

Missouri Department of dnr.mo.gov

NATURAL RESOURCES

Michael L. Parson, Governor

Carol S. Comer, Director

DEC 12 2018

Mr. Troy Montavy
Quality Control/Customer Service
Table Rock Asphalt Construction Co., Inc.
PO Box 1165
Branson, MO 65615

RE: New Source Review Permit - Project Number: 2018-08-057
Installation Number: 213-0003

Dear Mr. Montavy:

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. In addition, please note that Table Rock Asphalt Construction Co., Inc. cannot operate with any other plants that have ambient impact limits based on the Air Pollution Control Program's nomographs. Please refer to the permits of any plant that you are operating with to see if their respective permits contain an ambient impact limit. 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.

This permit may include requirements with which you may not be familiar. If you would like the department to meet with you to discuss how to understand and satisfy the requirements contained in this permit, an appointment referred to as a Compliance Assistance Visit (CAV) can be set up with you. To request a CAV, please contact your local regional office or fill out an online request. The regional office contact information can be found at the following website: <http://dnr.mo.gov/regions/>. The online CAV request can be found at <http://dnr.mo.gov/cav/compliance.htm>.

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



Recycled paper

Mr. Troy Montavy
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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, United States Post Office Building, 131 West High Street, Third Floor, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: www.ao.mo.gov/ahc.

If you have any questions, please do not hesitate to contact Kathy Kolb, 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



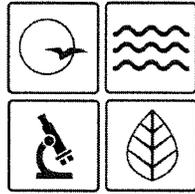
Susan Heckenkamp
New Source Review Unit Chief

SH:kkj

Enclosures

c: Southwest Regional Office
PAMS File: 2018-08-057

Permit Number: 122018-006



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: 122018 - 006

Project Number: 2018-08-057

Installation ID: 213-0003

Parent Company: Table Rock Asphalt Construction Co., Inc.

Parent Company Address: PO Box 1165, Branson, MO 65615

Installation Name: Table Rock Asphalt Construction Co., Inc.

Installation Address: 3600 State Highway 248, Branson, MO 65615

Location Information: Taney County, S18 T23N R21W

Application for Authority to Construct was made for:
Construction of a new concrete 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.

Kendall B. Hale for

Director or Designee
Department of Natural Resources

DEC 12 2018

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 Enforcement and Compliance Section of 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 Enforcement and Compliance Section of 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's 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 the permit application and this permit and permit review shall be kept at the installation address and shall be made available to Department's 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 using the contact information below.

Contact Information:
Missouri Department of Natural Resources
Air Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102-0176
(573) 751-4817

The regional office information can be found at the following website:
<http://dnr.mo.gov/regions/>

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**
Table Rock Asphalt Construction Co., Inc. shall control fugitive emissions from all of the haul roads and vehicular activity areas at this site by performing BMPs as defined in Attachment AA.

2. **Annual Emission Limit**
 - A. Table Rock Asphalt Construction Co., Inc. shall emit less than 15.0 tons of PM₁₀ in any 12-month period from this project which consists of the equipment listed in Table 1 (page 7 of this permit). The SSM emissions as reported to the Air Pollution Control Program's Compliance/Enforcement Section in accordance with the requirements of 10 CSR 10-6.050 *Start-Up, Shutdown, and Malfunction Conditions* shall be included in the limit.

 - B. Table Rock Asphalt Construction Co., 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.

3. **Moisture Content Testing Requirement**
 - A. Table Rock Asphalt Construction Co., Inc. shall verify that the moisture content of the processed rock is greater than or equal to 1.5 percent by weight.

 - B. Testing shall be conducted according to the method prescribed by the American Society for Testing Materials (ASTM) D-2216, C-566 or another method approved by the Director.

 - C. The initial test shall be conducted no later than 45 days after the start of operation. A second test shall be performed the calendar year following the initial test during the months of July or August.

 - D. The test samples shall be taken from rock that has been processed by the plant or from each source of aggregate (e.g. quarry).

 - E. The written analytical report shall include the raw data and moisture content of each sample, the test date and the original signature of the individual performing the test. The report shall be filed on-site or at the Table Rock Asphalt Construction Co., Inc. main office within 30 days of completion of the required test.

SPECIAL CONDITIONS:

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

- F. If the moisture content of either of the two tests is less than the moisture content in Special Condition 3.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 3.A, Table Rock Asphalt Construction Co., Inc. shall either:
- 1) Apply for a new permit to account for the revised information, or
 - 2) Submit a plan for the installation of wet spray devices to the Compliance/Enforcement Section of the Air Pollution Control Program within 10 days of the second noncompliant test. Plans may be sent by mail to P.O. Box 176, Jefferson City, MO 65102 or by email at aircompliancereporting@dnr.mo.gov. The wet spray devices shall be installed and operational within 40 days of the second noncompliant test.
- G. In lieu of testing, Table Rock Asphalt Construction Co., Inc. may obtain test results that demonstrate compliance with the moisture content in Special Condition 3.A from the supplier of the aggregate.
4. Control Device Requirement-Baghouse
- A. Table Rock Asphalt Construction Co., Inc. shall control emissions from the equipment listed below using baghouses as specified in the permit application.
- 1) Cement Silo EP-03
 - 2) Supplement Silo EP-04
 - 3) Weigh Hopper EP-05
 - 4) Truck Mix Loadout (shroud vented to baghouse) EP-06
- B. Each baghouse shall be operated and maintained in accordance with the manufacturer's specifications. Each 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 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).
- D. Table Rock Asphalt Construction Co., Inc. shall monitor and record the operating pressure drop across each baghouse at least once every 24 hours when the associated equipment is in operation. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
- E. Table Rock Asphalt Construction Co., Inc. shall maintain a copy of the baghouse manufacturer's performance warranty on site.

SPECIAL CONDITIONS:

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

- F. Table Rock Asphalt Construction Co., Inc. shall maintain an operating and maintenance log for the baghouse 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.

5. Dismantled Equipment

Table Rock Asphalt Construction Co., Inc. shall dismantle and deem inoperable the concrete plant and associated equipment that were originally permitted in Permit #0393-003.

6. Record Keeping Requirement

Table Rock Asphalt Construction Co., Inc. shall maintain all records required by this permit for not less than five years and make them available to any Missouri Department of Natural Resources' personnel upon request.

7. Reporting Requirement

Table Rock Asphalt Construction Co., Inc. shall report to the Air Pollution Control Program, Compliance / Enforcement Section by mail to P.O. Box 176, Jefferson City, MO 65102 or by email at AirComplianceReporting@dnr.mo.gov, 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: 2018-08-057

Installation ID Number: 213-0003

Permit Number: 122018-006

Table Rock Asphalt Construction Co., Inc.:
3600 State Highway 248
Branson, MO 65615

Complete: August 31, 2018

Parent Company:
Table Rock Asphalt Construction Co., Inc.
PO Box 1165
Branson, MO 65615

Taney County, S18 T23N R21W

PROJECT DESCRIPTION

Table Rock Asphalt Construction Co., Inc. is constructing a new concrete plant at its Quarry 1 located at 3600 State Highway 248 in Taney County. It is a Stephens "Stallion" concrete plant, Serial Number 10127-18. It is rated at 200 tons per hour. The baghouse is a C&W RA-120 with an overall 955 square feet of filtration area, 5,000 CFM, with a 99.9% minimum efficiency (therefore the controlled emission factors were used) and a reverse air cleaning mechanism. There is a 3.5 MMBtu/hr Person Model P-10-250 water heater that is fueled by natural gas. The concrete plant will be powered by the local electric utility.

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 Taney County, an attainment area for all criteria pollutants.

This installation is not on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2].

Table Rock Asphalt Construction Co., Inc. has an asphalt plant (Permits #0491-009 / #032009-006) and a rock crushing plant (Permit #032009-006) on the west side of State Highway 248 at 3269 State Highway 248. There was an underground mine (Permits #0693-017 / #032009-006) that is no longer operational and is now used as an underground storage unit. There is also a concrete plant (Permit #0393-003) that will be dismantled and deemed inoperable when this concrete plant project is completed and operational. There is a portable rock crushing plant (PORT-0713) which is located

on the east side of State Highway 248 (3600 State Highway 248) along with the new concrete plant. The asphalt plant and rock crushing plant operating at this site (Site ID 213-0003) had ambient impact limits that were based on the Air Pollution Control Program's nomographs. They have been amended in Permit #032009-006A to reflect a daily production limit. PORT-0713 has an annual limit of 15.0 tons of PM₁₀ per amendment (21 day relocation) #032015-002B.

TABLES

Table 1: Concrete Plant Equipment List

Emission Point	Description	MHDR
EU-1	Aggregate Transfer	92.69 tph
EU-2	Sand Transfer	70.97 tph
EU-3	Cement Unloading to Silo	24.40 tph
EU-4	Supplement Unloading to Silo	3.63 tph
EU-5	Weigh Hopper	163.67 tph
EU-6	Truck Loading (Cement and Supplement loading per AP-42)	28.03 tph
EU-7a	Aggregate Storage Pile-Load in	92.69 tph
EU-7b	Aggregate Storage Pile-Load out	92.69 tph
EU-7c	Aggregate Storage Pile-Vehicular Activity	1.28 VMT
EU-7d	Aggregate Storage Pile-Wind Erosion	0.50 acre
EU-8a	Sand Storage Pile-Load in	70.97 tph
EU-8b	Sand Storage Pile-Load out	70.97 tph
EU-8c	Sand Storage Pile-Vehicular Activity (Unpaved)	0.98 VMT
EU-8d	Sand Storage Pile-Wind Erosion	0.5 acres
EU-9	Road #1 (Sand and Aggregate) (Unpaved)	3.37 VMT/hr
EU-10	Road #2 (Cement and Supplement) (Unpaved)	0.54 VMT
EU-11	Road #3 Concrete (Unpaved)	1.08 VMT/hr
EU-12	Hot Water Heater (Natural Gas)	3.5 MMBtu/hr

The following permits have been issued to Table Rock Asphalt Construction Co., Inc. from the Air Pollution Control Program.

Table 2: Permit History

Permit Number	Description
0491-009	Asphalt Plant
0393-003	Concrete Batch Plant
0693-017	Rock Crushing Plant (Underground)
032009-006	Crushing and Screening Plant
032015-002	Portable Rock Crushing Plant PORT-0713

The table below summarizes the emissions of this project. The potential emissions of the process equipment excludes emissions from haul roads and wind erosion. The existing actual emissions were taken from the 2017 year's EIQ. The potential emissions of the application represent the emissions of all equipment and activities assuming continuous operation (8760 hours per year). Conditioned potential emissions account for a voluntary annual PM₁₀ emission limit of 15.0 tons per year in order to avoid refined modeling.

Table 3: Emissions Summary (tons per year)

Air Pollutant	De Minimis Level/SMAL	^a Existing Potential Emissions of Installation	^b Potential Emissions of Process Equipment	Existing Actual Emissions (2017 EIQ)	^c Potential Emissions of the Application	Conditioned Potential Emissions
PM	25.0	N/D	6.79	N/D	56.53	43.74
PM ₁₀	15.0	35.15	3.11	8.00	19.39	<15.0
PM _{2.5}	10.0	N/D	1.42	3.18	5.17	4.00
SO _x	40.0	0.17	0.01	7.17	0.01	0.01
NO _x	40.0	1.67	1.49	2.88	1.49	1.15
VOC	40.0	0.96	0.08	0.94	0.08	0.06
CO	100.0	3.91	1.25	1.60	1.25	0.97
GHG (CO ₂ e)	N/A	N/D	1.74	N/A	1.74	1.35
GHG (mass)	N/A	N/D	1.74	N/A	1.74	1.35
Total HAPs	25.0	0.09	0.03	0.00	0.03	0.02

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

^a Based on Permit 032009-006 emissions for the installation. Since that permit, the underground crusher (Permit #0693-017) is no longer operational and the concrete plant (Permit #0393-003) will be dismantled upon completion of the construction of this project. These two plants have not been removed from the installation's PTE.

^b Excludes haul road and storage pile emissions

^c Includes site specific haul road and storage pile emissions

EMISSIONS CALCULATIONS

Emissions for the project were calculated as described below and 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 concrete batch plant:

- Calculated using emission factors from AP-42 Section 11.12 "Concrete Batching," June 2006.
- This section cites Equation (1) in Section 13.2.4 "Aggregate Handling and Storage Piles," November 2006 for calculating the emissions from aggregate and sand transfer.
- The cement and supplement silos are controlled with baghouses, so the controlled emission factors were used.

Emissions from the aggregate weigh hopper:

- Calculated using AP-42 Section 13.2.4, Equation (1).
- These emissions are controlled by a baghouse so a 99% control factor was applied to the calculation.

- Emissions from mixer loading/mix truck loading are controlled by a shroud vented to a baghouse, so the controlled emission factor was used.

Emissions from the water heater:

- Calculated using emission factors from AP-42 Section 1.4, Natural Gas Combustion.

Emissions from aggregate handling:

- 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% by weight.

Emissions from haul roads and vehicular activity areas:

- Calculated using the predictive equation from AP-42 Section 13.2.2 "Unpaved Roads," November 2006.
- A 90% control efficiency for PM and PM₁₀ and a 74% control efficiency for PM_{2.5} were applied to the emission calculations for the use of BMPs.

Emissions from storage piles:

- 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 greater than 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."

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. The conditioned potential emissions include emissions from sources that will limit their production to ensure compliance with the annual PM₁₀ emission limit of 15.0 tons per year for plants in order to avoid refined modeling. Potential emissions of PM are above de minimis but below major source levels. There are no modeling requirements for PM. PM₁₀ and all other pollutants are under de minimis.

APPLICABLE REQUIREMENTS

Table Rock Asphalt Construction Co., Inc. shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements.

Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110.
- The Operating Permit: Several pieces of equipment have been removed from the installation. The removal of the equipment will result in a lower installation PTE which may change the operating permit type or determine whether or not an operating permit is needed. As such, it is recommended that the installation's PTE be evaluated to make this determination. Note that Operating Permit type is dependent on non-fugitive emissions and all emissions (fugitive and non-fugitive) from the asphalt plant which is a named source.
- *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 does not apply because EU-3, EU-4, EU-5 and EU-6 are controlled by a fabric filter.
- 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.

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 recommended that 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 August 20, 2018, received August 27, 2018, designating Table Rock Asphalt Construction Co., Inc. 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

%	percent	MMBtu	Million British thermal units
°F	degrees Fahrenheit	MMCF	million cubic feet
acfm	actual cubic feet per minute	MSDS	Material Safety Data Sheet
BACT	Best Available Control Technology	NAAQS	National Ambient Air Quality Standards
BMPs	Best Management Practices	NESHAPs ..	National Emissions Standards for Hazardous Air Pollutants
Btu	British thermal unit	NO_x	nitrogen oxides
CAM	Compliance Assurance Monitoring	NSPS	New Source Performance Standards
CAS	Chemical Abstracts Service	NSR	New Source Review
CEMS	Continuous Emission Monitor System	PM	particulate matter
CFR	Code of Federal Regulations	PM_{2.5}	particulate matter less than 2.5 microns in aerodynamic diameter
CO	carbon monoxide	PM₁₀	particulate matter less than 10 microns in aerodynamic diameter
CO₂	carbon dioxide	ppm	parts per million
CO_{2e}	carbon dioxide equivalent	PSD	Prevention of Significant Deterioration
COMS	Continuous Opacity Monitoring System	PTE	potential to emit
CSR	Code of State Regulations	RACT	Reasonable Available Control Technology
dscf	dry standard cubic feet	RAL	Risk Assessment Level
EIQ	Emission Inventory Questionnaire	SCC	Source Classification Code
EP	Emission Point	scfm	standard cubic feet per minute
EPA	Environmental Protection Agency	SDS	Safety Data Sheet
EU	Emission Unit	SIC	Standard Industrial Classification
fps	feet per second	SIP	State Implementation Plan
ft	feet	SMAL	Screening Model Action Levels
GACT	Generally Available Control Technology	SO_x	sulfur oxides
GHG	Greenhouse Gas	SO₂	sulfur dioxide
gpm	gallons per minute	SSM	startup, shutdown, & malfunction
gr	grains	tph	tons per hour
GWP	Global Warming Potential	tpy	tons per year
HAP	Hazardous Air Pollutant	VMT	vehicle miles traveled
hr	hour	VOC	Volatile Organic Compound
hp	horsepower		
lb	pound		
lbs/hr	pounds per hour		
MACT	Maximum Achievable Control Technology		
µg/m³	micrograms per cubic meter		
m/s	meters per second		
Mgal	1,000 gallons		
MW	megawatt		
MHDR	maximum hourly design rate		

NOTICE: This spreadsheet is for your use only and should be used with caution. MoDNR does not guarantee the accuracy of the information it contains. This spreadsheet is subject to continual revision and updating. It is your responsibility to be aware of the most current, accurate and complete information available. MoDNR is not responsible for errors or omissions in this spreadsheet. Submittal of the information contained in this spreadsheet (workbook) does not relieve the responsible official of the certification statement signed on the first page of the application.

		Pollutant	Justification for Limit	Limit Hours per Year
Hours per day	24.0	PM10	NAAQS	
Days per year	282.4	N/A	N/A	Limit Hours per Year w/ 24 hr day
Hours per year	6777.1	PM10	De Minimis	

Pollutant	Potential Emissions of Process Equipment (tons/yr)	Potential Emissions including fugitives (tons/yr)	Allowable Emissions for 6777 hours per year (tons/yr)	DeMinimis Thresholds	Plant-wide Composite Emission Factor (lb/ton)
PM	6.79	56.53	43.74	25	0.0645
PM ₁₀	3.11	19.39	15.00	15	0.0221
PM _{2.5}	1.42	5.17	4.00	10	0.0059
SO ₂	0.01	0.01	0.01	40	0.0000
NO ₂	1.49	1.49	1.15	40	0.0017
VOC	0.08	0.08	0.06	40	0.0001
CO	1.25	1.25	0.97	100	0.0014
CH ₂ O	0.00	0.00	0.00	2	0.0000
C ₁₁ H ₁₀	0.00	0.00	0.00	-	0.0000
Pb	0.00	0.00	0.00	0.01	0.0000
HAPs	0.03	0.03	0.02	10	0.0000
CO ₂	1.74	1.74	1.35	100	0.0020
N ₂ O	0.00	0.00	0.00	100	0.0000
CH ₄	0.00	0.00	0.00	100	0.0000
GHG _{mass}	1.74	1.74	1.35	100	0.0020
CO ₂ eq	1.74	1.74	1.35	100,000	0.0020

Maximum hourly design rate (tons/hr)	200
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Tons of product per day	4,800.0
Tons of product per year	1,355,422.8

Cell: C4
Comment: Plant Capacity:
One cubic yard of concrete weighs approximately two tons.

Cell: A26
Comment: Material 1:
Also known as aggregate, rock. Various limestone products is NOT a valid choice here.

Cell: C40
Comment: Storage Pile ID No.:
The storage pile No. is not used on the emission factor pages, but rather labeled "Storage Pile"

Cell: D40
Comment: Pile #1:
This pile is associated with the Aggregate transfer, load-in/load-out used there for drop points.

Cell: E40
Comment: Pile #2:
This pile is associated with the Sand transfer, load-in/load-out used there for drop points.

Cell: C41
Comment: Maximum Surface Area of Storage Pile (Acres):
Enter the total surface area of all storage piles.

Cell: C43
Comment: Storage Pile Materials - Moisture Content Information

Material Stored	Moisture Content %	
	Range	Mean
Crushed Limestone *	0.2 to 1.1	0.7
Various Limestone Products	0.46 to 5.0	2.1
Sand	--	7.4
Clay/Dirt Mix	--	14.0
Clay	8.9 to 11.0	10.0

* Additional documentation (i.e. test data, ASTM-C-136 method) should be provided if using a different value for the moisture contents in place of the default (mean) value.

Cell: C44
Comment: Storage Pile Materials - Silt Content Information

Material Stored	Silt Content %	
	Range	Mean
Crushed Limestone *	1.3 to 1.9	1.6
Various Limestone Products	0.8 to 14	14.0
Sand	--	2.6
Clay/Dirt Mix	--	9.2
Clay	4.5 to 7.4	5.0

* Additional documentation (i.e. test data, ASTM-C-136 method) should be provided if using a different value for the silt contents in place of the default (mean) value.

Cell: D44
Comment: Silt Content %:
The initial default values for silt content should be replaced with site-specific information.

Cell: C48
Comment: Unloaded Loader Weight:
This data will be used by Paved & Unpaved worksheets to calculate storage pile traffic emissions.

Cell: C50
Comment: Rate:
For Pile #1, the default is the primary crusher size.

Cell: C51
Comment: max VMT per hour:
 $MHDR = 2 * D * R / (U - L)$ where:
MHDR = maximum hourly design rate (VMT/hr)
D = one way length of haul road (miles)
R = rate of material hauled (tons/hr)
U = unloaded truck weight (tons)
L = loaded truck weight (tons)

Cell: C56
Comment: Haul Road ID No.: Enter a value or number to uniquely identify this emission endpoint at this installation. The value entered for the Haul Road ID No. must be consistent with those in your Emission Inventory Questionnaire (EIQ) and your Operating Permit/Application.

Cell: C58
Comment: Unloaded Truck Weight (Tons): Enter the unloaded weight of the haul trucks. Note: If using haul trucks of varying unloaded weights, then a "fleet" weighted average value should be used and documentation of the analysis should included with your submittal.
Example: 75% of rock is hauled in a 50 ton truck and 25% is hauled in a 30 ton truck. The "fleet" average unloaded weight would be calculated as follows:
"Fleet" Avg. Wt. = [(0.75 x 50 tons) + (0.25 x 30 tons)]
= [(37.5 tons) + (7.5 tons)]
= 45 tons

Cell: C59
Comment: Average Loaded Truck Weight (Tons): Enter the average loaded weight of the haul trucks. Note: If using haul trucks of varying loaded weights, then a "fleet" weighted average value should be used and documentation of the analysis should included with your submittal.
Example: 75% of rock is hauled in a 50 ton truck and 25% is hauled in a 30 ton truck. The "fleet" average unloaded weight would be calculated as follows:
"Fleet" Avg. Wt. = [(0.75 x 50 tons) + (0.25 x 30 tons)]
= [(37.5 tons) + (7.5 tons)]
= 45 tons

Cell: C60
Comment: Rate Hauled:
For Road #1, the default is the primary crusher size.

Cell: C61
Comment: max VMT per hour:
 $MHDR = 2 * D * R / (U - L)$ where:
MHDR = maximum hourly design rate (VMT/hr)
D = one way length of haul road (miles)
R = rate of material hauled (tons/hr)
U = unloaded truck weight (tons)
L = loaded truck weight (tons)

Cell: D67
Comment: Randy Raymond:
Because BHP and gallons per hour are linked through code, if you want to erase them, you have to highlight both cells and then hit the delete key.

Cell: D69
Comment: Randy Raymond:
Because BHP and gallons per hour are linked through code, if you want to erase them, you have to highlight both cells and then hit the delete key.

Cell: C71
Comment: Generator-set engine:
means an engine used primarily to operate an electrical generator or alternator to produce electric power for other applications.

Cell: C73
Comment: Fuel Sulfur Content:
From: Randolph, Bob
Sent: Monday, December 22, 2014 12:05 PM
To: Little, David
Cc: Heckenkamp, Susan
Subject: FW: no permit required concurrence

The Air Quality Planning Section agrees with the 'no construction permit required' determination per the requirements of 10 CSR 10-6.061.

Additional Comment:
Please note that as part of the development of the 1-hour SO2 NAAQS State Implementation Plan, Missouri may in the next few years codify a state regulatory requirement that all diesel powered engines and boilers throughout Missouri (or near large SO2 sources) shall be required to use diesel fuel compliant with federal Ultra Low Sulfur Diesel (ULSD) requirements [15 ppm Sulfur content]. Though the Air Program has been informed by diesel purchasers and users that ULSD is their only option when purchasing diesel fuel in Missouri and throughout the Midwest, the USEPA does not consider the federal requirements to be binding. As a result, Missouri may be required by USEPA to include such a blending ULSD requirement in a future state rulemaking and/or as part of another permanent and enforceable mechanism(s). Thank you.

From: Wilbur, Emily
Sent: Monday, December 15, 2014 1:52 PM
To: Randolph, Bob
Subject: FW: no permit required concurrence

From: Little, David
Sent: Monday, December 15, 2014 1:49 PM
To: Bybee, Darcy; O'Neil, Neilan; Stevens, Jeffrey; Stanfield, Michael; Wilbur, Emily
Cc: Heckenkamp, Susan
Subject: no permit required concurrence

The Permits Section is requesting concurrence on a permit determination. A draft no permit required letter is attached. The Permits Section is sending this email to request each section to review the draft letter and provide input and approval.

Please respond to this email by December 22

Thank you,

David Little, PE
Missouri Department of Natural Resources

Emission Point Number	Emission Unit Number	Description	SCC	MHDR	Units	Control Device Number	Control Type	Capture Efficiency (%)	Control Efficiency (%)	Pollutant	Emission Factor	Units (pounds per)	Emission Rate (lb/hr)	Potential Emissions (tons/yr)	Allowable Emissions (tons/yr)
1	1	Aggregate transfer Moisture Content (% wt.) = 1.5	3-05-011-04	92.69	tons per hour			N/A	N/A	PM	0.0087	ton	8.09E-01	3.54	2.74
								N/A	N/A	PM ₁₀	0.0041	ton	3.82E-01	1.67	1.30
								N/A	N/A	PM _{2.5}	0.0008	ton	5.79E-02	0.25	0.20
2	2	Sand transfer Moisture Content (% wt.) = 4.17	3-05-011-05	70.97	tons per hour			N/A	N/A	PM	0.0021	ton	1.48E-01	0.65	0.50
								N/A	N/A	PM ₁₀	0.0010	ton	7.00E-02	0.31	0.24
								N/A	N/A	PM _{2.5}	0.0001	ton	1.06E-02	0.05	0.04
3	3	Cement unloading to silo	3-05-011-07	24.40	tons per hour		Fabric filter	100%	N/A	PM	0.0010	ton	2.42E-02	0.11	0.08
								100%	N/A	PM ₁₀	0.0003	ton	8.30E-03	0.04	0.03
								100%	N/A	PM _{2.5}	0.0003	ton	8.30E-03	0.04	0.03
4	4	Supplement unloading (pneumatic)	3-05-011-17	3.63	tons per hour		Fabric filter	100%	N/A	PM	0.0089	ton	3.23E-02	0.14	0.11
								100%	N/A	PM ₁₀	0.0049	ton	1.78E-02	0.08	0.06
								100%	N/A	PM _{2.5}	0.0049	ton	1.78E-02	0.08	0.06
5	5	Weigh hopper loading	3-05-011-08	163.67	tons per hour		Fabric filter	100%	99.0%	PM	0.0048	ton	7.86E-03	0.03	0.03
								100%	99.0%	PM ₁₀	0.0028	ton	4.58E-03	0.02	0.02
								100%	99.0%	PM _{2.5}	0.0014	ton	2.36E-03	0.01	0.01
6	6	Truck loading (truck mix) Moisture Content (% wt.) = 0.12	3-05-011-10	28.03	tons per hour		Controlled	N/A	N/A	PM	0.020653965	ton	5.04E-01	2.21	1.71
								N/A	N/A	PM ₁₀	0.008261586	ton	2.02E-01	0.88	0.68
								N/A	N/A	PM _{2.5}	0.008261586	ton	2.02E-01	0.88	0.68
7A	7A	Generator Model Year			bhp gallons per hour mmBtu/hour			N/A	N/A	PM			MMBtu		
								N/A	N/A	PM ₁₀			MMBtu		
								N/A	N/A	PM _{2.5}			MMBtu		
								N/A	N/A	SO ₂			Gallon		
								N/A	N/A	NO ₂			MMBtu		
								N/A	N/A	CO			MMBtu		
								N/A	N/A	VOC			MMBtu		
								N/A	N/A	CH ₂ O			MMBtu		
								N/A	N/A	HAPs			MMBtu		
								N/A	N/A	CO ₂			MMBtu		
								N/A	N/A	N ₂ O			MMBtu		
7B	7B	Generator Model Year			bhp gallons per hour mmBtu/hour			N/A	N/A	PM			MMBtu		
								N/A	N/A	PM ₁₀			MMBtu		
								N/A	N/A	PM _{2.5}			MMBtu		
								N/A	N/A	SO ₂			Gallon		
								N/A	N/A	NO ₂			MMBtu		
								N/A	N/A	CO			MMBtu		
								N/A	N/A	VOC			MMBtu		
								N/A	N/A	CH ₂ O			MMBtu		
								N/A	N/A	HAPs			MMBtu		
								N/A	N/A	CO ₂			MMBtu		
								N/A	N/A	N ₂ O			MMBtu		
7C	7C	Generator Model Year			bhp gallons per hour mmBtu/hour			N/A	N/A	PM			MMBtu		
								N/A	N/A	PM ₁₀			MMBtu		
								N/A	N/A	PM _{2.5}			MMBtu		
								N/A	N/A	SO ₂			Gallon		
								N/A	N/A	NO ₂			MMBtu		
								N/A	N/A	CO			MMBtu		
								N/A	N/A	VOC			MMBtu		
								N/A	N/A	CH ₂ O			MMBtu		
								N/A	N/A	HAPs			MMBtu		
								N/A	N/A	CO ₂			MMBtu		
								N/A	N/A	N ₂ O			MMBtu		
N/A	N/A	GHG _{mass}			MMBtu										
N/A	N/A	CH ₄			MMBtu										

Equipment	Unit ID	Description of Unit	Equipment Description/SCC	Heat Rate	UoM per hour						Emission Factor (lbs/UoM)					
	12	Combustion #1	NG (< 100 mmBtu/hour):	3.5	mmBtu			100%	N/A	PM	7.60	mmscf	2.59E-02	0.11	0.09	
					mgal			100%	N/A	PM ₁₀	7.60	mmscf	2.59E-02	0.11	0.09	
				0.00	mmscf			100%	N/A	PM _{2.5}	7.60	mmscf	2.59E-02	0.11	0.09	
								100%	N/A	SO ₂	0.60	mmscf	2.04E-03	0.01	0.01	
								100%	N/A	NO ₂	100.00	mmscf	3.40E-01	1.49	1.15	
								100%	N/A	VOC	5.50	mmscf	1.87E-02	0.08	0.06	
								100%	N/A	CO	84.00	mmscf	2.88E-01	1.25	0.97	
								100%	N/A	CH ₂ O	0.08	mmscf	2.55E-04	0.00	0.00	
								100%	N/A	Pb	0.00	mmscf	1.70E-06	0.00	0.00	
								100%	N/A	HAPs	1.89	mmscf	6.43E-03	0.03	0.02	
								100%	N/A	CO ₂	116.89	mmscf	3.98E-01	1.74	1.35	
								100%	N/A	N ₂ O	0.00	mmscf	7.51E-07	0.00	0.00	
								100%	N/A	GHG _{mass}	116.89	mmscf	3.98E-01	1.74	1.35	
				100%	N/A	CH ₄	0.00	mmscf	7.51E-06	0.00	0.00					
		Combustion #2		mmBtu				100%	N/A	PM		mgal				
				mgal				100%	N/A	PM ₁₀		mgal				
				mmscf				100%	N/A	PM _{2.5}		mgal				
								100%	N/A	SO ₂		mgal				
								100%	N/A	NO ₂		mgal				
								100%	N/A	VOC		mgal				
								100%	N/A	CO		mgal				
								100%	N/A	CH ₂ O		mgal				
								100%	N/A	Pb		mgal				
								100%	N/A	HAPs		mgal				
								100%	N/A	CO ₂		mgal				
								100%	N/A	N ₂ O		mgal				
								100%	N/A	GHG _{mass}		mgal				
				100%	N/A	CH ₄		mgal								
		Combustion #3		mmBtu				100%	N/A	PM		mgal				
				mgal				100%	N/A	PM ₁₀		mgal				
				mmscf				100%	N/A	PM _{2.5}		mgal				
								100%	N/A	SO ₂		mgal				
								100%	N/A	NO ₂		mgal				
								100%	N/A	VOC		mgal				
								100%	N/A	CO		mgal				
								100%	N/A	CH ₂ O		mgal				
								100%	N/A	Pb		mgal				
								100%	N/A	HAPs		mgal				
								100%	N/A	CO ₂		mgal				
								100%	N/A	N ₂ O		mgal				
								100%	N/A	GHG _{mass}		mgal				
				100%	N/A	CH ₄		mgal								
	7a	Pile #1(used for Aggregate transfer) Load in		92.69	tons per hour			N/A	N/A	PM	0.0087	ton	8.09E-01	3.54	2.74	
								N/A	N/A	PM ₁₀	0.0041	ton	3.82E-01	1.67	1.30	
	7b	Load out		92.69	tons per hour			N/A	N/A	PM _{2.5}	0.0006	ton	5.79E-02	0.25	0.20	
								N/A	N/A	PM	0.0087	ton	8.09E-01	3.54	2.74	
	7c	Vehicular Activity		1.28	VMT per hour	Unpaved, Documented Watering/Chemical		N/A	90%	PM	9.8727	VMT	1.26E+00	5.52	4.27	
								N/A	90%	PM ₁₀	2.8074	VMT	3.58E-01	1.57	1.21	
	7d	Wind Erosion		0.50	acres			N/A	74%	PM _{2.5}	0.2807	VMT	9.32E-02	0.41	0.32	
								N/A	N/A	PM	0.1783	acre-hr	8.92E-02	0.39	0.30	
		8a	Pile #2(used for Sand transfer) Load in		70.97	tons per hour			N/A	N/A	PM	0.0021	ton	1.48E-01	0.65	0.50
									N/A	N/A	PM ₁₀	0.0010	ton	7.00E-02	0.31	0.24
		8b	Load out		70.97	tons per hour			N/A	N/A	PM _{2.5}	0.0001	ton	1.06E-02	0.05	0.04
									N/A	N/A	PM	0.0021	ton	1.48E-01	0.65	0.50
8c		Vehicular Activity		0.98	VMT per hour	Unpaved, Documented Watering/Chemical		N/A	90%	PM	0.0010	ton	7.00E-02	0.31	0.24	
								N/A	90%	PM ₁₀	0.0001	ton	1.06E-02	0.05	0.04	
8d		Wind Erosion		0.50	acres			N/A	74%	PM _{2.5}	9.8727	VMT	9.65E-01	4.23	3.27	
								N/A	90%	PM ₁₀	2.8074	VMT	2.74E-01	1.20	0.93	
								N/A	74%	PM _{2.5}	0.2807	VMT	7.14E-02	0.31	0.24	
								N/A	N/A	PM	0.2898	acre-hr	1.45E-01	0.63	0.49	
								N/A	N/A	PM ₁₀	0.1449	acre-hr	7.24E-02	0.32	0.25	
								N/A	N/A	PM _{2.5}	0.0217	acre-hr	1.09E-02	0.05	0.04	

