

Missouri Department of dnr.mo.gov

NATURAL RESOURCES

Michael L. Parson, Governor

Carol S. Comer, Director

NOV 07 2018

Mr. Jason Branstetter
Regulatory Compliance Manager
Capital Sand Company Inc. PORT-0783
P.O. Box 104990
Jefferson City, MO 65110

RE: New Source Review Permit
Project Number: 2018-08-047; Installation Number: PORT-0783

Dear Mr. Branstetter:

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 and your new source review permit application is necessary for continued compliance. In addition, please note that Capital Sand Company Inc. PORT-0783 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. Jason Branstetter
Page Two

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.aa.mo.gov/ahc.

If you have any questions regarding this permit, please do not hesitate to contact Chad Stephenson, 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



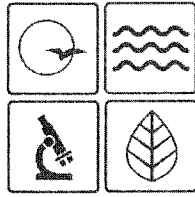
Susan Heckenkamp
New Source Review Unit Chief

SH:csj

Enclosures

c: Northeast Regional Office
PAMS File: 2018-08-047

Permit Number: 112018-002



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: 112018-002

Project Number: 2018-08-047
Installation ID: PORT-0783

Parent Company: Capital Sand Company Inc.

Parent Company Address: P.O. Box 104990, Jefferson City, MO 65110

Installation Name: Capital Sand Company Inc. PORT-0783

Installation Address: 103 County Road 463, New Franklin, MO 65274

Location Information: Howard County, S5 T49N R16W

Application for Authority to Construct was made for:
Portable grain loading facility. 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.

Director or Designee
Department of Natural Resources

NOV 07 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/>

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. Relocation of Portable Grain Loading Plant
 - A. Capital Sand Company Inc. PORT-0783 shall not be operated at any location longer than 24 consecutive months except if the Site Specific Special Conditions of this portable plant, PORT-0783, contain a nonroad engine requirement limiting the portable plant at the site specific location to 12 consecutive months.
 - B. A complete "Portable Source Relocation Request" application must be submitted to the Air Pollution Control Program prior to any relocation of this portable grain loading plant.
 - 1) If the portable grain loading plant is moving to a site previously permitted, and if the circumstances at the site have not changed, then the application must be received by the Air Pollution Control Program at least seven days prior to the relocation.
 - 2) If the portable grain loading plant is moving to a new site, or if circumstances at the site have changed (e.g. the site was only permitted for solitary operation and now another plant is located at the site), then the application must be received by the Air Pollution Control Program at least 21 days prior to the relocation. The application must include written notification of any concurrently operating plants.
2. Record Keeping Requirement
Capital Sand Company Inc. PORT-0783 shall maintain all records required by this permit for not less than five years and shall make them available to any Missouri Department of Natural Resources' personnel upon request.
3. Reporting Requirement
Capital Sand Company Inc. PORT-0783 shall report to the Air Pollution Control Program Compliance/Enforcement Section by mail at P.O. Box 176, Jefferson City, MO 65102 or by e-mail at AirComplianceReporting@dnr.mo.gov, no later than 10 days after any exceedances of the limitations imposed by this permit.

SITE SPECIFIC 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."

PORT ID Number: PORT-0783

Site ID Number: 089-0036

Site Name: County Road 463 - New Franklin

Site Address: 103 County Road 463, New Franklin, MO 65274

Site County: Howard S5 T49N R16W

1. Annual Emission Limit

- A. Capital Sand Company Inc. PORT-0783 shall emit less than 15.0 tons of PM₁₀ in any 12-month period from the entire installation which consists of the equipment listed in Table 1. 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.

Table 1: Installation Emission Points

Emission Point	Description
EP-01	Haul Road
EP-02	Grain Receiving
EP-03a	Conveyor
EP-03b	Conveyor
EP-04	Loading into Barges

- B. Capital Sand Company Inc. PORT-0783 shall demonstrate compliance with Special Condition 1.A using Attachment A or another equivalent form that has been approved by the Air Pollution Control Program, including an electronic form.

2. Undocumented Watering Requirement

Capital Sand Company Inc. PORT-0783 shall apply a water spray on all haul roads and vehicular activity areas whenever conditions exist that would allow visible emissions from these sources to leave the property.

3. Nonroad Engine Requirement

Capital Sand Company Inc. PORT-0783's engine shall not remain at one location within this site longer than 12 consecutive months in order for the engine to meet the definition

SITE SPECIFIC SPECIAL CONDITIONS:

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

of a nonroad engine as stated in 40 CFR 89.2. These engines shall be moved with its associated equipment at least once every 12 consecutive months at this site.

4. Record Keeping Requirement

Capital Sand Company Inc. PORT-0783 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.

5. Reporting Requirement

Capital Sand Company Inc. PORT-0783 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: 2018-08-047
Installation ID Number: PORT-0783
Permit Number: 112018-002

Capital Sand Company Inc. PORT-0783:
103 County Road 463
New Franklin, MO 65274

Complete: September 5, 2018

Parent Company:
Capital Sand Company Inc.
P.O. Box 104990
Jefferson City, MO 65110

Howard County, S5 T49N R16W

REVIEW SUMMARY

- Capital Sand Company Inc. PORT-0783 has applied for authority to operate a new portable barge terminal facility.
- The application was deemed complete on September 5, 2018.
- HAP emissions are not expected from the proposed equipment.
- None of the New Source Performance Standards (NSPS) apply to the installation.
- None of the NESHAPs apply to this installation. None of the currently promulgated MACT regulations apply to the proposed equipment.
- No air pollution control equipment is being used in association with the new equipment.
- This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM₁₀ and PM_{2.5} are conditioned below the de minimis level by the voluntary production limit. Potential emissions PM are above de minimis levels but below the major source level.
- This installation is located in Howard County, an attainment area for all criteria pollutants.

- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.
- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.
- Emissions testing is not required for the equipment as a part of this permit. Testing may be required as part of other state, federal or applicable rules.
- No Operating Permit is required for portable installations.
- Approval of this permit is recommended with special conditions.

INSTALLATION/PROJECT DESCRIPTION

This project is for a new portable barge loading facility that will initially be located on the Missouri River near Boonville, Missouri. The facility will support local grain producers to move their product to market. There will be one haul road (EP-1) that is approximately 1,320 feet long. The equipment will be a grain truck un-loader (EP-2) consisting of a hopper with a 48-inch conveyor (EP-3a) that will feed a 36-inch by 150 foot telescoping conveyor (EP-3b). The conveyor will load barges (EP-4) docked on the north bank of the Missouri River. The equipment is rated at 500 tons per hour.

The plant will be powered by a CAT XQ200 genset, however it meets the definition of nonroad engine as defined in 40 CFR 89.2 (1)(i). Therefore, the emissions of the engine were not included in the project emissions. Although a portable plant is allowed to operate at a site for 24 consecutive months, this grain loading plant is only allowed to operate at this site for 12 consecutive months since the diesel engine is classified as a non-road engine.

No permits have been issued to Capital Sand Company Inc. PORT-0783 from the Air Pollution Control Program. Capital Sand operates an existing sand unloading facility at this location. The facility unloads river barges of sand and stockpiles the sand on the high bank. MFA Agri Service formerly operated a fertilizer plant at this site; however no EIQ data has been submitted since 2012.

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 (8760 hours per year). 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).

Table 2: Emissions Summary (tons per year)

Air Pollutant	De Minimis Level/SMAL	^a Potential Emissions Excluding Haul Roads	^b Potential Emissions of the Application	Conditioned Potential Emissions
PM	25.0	696.42	1010.04	40.29
PM ₁₀	15.0	246.85	376.06	<15.0
PM _{2.5}	10.0	49.38	58.30	2.33
SO _x	40.0	N/A	N/A	N/A
NO _x	40.0	N/A	N/A	N/A
VOC	40.0	N/A	N/A	N/A
CO	100.0	N/A	N/A	N/A
Total HAPs	25.0	N/A	N/A	N/A

N/A = Not Applicable

^aExcludes site specific haul road emissions

^bIncludes site specific haul road 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 grain loading equipment:

- Calculated using emission factors from AP-42 Section 9.9.1 "Grain Elevators & Processes," May 2003.

Emissions from haul roads and vehicular activity areas:

- Calculated using the predictive equation from AP-42 Section 13.2.2 "Unpaved Roads," November 2006.

Emissions from portable diesel generator set:

- The engine emissions were not evaluated for this review as the diesel engine at this site is classified as a nonroad engine. 40 CFR 63 Subpart ZZZZ, "National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines" and 40 CFR 60 Subpart IIII, "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines" do not apply. However, if the plant were to remain in one location for longer than 12 consecutive months, it would not be in compliance with this permit because engine emissions were not evaluated. It may also not be in compliance with MACT ZZZZ or NSPS IIII. The nonroad engine is subject to further applicable requirements in 40 CFR 89 and 40 CFR 1039 which are outside the purview of this program.

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 PM₁₀ and PM_{2.5} are conditioned below the de minimis level by the voluntary production limit. Potential emissions PM are above de minimis levels but below the major source level.

APPLICABLE REQUIREMENTS

Capital Sand Company Inc. PORT-0783 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.
- *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

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 22, 2018, received August 22, 2018, designating Capital Sand Company Inc. as the owner and operator of the installation.

Attachment A: PM₁₀ 12-Month Rolling Total Emissions Tracking Sheet

Capital Sand Company Inc. PORT-0783

Project Number: 2018-08-047

Permit Number: **112018-002**

Site Name: County Road 463 - New Franklin
 Site Address: 103 County Road 463, New Franklin, MO 65274
 Site County: Howard S5 T49N R16W

This sheet covers the period from _____ to _____ (Copy as needed)
(Month, Day Year) (Month, Day Year)

Month	Production (tons)	PM ₁₀ Composite Emission Factor (lb/ton)	Monthly PM ₁₀ Emissions ¹ (lbs)	Startup, Shutdown and Malfunction PM ₁₀ Emissions ² (lbs)	Monthly PM ₁₀ Emissions ³ (tons)	12-Month Rolling Total Emissions ⁴ (tons)
<i>Example</i>	<i>10,000</i>	<i>0.1717</i>	<i>1,717</i>	<i>0.0</i>	<i>0.86</i>	<i>0.86 + 11 previous months at this site</i>
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				
		0.1717				

¹Multiply the monthly production by the PM₁₀ composite emission factor.
²As reported to the Air Pollution Control Program's Compliance/Enforcement Section according to the provisions of 10 CSR 10-6.050 for the month.
³Add the monthly PM₁₀ emissions plus the SSM emissions from the same time period and divide by 2000 and
⁴Add the monthly emissions (tons) to the sum of the monthly emissions from the previous eleven months. A total of less than 15.0 tons of PM₁₀ per consecutive 12 months is necessary for compliance.

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	PM ₁₀	particulate matter less than 10 microns in aerodynamic diameter
CO ₂	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
EQ.....	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	SO ₂	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/m ³	micrograms per cubic meter		
m/s.....	meters per second		
Mgal.....	1,000 gallons		
MW	megawatt		
MHDR	maximum hourly design rate		

Capital Sand

Potential to Emit Calculations for Grain Loading to Barge via Conveyor
 PM10 and PM2.5 Emission Calculations

EP-	Description	SCC	EF Source	Max Throughput (VMT/yr)	PM10 EF (lb/VMT)	Max Throughput (tons/yr)	PM10 EF (lb/ton)	PM10 Emissions (lbs/yr)	PM2.5 EF (lb/VMT)	PM2.5 EF (lb/ton)	PM2.5 Emissions (lbs/yr)	PM EF (lb/ton)	PM EF (lb/VMT)	PM Emissions (lbs/yr)	Tons PM10 per year	Tons PM2.5 per year	Tons PM per year
1	Haul Road - Paved (none)	30502011	AP-42	0.0	0.000			0	0.000		0		0.000	0			
1	Haul Road - Unpaved	30502011	AP-42	91250	1.954			178345	0.196		17839		6.874	627231	89.17	8.92	313.62
2	Grain receiving - truck	30200551	AP-42			4380000	0.059	258420		0.01	43800	0.180		788400	129.21	21.90	394.20
3a	Internal handling - conveyor	30200530	AP-42			4380000	0.034	148920		0.006	26280	0.061		267180	74.46	13.14	133.59
3b	Internal handling - conveyor	30200530	AP-42			4380000	0.034	148920		0.006	26280	0.061		267180	74.46	13.14	133.59
4	Grain shipping - barge	30200560	AP-42			4380000	0.004	17520		0.00055	2409	0.016		70080	8.76	1.20	35.04

TOTALS 376.06 58.30 1010.04
Conditioned Totals <15.0 2.3255772 40.29

PM10 Composite Emission Factor 0.1717

Note 1:
 PM10 and PM2.5 emission factors for EP2, 3, and 4 are in lbs/ton and were obtained from AP-42, Section 9.9.1-22, Table 9.9.1-1.

Note 2:
 Max throughput of EP1 is in VMT/yr. Emission factors for EP1 are in lb/VMT. Emission factors calculated using the equations in AP-42, Section 13.2.2, Unpaved Haul Roads.

Note 3:
 Internal handling includes truck unloader with conveyor and a radial stacker.

VMT/yr calculation

Paved
 2 * 0.0 miles * 000 tpy/(24 tons) = 0 VMT/yr
 376 Total PM10 tons/year
 0.1717 PM10 composite EF

Unpaved
 2 * 0.25 miles * 4380000 tpy/(24 tons) = 91250 VMT/yr
 58 Total PM2.5 tons/year
 0.0266 PM2.5 composite EF

Maximum Throughput Basis:
 500 tons per hour
 8760 hours per year
 4380000 tons per year total

Activity	MHDR		Truck Types				We*	Wf*
	(tons/hr)	(trips/hr)	Truck	Truck	type	type		
1a	500.0	20.833	100%				15	39
1b	0.0	0.000		100%			15	39
title		0.000					0	0
title		0.000					0	0
title		0.000					0	0
title		0.000					0	0
title		0.000					0	0
title		0.000					0	0
title		0.000					0	0

Truck Type	We (tons)	Wf (tons)
Truck	15	39
Truck	15	39
type		
type		

truck type row must sum to 100% per each activity

- 1=empty
- 2=full
- 3=both

Road Segment ID	1	2	3	4	5	6	7	8
D one way (feet)	1320							
D one way (miles)	0.250	0.000						
1a	3	3						
1b								
title								
title								
title								
title								
title								

Activities

1a	27.000	27.000	0.000	0.000	0.000	0.000	0.000	0.000
1b	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
W	27.00	27.00	0.00	0.00	0.00	0.00	0.00	0.00

W

Surface	Unpaved	Paved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved

E(PM2.5) (lbs/VMT):	0.27440	0.00000					
E(PM10) (lbs/VMT):	2.74403	0.00000					
E(PM30) (lbs/VMT):	9.64971	0.00000					
Eext(PM2.5) (lbs/VMT):	0.19547	0.00000					
Eext(PM10) (lbs/VMT):	1.95465	0.00000					
Eext(PM30) (lbs/VMT):	6.67377	0.00000					

1a	10.4167	0	0	0	0	0	0
1b	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0
MHDR	10.4167	0	0	0	0	0	0

MHDR

PTE PM2.5 (lb/hr)	2.85836	0					
PTE PM10 (lb/hr)	28.5836	0					
PTE PM30 (lb/hr)	100.518	0					
PTE PM2.5 (lb/hr) w/ rain	2.0361	0					
PTE PM10 (lb/hr) w/ rain	20.361	0					
PTE PM30 (lb/hr) w/ rain	71.6017	0					
PTE PM2.5 (tons/yr)	12.5196	0					
PTE PM10 (tons/yr)	125.196	0					
PTE PM30 (tons/yr)	440.268	0					
PTE PM2.5 (tons/yr) w/ rain	8.9181	0					
PTE PM10 (tons/yr) w/ rain	89.181	0					
PTE PM30 (tons/yr) w/ rain	313.616	0					

PTE (lb/hr)

PTE (tons/yr)

Potential Conditioned

8.92	PM2.5	
89.18	PM10	
313.62	PM	

Haul Road/Haul Truck/Material Hauled Information								
Haul Road ID No.:	1b	2	3	4	5	6	7	8
W (tons):	24.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
s (%):	8.3	8.3						
P (days):	105	105	105	105	105	105	105	105
E(PM2.5) (lbs/VMT):	0.2744	0.0000						
E(PM10) (lbs/VMT):	2.7440	0.0000						
E(PM30) (lbs/VMT):	9.6497	0.0000						
Eext(PM2.5) (lbs/VMT):	0.1955	0.0000						
Eext(PM10) (lbs/VMT):	1.9547	0.0000						
Eext(PM30) (lbs/VMT):	6.8738	0.0000						

$E = k (s/12)^a * (W/3)^b$ where:

E = size-specific emission factor (lb/VMT)

s = surface material silt content (%)

W = mean vehicle weight (tons)

Constants for Equation

Particle Size	k(lb/VMT)	Constant	
		a	b
PM2.5	0.15	0.9	0.45
PM10	1.5	0.9	0.45
PM30	4.9	0.7	0.45

$E_{ext} = E[(365-P)/365]$ where E is defined above and:

Eext = annual size-specific emission factor extrapolated for natural mitigation (lb/VMT)

P = number of days in a year with at least 0.01 inch of precipitation

