The operator shall apply a chemical dust suppressant (such as magnesium chloride, calcium chloride, lignosulfonates, etc.) to unpaved areas.
  - B. The quantities of the chemical dust suppressant shall be applied and maintained in accordance with the manufacture's recommendation (if available) and in sufficient quantities to achieve control of fugitive emissions from these areas while the plant is operating.
  - C. The operator shall record the time, date and the amount of material applied for each application of the chemical dust suppressant agent on the above areas. The operator shall keep these records with the plant for not less than five (5) years and make these records available to Department of Natural Resources personnel upon request.
  
3. Application of Water-Documented Daily
  - A. The operator shall apply water to unpaved areas. Water shall be applied at a rate of 100 gallons per day per 1,000 square feet of unpaved or untreated surface area while the plant is operating.
  - B. Precipitation may be substituted for watering if the precipitation is greater than one quarter of one inch and is sufficient to control fugitive emissions.
  - C. Watering may also be suspended when the ground is frozen, during periods of freezing conditions when watering would be inadvisable for traffic safety reasons, or when there will be no traffic on the roads.
  - D. The operator shall record the date, volume of water application and total surface area of active haul roads or the amount of precipitation that day. The operators shall also record the rationale for not watering (e.g. freezing conditions or not operating).
  - E. The operator shall keep these records with the plant for not less than five (5) years, and the operator shall make these records available to Department of Natural Resources personnel upon request.

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

Mr. Bradley Willard  
President  
Willard Asphalt Paving, Inc.  
P.O. Box 869  
Lebanon, MO 65536

RE: New Source Review Permit - Project Number: 2011-06-044

Dear Mr. Willard:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the Special Conditions, if any, 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

Kendall B. Hale  
New Source Review Unit Chief

KBH:dw

Enclosures

c: Southeast Regional Office  
PAMS File: 2011-06-044

Permit Number: