

PERMIT BOOK

STATE OF MISSOURI



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

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

Permit Number:

072011-001

Project Number: 2011-04-072

Installation ID: 051-0071

Parent Company:

Asphalt Products Inc.

Parent Company Address: P.O. Box 104747, Jefferson City, MO 65110

Installation Name:

Asphalt Products Inc.

Installation Address:

2229 Christy Drive, Jefferson City, MO 65109

Location Information:

Cole County, S23, T44N, R12W

Application for Authority to Construct was made for:

A 400 ton per hour 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.

JUL 1 2011

EFFECTIVE DATE

A handwritten signature in black ink, appearing to read "James L. Kavanagh".

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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GENERAL SPECIAL CONDITIONS:

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

The Special Conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

1. **Best Management Practices Requirement**
Asphalt Products Inc. shall control fugitive emissions from all of the haul roads and vehicular activity areas at this site by performing Best Management Practices as defined in Attachment AA.
2. **Ambient Air Impact Limitation**
 - A. Asphalt Products Inc. shall not cause an exceedance of the National Ambient Air Quality Standard (NAAQS) for particulate matter less than ten microns in aerodynamic diameter (PM₁₀) of 150.0 µg/m³ 24-hour average in ambient air.
 - B. Asphalt Products Inc. shall demonstrate compliance with Special Condition 2.A using Attachment A or another equivalent form that has been approved by the Air Pollution Control Program, including an electronic form. Asphalt Products Inc. shall account for the impacts from other sources of PM₁₀ as instructed in Attachment B.
 - C. Asphalt Products Inc. is exempt from the requirements of Special Condition 2.B when no other plants owned by Asphalt Products Inc. or other plants that are not owned by Asphalt Products Inc. are operating at this site.
3. **Annual Emission Limit**
 - A. Asphalt Products Inc. shall emit less than 15.0 tons of PM₁₀ in any 12-month period from the entire installation.
 - B. Asphalt Products Inc. 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. Asphalt Products Inc. shall verify that the moisture content of the processed rock is greater than or equal to 1.5% weight.
 - B. Testing shall be conducted according to the method prescribed by the American Society for Testing Materials (ASTM) D-2216, C-566 or another method approved by the Director.

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GENERAL SPECIAL CONDITIONS:

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

- C. The initial test shall be conducted no later than 45 days after the start of operation. A second test shall be performed the calendar year following the initial test during the months of July or August.
 - D. The test samples shall be taken from rock that has been processed by the plant or from each source of aggregate (e.g. quarry).
 - E. The written analytical report shall include the raw data and moisture content of each sample, the test date and the original signature of the individual performing the test. The report shall be filed on-site or at the Asphalt Products Inc. main office within 30 days of completion of the required test.
 - F. If the moisture content of either of the two tests is less than the moisture content in Special Condition 4.A, another test may be performed within 15 days of the noncompliant test. If the results of that test also exceed the limit, Asphalt Products Inc. shall either:
 - 1) Apply for a new permit to account for the revised information, or
 - 2) Submit a plan for the installation of wet spray devices to the Air Pollution Control Program Compliance Assistance section within ten 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, Asphalt Products Inc. 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. Asphalt Products Inc. shall control emissions from the drum dryer (EP-4) using baghouses as specified in the permit application.
 - B. The baghouses 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 the Department of Natural Resources employees may easily observe them.
 - C. Replacement filters for the baghouses 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).

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GENERAL SPECIAL CONDITIONS:

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

- D. Asphalt Products Inc. 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 performance warranty.
- E. Asphalt Products Inc. shall maintain an operating and maintenance log for the baghouses and drum filters 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 primary emission point shall be located at least 400 feet from the nearest property boundary.
- 7. Fuel Requirement
 - A. Asphalt Products Inc. shall exclusively use natural gas to fuel their drum dryer (EP-4).
 - B. Asphalt Products Inc. shall exclusively burn diesel fuel with a sulfur content less than or equal to 0.05% by weight in their asphalt heater (EP-7).
 - C. Asphalt Products Inc. shall demonstrate compliance with Special Condition 7.B by obtaining records from the vendor of the sulfur content 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. Asphalt Products Inc. shall keep the records required by Special Condition 7.C with the unit and make them available for Department of Natural Resources' employees upon request.
- 8. Record Keeping Requirement
Asphalt Products 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.
- 9. Reporting Requirement
Asphalt Products 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 (6) REVIEW

Project Number: 2011-04-072
Installation ID Number: 051-0071
Permit Number:

Asphalt Products Inc.
2229 Christy Drive
Jefferson City, MO 65109

Complete: May 5, 2011

Parent Company:
Asphalt Products Inc.
P.O. Box 104747
Jefferson City, MO 65110

Cole County, S23, T44N, R12W

PROJECT DESCRIPTION

This permit is granting authority to Asphalt Products Inc. to operate a stationary asphalt plant with a maximum hourly design rate of 400 tons per hour at a site owned by Capital Quarries Inc. in Jefferson City, Missouri. Asphalt Products Inc. will operate a drum dryer that is powered by natural gas with a burner rated at 120 million British thermal units per hour (MMBtu/hr). An asphalt heater that is rated at 1.84 MMBtu/hr, which is powered by diesel fuel with a sulfur content up to 0.05% by weight, is used to heat the asphalt. The particulate matter emissions from the drum dryer are controlled by a baghouse. The equipment of this plant is powered by electricity from the grid. 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 Cole County, an attainment area for all criteria pollutants. This installation is on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250.0 tons per year and fugitive emissions are counted toward major source applicability. There are no other stationary plants or portable plants currently operating at this site. Asphalt Products Inc. has requested a voluntary production limit of 3,500 tons per day when other plants not owned by Asphalt Products Inc. operate at this site.

The Air Pollution Control Program issued a permit for portable asphalt plant PORT-0552, which is owned by Asphalt Products Inc., to operate at this site in 2006 (Permit 062006-007). PORT-0552 currently does not operate at this site, but may relocate to this site if the NAAQS is not exceeded.

TABLES

The table below summarizes the emissions of this project. The potential emissions of the application represent the emissions of all equipment and activities assuming continuous operation (8,760 hours per year). The conditioned potential emissions are based on a voluntary limit of 15.0 tons per year to avoid modeling requirements.

Table 1: Emissions Summary (tons per year)

Pollutant	De Minimis Level/SMAL	Potential Emissions of Process Equipment ^a	Existing Actual Emissions	Potential Emissions of the Application ^b	Conditioned Potential Emissions ^c
PM	25.0	64.34	N/A	138.98	29.26
PM ₁₀	15.0	43.86	N/A	71.12	< 15.00
PM _{2.5}	10.0	40.73	N/A	50.96	9.86
SO _x	40.0	14.25	N/A	14.25	9.43
NO _x	40.0	46.70	N/A	46.70	9.88
VOC	40.0	84.28	N/A	84.28	16.16
CO	100.0	232.48	N/A	232.48	44.77
Formaldehyde	10.0/2.0 ^d	5.59	N/A	5.59	1.07
2-methylnaphthalene ^e	10.0/0.01 ^d	0.13	N/A	0.13	0.02
Lead Compounds	10.0/0.01 ^d	0.001	N/A	0.001	0.0002
Total HAPs	25.0	9.77	N/A	9.77	1.87

N/A = Not Applicable

^a Excludes haul road and storage pile emissions

^b Includes site specific haul road and storage pile emissions

^c The conditioned potential emissions account for an annual limit of PM₁₀ below the de minimis level of 15.0 tons per year to avoid modeling requirements. Other pollutants proportionately reduced.

^d Screening Model Action Level (SMAL)

^e 2-methylnaphthalene is a member of the Polycyclic Organic Matter (POM) HAP group

Table 2: Ambient Air Quality Impact Analysis

Pollutant	¹ NAAQS/RAL (µg/m ³)	Averaging Time	² Maximum Modeled Impact (µg/m ³)	Limited Impact (µg/m ³)	Background (µg/m ³)	³ Daily Production (tons/day)
⁴ PM ₁₀ (same)	150.0	24-hour	77.28	N/A	20.0	9,600
⁵ PM ₁₀ (separate)	150.0	24-hour	N/A	28.0	102.0	3,500
2-methylnaphthalene	0.16	24-hour	0.001	N/A	N/A	N/A
⁶ 2-methylnaphthalene	0.16	Annual	0.0002	N/A	N/A	N/A

N/A = Not Applicable

¹ National Ambient Air Quality Standards (NAAQS) and Risk Assessment Level (RAL)

² Modeled impact at maximum capacity with controls

³ Indirect limit based on compliance with NAAQS.

⁴ Solitary operation or operation with other plants that are owned by Asphalt Products Inc.

⁵ Operation with other plants that are not owned by Asphalt Products Inc.

⁶ Annual POM standard is 10 times the annual RAL (0.016 µg/m³)

The plant's drum dryer was modeled using the SCREEN3 screen modeling software. The

stack characteristics entered into the modeled are listed in Table 3.

Table 3: SCREEN3 Input Parameters

Equipment Description	Stack Height (ft)	Stack Inside Diameter (ft)	Stack Gas Exit Velocity (ACFM)	Stack Gas Exit Temperature (°F)	Dispersion Coefficient
Drum Dryer	44.30	5.15	68,000	250	Rural

EMISSIONS CALCULATIONS

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

Emissions from the drum mix asphalt plant were calculated using emission factors from AP-42 Section 11.1 “Hot Mix Asphalt Plants,” April 2004. Sulfur oxide (SO_x) emissions were calculated using the SO₂ and SO₃ 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 PM₁₀ 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 greater than 1.5% weight.

Emissions from haul roads and vehicular activity areas were calculated using the predictive equation from AP-42 Section 13.2.2 “Unpaved Roads,” November 2006. A 90% control efficiency is applied to the emission calculations for the use of BMPs. Emissions from load-in and load-out of storage piles were calculated using the predictive equation from AP-42 Section 13.2.4. The moisture content of the aggregate is 1.5% 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 3. 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 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 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 PM_{10} 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 Asphalt Products Inc. shall demonstrate compliance with the NAAQS.

- When only Asphalt Products Inc. is located at this site, which is referred to as solitary operation, no record keeping is required to show compliance to the NAAQS for PM_{10} .
- When plants that are owned by Asphalt Products Inc., which are referred to as same owner plants, are located at the site, Asphalt Products Inc. must calculate the daily impact of each plant and limit the total impact of all plants below the NAAQS.
- When plants that are not owned by Asphalt Products Inc., which are referred to as separate owner plants, are located at the site, Asphalt Products Inc. must account for the impacts of these plants as a background concentration and add it to the total impact of all plants owned by Asphalt Products Inc. that are operating at the site. This total is limited below the NAAQS. Asphalt Products Inc. will limit the total impact of all plants they own and operate at the site to 28.0 $\mu\text{g}/\text{m}^3$ when any plants they do not own are located at the site. Asphalt Products Inc. is not permitted to operate with any plant that is not owned by Asphalt Products Inc. that has a separate owner background greater than 102.0 $\mu\text{g}/\text{m}^3$.

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 de minimis levels.

APPLICABLE REQUIREMENTS

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

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110. The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required on April 1 for paper submittals or May 1 for MOEIS submittals for the previous year's emissions. Payment of emission fee is required by June 1.
- A Basic Operating Permit application 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 Odors*, 10 CSR 10-6.165

SPECIFIC REQUIREMENTS

- 40 CFR 60 Subpart I, "Standards of Performance for Hot Mix Asphalt Facilities" applies to the equipment.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPS) or National Emission Standards for Hazardous Air Pollutants for Source Categories (MACTS) apply to the proposed equipment.
- *Restriction of Emission of Sulfur Compounds*, 10 CSR 10-6.260

STAFF RECOMMENDATION

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

Daronn A. Williams
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated April 25, 2011, received April 28, 2011, designating Asphalt Products Inc. as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Northeast Regional Office Site Survey, dated May 11, 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 emissions¹ 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.

¹For 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. Chris Yarnell
General Manager
Asphalt Products Inc.
P.O. Box 104747
Jefferson City, MO 65110

RE: New Source Review Permit - Project Number: 2011-04-072

Dear Mr. Yarnell:

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 and your new source review permit application is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you 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 by telephone at (573) 751-4817. Thank you for your time and attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:dwk

Enclosures

c: Northeast Regional Office
PAMS File: 2011-04-072

Permit Number: