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: 052017-003  Project Number: 2017-02-069
Installation Number: 095-0393

Parent Company Address: P.O. Box 104990, Jefferson City, MO 65110
Installation Name: Capital Sand Company - River Bend
Installation Address: 4401 N. Cobbler Road, Independence, MO 64058
Location Information: Jackson County, S1, T50N, R31W

Application for Authority to Construct was made for:
The installation of an ADM portable drum-mix plant for the purpose of drying sand dredged from an inland pit in the Missouri River alluvial plain. 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.

Hans Robinson
Prepared by
Hans Robinson
New Source Review Unit

Kezia L. Moore
Director or Designee
Department of Natural Resources

MAY 10 2017
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."

Capital Sand Company - River Bend
Jackson County, S1, T50N, R31W

1. PM$_{10}$ Emission Limitation
   A. Capital Sand Company - River Bend shall emit less than 15.0 tons of PM$_{10}$ in any consecutive 12-month period from the emission points listed below.
      1) EP1 High Moisture Sand Storage Pile
      2) EP2 Haul Road for dry sand removal by truck
      3) EP3 Cold feed bins with conveyor
      4) EP4 ADM drum dryer feed conveyor
      5) EP5 ADM drum dryer with venturi scrubber
      6) EP6 Conveyor to feed screen
      7) EP7 Single Deck conveyor
      8) EP8 Under Screen Conveyor
      9) EP9 Conveyor to double bins
     10) EP10 Double bins with discharge conveyors
     11) EP11 Truck loading conveyor
     12) EP12 Truck loading
   
   B. Attachment A or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 1.A.

2. Sand Throughput Requirement
   A. Dried sand that exits the drum drier shall not be stockpiled. All dried sand shall be conveyed and directly feed a haul truck.

3. Fuel Requirement - Drum Dryer
   A. Capital Sand Company - River Bend shall exclusively burn natural gas for heating the EP5 drum dryer.

4. Best Management Practices (BMPs) Requirement
   A. Capital Sand Company - River Bend 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 Appendix A.

5. Control Device Requirement - Venturi Scrubber
   A. Capital Sand Company - River Bend shall control particulate emissions from the ADM Model SPL drum dryer using a Venturi Scrubber as specified in the permit application.
SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

B. The Venturi scrubber shall be operated and maintained in accordance with the manufacturer's specifications. Capital Sand Co. shall install pressure gauges to measure the scrubber differential pressure and the water pump pressure. The minimum differential pressure shall be greater than 16 inches of H2O across the damper side of the scrubber and the minimum water pump pressure shall be 45 pounds per square inch. These gauges or meters shall be located such that Department of Natural Resources' employees may easily observe them.

C. Capital Sand Company - River Bend shall monitor and record the differential pressure and water pump pressure at least once in 24-hours when the drum dryer is in operation. The operating pressure drops shall be maintained above the pressures stated in Special Condition 5.B.

D. Capital Sand Company - River Bend shall maintain a copy of the Venturi Scrubber manufacturer's preventive maintenance recommendations on site. All instruments and/or control equipment shall be calibrated, maintained, and operated in accordance with the manufacturer's preventive maintenance recommendations.

E. Capital Sand Company - River Bend shall maintain an operating and maintenance log for the Venturi Scrubber 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. Record Keeping and Reporting Requirements
A. Capital Sand Company - River Bend shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.

B. Capital Sand Company - River Bend shall report to the Air Pollution Control Program’s Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than 10 days after the end of the month during which any record required by this permit shows an exceedance of a limitation imposed by this permit.
REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (6) REVIEW
Project Number: 2017-02-069
Installation ID Number: 095-0393
Permit Number: 052017-003

Installation Address: Capital Sand Company - River Bend
4401 N. Cobbler Road
Independence, MO 64058

P.O. Box 104990
Jefferson City, MO 65110

Jackson County, S1, T50N, R31W

REVIEW SUMMARY

- Capital Sand Company - River Bend has applied for authority to construct sand
drying and processing equipment.

- The application was deemed complete on 3/7/2017.

- 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.

- A Venturi Scrubber attached to the ADM drum dryer is being used to control the PM,
PM$_{10}$, and PM$_{2.5}$ emissions from the equipment in this permit.

- 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.

- This installation is located in Jackson County, a nonattainment area for SO$_2$.

- 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.
• No Operating Permit is required for this installation.
• Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Capital Sand recently took over the operation of an open pit commercial sand and gravel dredging facility located in the alluvial plain of the Missouri River. The existing facility consists of a Supreme Clam Shell Dredge, wash screens, Classification and Floating Systems, Inc. (CFS), dewatering screens, cyclones, and conveyors, which remove sand and gravel from the bottom of a man-made body of water. The facility processes only wet sand and gravel and none of the existing emission sources have been classified. However, it is believed that because the facility processes wet sand and gravel throughout the existing sources no emissions are expected. All of the equipment associated with this permit will be located within the inland open pit mine site next to the dredging operation.

No permits have been issued to Capital Sand Company - River Bend from the Air Pollution Control Program.

PROJECT DESCRIPTION

Capital Sand Company (Capital Sand) has applied for authority to construct a sand drying operation at their River Bend Plant facility. Capital Sand purchased an Asphalt Drum Mixers, Inc. (ADM), Model SPL110 portable drum-mix plant for sand drying (no asphalt will be processed at this facility). Though the equipment is portable, the plant will remain as a stationary fixture at the River Bend facility (it won’t be moved from the site). The sand will have high moisture content because it is being pulled from the bottom of a small body of water. Therefore the 1.5% moisture content specification for wetted sand should be easily satisfied. All emissions are expected to arise from the processing and drying associated with this permit including haul roads and storage piles.

The sand drying process will consist of the following equipment which was previously purchased as a part of the portable asphalt plant:
• Cold feed bins with 24-inch feeder belts and 24-inch line belts
• A 4-foot by 8-foot single deck screen
• A 24-inch conveyor to feed the screen
• A 24-inch conveyor to feed the dryer
• ADM drum dryer with Hauck Star Jet 200 burner rated at 40.3 MMBtu/hr, fired exclusively by natural gas. The drum dryer is rated at 110 tons per hour for asphalt production.
• Venturi wet scrubber to control emissions from dryer exhaust.
Capital Sand will add the following equipment to the asphalt drying equipment to facilitate loading trucks:

- A 30-inch conveyor to feed the 4-foot by 8-foot screen
- A 30-inch conveyor for the feed bins
- 14-foot by 14-foot double feed bins with discharge conveyors
- A 24-inch conveyor to load trucks

Previously wetted sand currently resides in stock piles on site and is supplied by a series of conveyors extended from the sand dredging operation. Sand will be moved by a front loader to cold feed bins which will drop onto a conveyor and feed the ADM drum dryer. The dried sand exiting the ADM drum dryer will discharge to a single deck screen, which will separate oversize material from the dried sand. Very little oversize material is expected. The oversized material will fall to the ground via a chute and the dried sand will be conveyed to feed/storage bins to load trucks and transported off-site. The ADM drum dryer will be equipped with a venturi scrubber to capture particulate emissions. The MHDR of sand is expected to be 110 tons per hour, though this value is based off of asphalt throughput so actual throughput may vary. All equipment will be powered by the local electrical utility. Dried sand will be directly conveyed to the a haul truck and therefore dried sand product will not reside within storage piles.

The facility is not subject to NSPS Part 60 Subpart UUU Standards of Performance for Calciners and Dryers in Mineral Industries because the facility will be processing construction sand rather than industrial sand. AP-42 Section 11.19.1.1 Sand & Gravel Processing defines construction sand as typically, "...mined in a moist or wet condition by open pit excavation or by dredging," whereas industrial sand is defined as typically, "...mined from open pits of naturally occurring quartz-rich sand and sandstone." The operation will be using sand that has been dredged from a body of water and therefore does not fall under the NSPS Part 60 Subpart UUU regulation of industrial sand.

The ADM Model SPL 110 portable drum-mix plant is equipped with a variable throat Venturi style wet scrubber that removes particulate matter from the exhaust gas of the drum dryer. The drum dryer and scrubber have had several owners in the past and has been operating as early as 2005 under Construction Permit No. 072005-048. Since the equipment was used, Capital Sand was unable to receive a manufacturer's performance warranty. However, Capital Sand does have access to the manufacturer's preventative maintenance recommendations for the scrubber which will be used in place of the manufacturer's performance warranty.

The applicant is using one of the methods described in Appendix A, "Best Management Practices," to control emissions from haul roads and vehicular activity areas. This installation is not on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2].

EMISSIONS/CONTROLS EVALUATION

Emissions for the project were calculated using emission factors found in the United States Environmental Protection Agency (EPA) document AP-42 Compilation of Air
PM, PM$_{10}$, and PM$_{2.5}$ 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 for PM and PM$_{10}$ and a 74% control efficiency for PM$_{2.5}$ are applied to the emission calculations for the use of BMPs. PM, PM$_{10}$, and PM$_{2.5}$ emissions from load-in and load-out of storage piles were calculated using the predictive equation from AP-42, Section 13.2.4 "Aggregate Handling and Storage Piles," November 2006. The moisture content of the sand is 1.5% by weight. PM, PM$_{10}$, and PM$_{2.5}$ 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."

Natural gas combustion emissions were calculated using AP-42 Section 1.4 Natural Gas Combustion (March, 1998). Emissions for the sand dryer with venturi scrubber (wet scrubber), sand conveying, screens (3/16" or greater), and truck loading from conveyor were calculated using emission factors with SCC codes 30502508, 30502006, 30502002, and 30502032, respectively.

The following table provides an emissions summary for this project. Since the site has no previous permits, no Existing Actual or Potential Emissions have been reported. Potential emissions of the application represent the potential of the new sand drying process, assuming continuous operation (8760 hours per year).

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Regulatory De Minimis Levels</th>
<th>Existing Actual Emissions</th>
<th>Potential Emissions of the Project</th>
<th>Conditioned Potential Emissions of the Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM</td>
<td>25.0</td>
<td>N/A</td>
<td>65.1</td>
<td>27.7</td>
</tr>
<tr>
<td>PM$_{10}$</td>
<td>15.0</td>
<td>N/A</td>
<td>35.3</td>
<td>&lt; 15</td>
</tr>
<tr>
<td>PM$_{2.5}$</td>
<td>10.0</td>
<td>N/A</td>
<td>23.1</td>
<td>9.8</td>
</tr>
<tr>
<td>SO$_2$</td>
<td>40.0</td>
<td>N/A</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>NO$_x$</td>
<td>40.0</td>
<td>N/A</td>
<td>17.2</td>
<td>17.2</td>
</tr>
<tr>
<td>NO$_x$</td>
<td>40.0</td>
<td>N/A</td>
<td>0.9</td>
<td>0.9</td>
</tr>
<tr>
<td>CO</td>
<td>40.0</td>
<td>N/A</td>
<td>14.4</td>
<td>14.4</td>
</tr>
<tr>
<td>HAPs</td>
<td>10.0/25.0</td>
<td>N/A</td>
<td>0.3</td>
<td>0.3</td>
</tr>
</tbody>
</table>

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

Capital Sand Company - River Bend 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

- Start-Up, Shutdown, and Malfunction Conditions, 10 CSR 10-6.050
- Submission of Emission Data, Emission Fees and Process Information, 10 CSR 10-6.110
  - Per 10 CSR 10-6.110(4)(B)2.B(II) and (4)(B)2.C(II) a full EIQ is required for the first full calendar year the equipment (or modifications) approved by this permit are in operation.
- 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

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 2/28/2017, received 2/28/2017, designating Capital Sand Company, Inc. as the owner and operator of the installation.

OTHER RELIED UPON DOCUMENTS

- "Wet Scrubber and Magnehelic Operation" and "High Pressure Venturi Scrubber" Documents provided by email on and 4/7/2017. These Documents were produced by Asphalt Drum Mixers, Inc.
Attachment A: PM\textsubscript{10} Annual Emissions Tracking Sheet
Capital Sand – River Bend Plant
ID# 095-0393
Project Number: 2017-03-007
Permit Number: 052017-003

Capital Sand Company - River Bend
Jackson County, SI, T50N, R31W
Project Number: 2017-02-069
Installation ID Number: 095-0393
Permit Number:

This sheet covers the period from ______ to ______
(month, year) (month, year)

<table>
<thead>
<tr>
<th>Month</th>
<th>Sand Production (tons)</th>
<th>Emission Factor (lb/ton)</th>
<th>Monthly Emissions(^1) (lbs)</th>
<th>Monthly Emissions(^2) (tons)</th>
<th>12-Month Total Emissions(^3) (tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example</td>
<td>15,802</td>
<td>0.0732</td>
<td>1156.72</td>
<td>0.5783</td>
<td>14.67</td>
</tr>
</tbody>
</table>

\(^1\)Multiply the monthly sand production by the emission factor.
\(^2\)Divide the monthly emissions (lbs) by 2000.
\(^3\)Add 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 PM\textsubscript{10} per 12 consecutive months is necessary for compliance.
APPENDIX A: 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 rational 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 B

### Abbreviations and Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>percent</td>
</tr>
<tr>
<td>°F</td>
<td>degrees Fahrenheit</td>
</tr>
<tr>
<td>acfm</td>
<td>actual cubic feet per minute</td>
</tr>
<tr>
<td>BACT</td>
<td>Best Available Control Technology</td>
</tr>
<tr>
<td>BMPs</td>
<td>Best Management Practices</td>
</tr>
<tr>
<td>Btu</td>
<td>British thermal unit</td>
</tr>
<tr>
<td>CAM</td>
<td>Compliance Assurance Monitoring</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstracts Service</td>
</tr>
<tr>
<td>CEMS</td>
<td>Continuous Emission Monitor System</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>CO</td>
<td>carbon monoxide</td>
</tr>
<tr>
<td>CO₂</td>
<td>carbon dioxide</td>
</tr>
<tr>
<td>CO₂e</td>
<td>carbon dioxide equivalent</td>
</tr>
<tr>
<td>COMS</td>
<td>Continuous Opacity Monitoring System</td>
</tr>
<tr>
<td>CSR</td>
<td>Code of State Regulations</td>
</tr>
<tr>
<td>dscf</td>
<td>dry standard cubic feet</td>
</tr>
<tr>
<td>EIQ</td>
<td>Emission Inventory Questionnaire</td>
</tr>
<tr>
<td>EP</td>
<td>Emission Point</td>
</tr>
<tr>
<td>EPA</td>
<td>Environmental Protection Agency</td>
</tr>
<tr>
<td>EU</td>
<td>Emission Unit</td>
</tr>
<tr>
<td>fps</td>
<td>feet per second</td>
</tr>
<tr>
<td>ft</td>
<td>feet</td>
</tr>
<tr>
<td>GACT</td>
<td>Generally Available Control Technology</td>
</tr>
<tr>
<td>GHG</td>
<td>Greenhouse Gas</td>
</tr>
<tr>
<td>gpm</td>
<td>gallons per minute</td>
</tr>
<tr>
<td>gr</td>
<td>grains</td>
</tr>
<tr>
<td>GWP</td>
<td>Global Warming Potential</td>
</tr>
<tr>
<td>HAP</td>
<td>Hazardous Air Pollutant</td>
</tr>
<tr>
<td>hr</td>
<td>hour</td>
</tr>
<tr>
<td>hp</td>
<td>horsepower</td>
</tr>
<tr>
<td>lb</td>
<td>pound</td>
</tr>
<tr>
<td>lbs/hr</td>
<td>pounds per hour</td>
</tr>
<tr>
<td>MACT</td>
<td>Maximum Achievable Control Technology</td>
</tr>
<tr>
<td>µg/m³</td>
<td>micrograms per cubic meter</td>
</tr>
<tr>
<td>m/s</td>
<td>meters per second</td>
</tr>
<tr>
<td>Mgal</td>
<td>1,000 gallons</td>
</tr>
<tr>
<td>MW</td>
<td>megawatt</td>
</tr>
<tr>
<td>MHDR</td>
<td>maximum hourly design rate</td>
</tr>
<tr>
<td>MMBtu</td>
<td>Million British thermal units</td>
</tr>
<tr>
<td>MMCF</td>
<td>million cubic feet</td>
</tr>
<tr>
<td>MSDS</td>
<td>Material Safety Data Sheet</td>
</tr>
<tr>
<td>NAAQS</td>
<td>National Ambient Air Quality Standards</td>
</tr>
<tr>
<td>NESHAPs</td>
<td>National Emissions Standards for Hazardous Air Pollutants</td>
</tr>
<tr>
<td>NOₓ</td>
<td>nitrogen oxides</td>
</tr>
<tr>
<td>NSPS</td>
<td>New Source Performance Standards</td>
</tr>
<tr>
<td>NSR</td>
<td>New Source Review</td>
</tr>
<tr>
<td>PM</td>
<td>particulate matter</td>
</tr>
<tr>
<td>PM₂.₅</td>
<td>particulate matter less than 2.5 microns in aerodynamic diameter</td>
</tr>
<tr>
<td>PM₁₀</td>
<td>particulate matter less than 10 microns in aerodynamic diameter</td>
</tr>
<tr>
<td>ppm</td>
<td>parts per million</td>
</tr>
<tr>
<td>PSD</td>
<td>Prevention of Significant Deterioration</td>
</tr>
<tr>
<td>PTE</td>
<td>potential to emit</td>
</tr>
<tr>
<td>RACT</td>
<td>Reasonable Available Control Technology</td>
</tr>
<tr>
<td>RAL</td>
<td>Risk Assessment Level</td>
</tr>
<tr>
<td>SCC</td>
<td>Source Classification Code</td>
</tr>
<tr>
<td>scfm</td>
<td>standard cubic feet per minute</td>
</tr>
<tr>
<td>SDS</td>
<td>Safety Data Sheet</td>
</tr>
<tr>
<td>SIC</td>
<td>Standard Industrial Classification</td>
</tr>
<tr>
<td>SIP</td>
<td>State Implementation Plan</td>
</tr>
<tr>
<td>SMAL</td>
<td>Screening Model Action Levels</td>
</tr>
<tr>
<td>SOₓ</td>
<td>sulfur oxides</td>
</tr>
<tr>
<td>SO₂</td>
<td>sulfur dioxide</td>
</tr>
<tr>
<td>tph</td>
<td>tons per hour</td>
</tr>
<tr>
<td>tpy</td>
<td>tons per year</td>
</tr>
<tr>
<td>VMT</td>
<td>vehicle miles traveled</td>
</tr>
<tr>
<td>VOC</td>
<td>Volatile Organic Compound</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Potential Emissions of Process Equipment (tons/yr)</th>
<th>Potential Emissions including fugitives (tons/yr)</th>
<th>Allowable Emissions for 3726 hours per year (tons)</th>
<th>Deminimis Thresholds (lb/ton)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM</td>
<td>39.50</td>
<td>65.11</td>
<td>27.69</td>
<td>25</td>
</tr>
<tr>
<td>PM_{10}</td>
<td>26.98</td>
<td>35.28</td>
<td>15.00</td>
<td>15</td>
</tr>
<tr>
<td>PM_{2.5}</td>
<td>21.14</td>
<td>23.10</td>
<td>9.62</td>
<td>10</td>
</tr>
<tr>
<td>SO_{2}</td>
<td>0.10</td>
<td>0.10</td>
<td>0.04</td>
<td>40</td>
</tr>
<tr>
<td>NO_{2}</td>
<td>17.17</td>
<td>17.17</td>
<td>7.30</td>
<td>40</td>
</tr>
<tr>
<td>VOC</td>
<td>0.94</td>
<td>0.94</td>
<td>0.40</td>
<td>40</td>
</tr>
<tr>
<td>CO</td>
<td>14.42</td>
<td>14.42</td>
<td>6.13</td>
<td>100</td>
</tr>
<tr>
<td>CH_{2}O</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>2.00</td>
</tr>
<tr>
<td>Pb</td>
<td>0.32</td>
<td>0.32</td>
<td>0.14</td>
<td>10</td>
</tr>
<tr>
<td>HAPs</td>
<td>0.32</td>
<td>0.32</td>
<td>0.14</td>
<td>10</td>
</tr>
<tr>
<td>CO_{2}</td>
<td>20.07</td>
<td>20.07</td>
<td>8.53</td>
<td>100</td>
</tr>
<tr>
<td>N_{2}O</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>100</td>
</tr>
<tr>
<td>CH_{4}</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>100</td>
</tr>
<tr>
<td>GHG_{max}</td>
<td>20.07</td>
<td>20.07</td>
<td>8.53</td>
<td>100</td>
</tr>
<tr>
<td>CO_{2 eq}</td>
<td>20.09</td>
<td>20.09</td>
<td>8.64</td>
<td>100,000</td>
</tr>
</tbody>
</table>

Limit Hours per Year

Limit Hours per Year w/ 24 hr day

Maximum hourly design rate (tons/hr) 110

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Justification for Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM10</td>
<td>De Minimis</td>
</tr>
</tbody>
</table>

Tons of product per day 2,640.0
Tons of product per year 408,726.1
**NOTICE:** This spreadsheet is for your use only and should be used with caution. No guarantees about the accuracy of the information it contains. This spreadsheet is subject to internal revision and updating. It is your responsibility to be aware of the most current, accurate, and complete information available. Noiel does not guarantee errors or omissions in this spreadsheet. Subscribers of the information contained in the spreadsheet (hereinafter) does not relieve the responsible official of the certification agreement signed on the first page of this application.

### General Plant Information

- **Primary (or site)glyphicon (per head)**: Not specified
- **Citation**:

<table>
<thead>
<tr>
<th>Stack Height</th>
<th>Black Smoke (percent)</th>
<th>Stack Gas Flow Rate</th>
<th>Stack Gas Exit Temp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>127</td>
<td>0.1</td>
<td>1198</td>
<td>55</td>
</tr>
</tbody>
</table>

### Sheet File Information

<table>
<thead>
<tr>
<th>Storage File (sq ft)</th>
<th>File # EP1</th>
<th>File # EP2</th>
<th>File #</th>
<th>File #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Area of Storage File (sq ft)</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median Height (ft)</td>
<td>5.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median Current %</td>
<td>3.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Method of Leak Test (Storage File)</td>
<td>Visual</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance Center Tank (ft)</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unloaded Center Weight (tons)</td>
<td>54.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loaded Center Weight (tons)</td>
<td>42.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate (tons/hr)</td>
<td>112.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>max VMT per hour</td>
<td>0.3336</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface Treatment</td>
<td>Unaltered</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicular Area (sq ft)</td>
<td>Documented (altered)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Haul Road Information

<table>
<thead>
<tr>
<th>Road # (sq ft)</th>
<th>Road #</th>
<th>Road #</th>
<th>Road #</th>
<th>Road #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of Road (ft)</td>
<td>000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road # (sq ft)</td>
<td>Road #</td>
<td>Road #</td>
<td>Road #</td>
<td>Road #</td>
</tr>
<tr>
<td>Length of Road (ft)</td>
<td>000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unloaded Truck Weight (tons)</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loaded Truck Weight (tons)</td>
<td>36</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate (tons/hr)</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>max VMT per hour</td>
<td>4.1667</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>End Road Control Device</td>
<td>Documented (altered)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Engine Set Information

<table>
<thead>
<tr>
<th>#</th>
<th>#2</th>
<th>#3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Fuel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stationary Set (Gallon)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine Ignition (Volt)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine MCR (Gallons per hour)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate (Gallons per hour)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid Fuel Storage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tank #1</td>
<td>Tank #2</td>
<td>Tank #3</td>
</tr>
</tbody>
</table>

### Combustion Sources

<table>
<thead>
<tr>
<th>Combustion ID</th>
<th>Combustion ID</th>
<th>Combustion ID</th>
<th>Combustion ID</th>
<th>Combustion ID</th>
<th>Combustion ID</th>
<th>Combustion ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>FF, Btu/hour</td>
<td>FF, Btu/hour</td>
<td>FF, Btu/hour</td>
<td>FF, Btu/hour</td>
<td>FF, Btu/hour</td>
<td>FF, Btu/hour</td>
<td>FF, Btu/hour</td>
</tr>
<tr>
<td>(209)</td>
<td>(209)</td>
<td>(209)</td>
<td>(209)</td>
<td>(209)</td>
<td>(209)</td>
<td>(209)</td>
</tr>
</tbody>
</table>

### Fuel Type

- **Fuel Type**: Gas (100% methane)

- **Fuel Input (Gallon)**: Not specified

- **Liquid Storage Tanks**:
  - **Tank ID**: Tank #1
  - **Tank #2**: Tank #3
  - **Tank #4**: Tank #5
  - **Tank #5**: Tank #6
  - **Tank #6**: Tank #7
<table>
<thead>
<tr>
<th>Equipment Operational Status</th>
<th>Equipment/HSCC Description</th>
<th>Type</th>
<th>Max Hourly Throughput (MHTH)</th>
<th>MHTP</th>
<th>Control Type</th>
<th>&quot;GOO&quot; Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>N  AX 2020</td>
<td>drill head in use with 1/4&quot; drill bits and 1/4&quot; live heel</td>
<td>Process</td>
<td>110.0000</td>
<td>Yes</td>
<td>Standard</td>
<td>1.3%</td>
</tr>
<tr>
<td>N  AX 2020</td>
<td>drill head in use with 1/4&quot; drill bits and 1/4&quot; live heel</td>
<td>Process</td>
<td>110.0000</td>
<td>Yes</td>
<td>Standard</td>
<td>1.3%</td>
</tr>
<tr>
<td>N  AX 2020</td>
<td>drill head in use with 1/4&quot; drill bits and 1/4&quot; live heel</td>
<td>Process</td>
<td>110.0000</td>
<td>Yes</td>
<td>Standard</td>
<td>1.3%</td>
</tr>
<tr>
<td>N  AX 2020</td>
<td>drill head in use with 1/4&quot; drill bits and 1/4&quot; live heel</td>
<td>Process</td>
<td>110.0000</td>
<td>Yes</td>
<td>Standard</td>
<td>1.3%</td>
</tr>
</tbody>
</table>
### Table: Material Stored Rongo Man

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Notes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Additional documentation (e.g., test data, ASTM-C-138 method) should be provided if using a different value for the moisture contents in place of the default value.

### Table: Storage Pile Material - SI Content Information

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Notes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Additional documentation (e.g., test data, ASTM-C-138 method) should be provided if using a different value for the moisture contents in place of the default value.

### Table: Storage Pile Material - SI Content Information

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Notes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Comment: Selects BHP and gallons per hour are filled through code. If you want to move them, you have to highlight both code and then hit the delete key.

Cell: C52
Comment: Generated engine

Comment: The engine used primarily to operate an electrical generator to provide electric power for other applications.

Cell: C57
Comment: Fuel Sulfur Content:

Cell: B80
Comment: Fuel Write Control Type

Cell: A78
Comment: Annual

Cell: C4
Comment: Fuel

Cell: C9
Comment: Write

Cell: C57
Comment: Control Tabla

Cell: B2
Comment: as part of the development of the future RSS RAPG data implementation Plan. Although it is not the only consideration that a data collector engine and other types of engines (for example, non-residential boilers) shall be required to use diesel fuel that complies with federal fleet (less than 200 HP) requirements. Although the Air Program has been informed by diesel producers and users that the only option when purchasing diesel fuel in Missouri and throughout the Midwest, the LLPDA does not consider the federal requirements to be binding. As a result, diesel fuel may be selected by USEPA to include such a finding USDG equipment in a future rule making exercise as part of another permanent and irrevocable measure.2. There you.

From: Wilber, Emily
Subject: FW:

To:

Monday, December 15, 20:41:53 PM
To: Susan Hecken JMP, Susan

Cc: Darcy, O’Nall, Nalhane; Steve, Jeffrey; Sandef, Michael, Wilbur, Emily
Co: Henderson, Susan

Subject: Permit required concurrence

The primary task is requesting concurrence on a permit determination. A staff exp required permit letter is attached. The Permit 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 Linn, PD
Missouri Department of Natural Resources
Project Manager
P.O. Box 171, Jefferson City, MO 65102
email: dmason@dnr.mo.gov ph: (573) 751-4017

Cell: C40
Comment: Fuel Type:

You should fill in a choice for both Chap 11 & Part 68 and these choices must coincide.

Cell: C40
Comment: Write a comment about oil.

Cell: C58
Comment: Fuel Sulfur Content:

6.5 g per g ASH ref
+ 0.05 g ASH ref
+ 0.0114417585528 grains SO2/L00
+ 0.005 grains SO2/mote

Cell: C59
Comment: DOC VOC (permits):

This is the total VOC emissions per year from the EPA Task 4th program, in some other context.

Cell: C70
Comment: Vehicle Equipment List:

320 NOT includes combustion sources, storage tanks, fuel tanks or generators that are listed in the equipment list below. The bottom box is for all the equipment not listed above.

Cell: C79
Comment: Maximum Hourly Throughput (MHTP): This maximum hourly throughput of the specific process or piece of equipment. The MHTP for storage tanks and fuel tanks should be calculated for in what the "Equipment VOC Description" value is entered, excluding the associated storage tanks and fuel tanks entered at the top of this page are compiled first.

On most processes and equipment, the worksheet will default to the MHTP value to the "Primary Unit Size" in the process box. The largest maximum hourly design rate (MHTP) for a piece of equipment is different, and the appropriate MHTP value in the column should be entered. The process flow diagram should document and support the selection of any alternative value(s) entered.

Some equipment units may be placed in order to be identified in the equipment level. It is a situation, the actual MHTP of the equipment unit should be entered as a Comment to the MHTP value for the equipment. The default value for the field is 100% of the MHTP of the unit passing through the unit.

Example: Two (2) 10,606 gallons per hour are delivered by a piping system. The MHTP of the conveyors should be entered as 106,061. This field should be adjusted as the conveyance and ambient impacts from the conveyance that only the 106,061 is allowed by the piping system.

Cell: C50
Comment: MHTP Value: The MHTP Value should be automatically entered when the appropriate "Equipment VOC Description" code is entered. It is a non-standard emission unit to be entered, that the MHTP Value may have to be entered. In addition, the Emission Factor and Non-Methane Value for Site VI on the appropriate worksheet will probably also have to be entered.

Cell: C80
Comment: Equipment Operational Status:

Include the status of equipment regarding construction in this project.

Cell: C89
Comment: Unit ID: Enter a name or number to uniquely identify this emission unit point to this installation. This Unit ID number must be consistent with those in your Emission Inventory Questionnaire (EIQ) and your Operating Permit/Application.

Cell: C78
Comment: Description of Unit: Enter a description of the emission unit that uniquely describes the activity associated with that emission point of the installation. This Unit Description should be consistent with those in your Emission Inventory Questionnaire (EIQ) and your Operating Permit/Application.

Cell: C77
Comment: Equipment VOC Description: Using the pull-down menu in the cells above, select the appropriate equipment description/line that describes the activity associated with the specific emission unit.

Cell: C76
Comment: Control Type:

This is used to determine the fugitive vs non-fugitive status.

Cell: C75
Comment: Control Type: Using the pull-down menu in the cells above, select the appropriate control type for each specific emission unit. Leave the cell blank or choose "No Control" if there are no control measures associated with the emission unit.

General Efficiency %: This Control Efficiency % is based on 11.973 Control Table worksheet for PM pollutants. If a Control Efficiency % is different from the Control Table or for a non-PM pollutant you should enter that percentage on the Emission Calculation worksheet for the specific equipment & pollutant. Note: Documentation on the Control Efficiency % may also be used to provide a justification for the value entered.
## River Bend Emission Calculations

### Emission workbook

The table below provides emission calculations for various facilities and activities at River Bend.

<table>
<thead>
<tr>
<th>Emission Facility Number</th>
<th>Description</th>
<th>SCC</th>
<th>Maximum Hour</th>
<th>Units of Measure</th>
<th>Control Device Number</th>
<th>Control Efficiency (%)</th>
<th>Control Efficiency (%)</th>
<th>Emission Factor</th>
<th>Emission Factor (ton/hr)</th>
<th>Emission Efficiency (ton/hr)</th>
<th>Potential Emissions (ton/hr)</th>
<th>Allowable Emissions (ton/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Engine #1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Vehicle Year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Engine #2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Vehicle Year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Engine #3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Vehicle Year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Emission Factors

- **PM, Particulate Matter:**
  - PM, Particulate Matter

- **CO, Carbon Monoxide:**
  - CO, Carbon Monoxide

- **NO, Nitrogen Oxides:**
  - NO, Nitrogen Oxides

- **SO, Sulfur Oxides:**
  - SO, Sulfur Oxides

- **HAP, Hazardous Air Pollutants:**
  - HAP, Hazardous Air Pollutants

- **CO2, Carbon Dioxide:**
  - CO2, Carbon Dioxide

- **CH4, Methane:**
  - CH4, Methane

- **VMT, Vehicle Miles Traveled:**
  - VMT, Vehicle Miles Traveled

- **PM, Particulate Matter:**
  - PM, Particulate Matter

- **CO, Carbon Monoxide:**
  - CO, Carbon Monoxide

- **NO, Nitrogen Oxides:**
  - NO, Nitrogen Oxides

- **SO, Sulfur Oxides:**
  - SO, Sulfur Oxides

- **HAP, Hazardous Air Pollutants:**
  - HAP, Hazardous Air Pollutants

- **CO2, Carbon Dioxide:**
  - CO2, Carbon Dioxide

- **CH4, Methane:**
  - CH4, Methane

- **VMT, Vehicle Miles Traveled:**
  - VMT, Vehicle Miles Traveled

### Control Efficiencies

- **PM, Particulate Matter:**
  - PM, Particulate Matter

- **CO, Carbon Monoxide:**
  - CO, Carbon Monoxide

- **NO, Nitrogen Oxides:**
  - NO, Nitrogen Oxides

- **SO, Sulfur Oxides:**
  - SO, Sulfur Oxides

- **HAP, Hazardous Air Pollutants:**
  - HAP, Hazardous Air Pollutants

- **CO2, Carbon Dioxide:**
  - CO2, Carbon Dioxide

- **CH4, Methane:**
  - CH4, Methane

- **VMT, Vehicle Miles Traveled:**
  - VMT, Vehicle Miles Traveled

### Emission Factors (ton/hr)

- **PM, Particulate Matter:**
  - PM, Particulate Matter

- **CO, Carbon Monoxide:**
  - CO, Carbon Monoxide

- **NO, Nitrogen Oxides:**
  - NO, Nitrogen Oxides

- **SO, Sulfur Oxides:**
  - SO, Sulfur Oxides

- **HAP, Hazardous Air Pollutants:**
  - HAP, Hazardous Air Pollutants

- **CO2, Carbon Dioxide:**
  - CO2, Carbon Dioxide

- **CH4, Methane:**
  - CH4, Methane

- **VMT, Vehicle Miles Traveled:**
  - VMT, Vehicle Miles Traveled

### Potential Emissions (ton/hr)

- **PM, Particulate Matter:**
  - PM, Particulate Matter

- **CO, Carbon Monoxide:**
  - CO, Carbon Monoxide

- **NO, Nitrogen Oxides:**
  - NO, Nitrogen Oxides

- **SO, Sulfur Oxides:**
  - SO, Sulfur Oxides

- **HAP, Hazardous Air Pollutants:**
  - HAP, Hazardous Air Pollutants

- **CO2, Carbon Dioxide:**
  - CO2, Carbon Dioxide

- **CH4, Methane:**
  - CH4, Methane

- **VMT, Vehicle Miles Traveled:**
  - VMT, Vehicle Miles Traveled

### Allowable Emissions (ton/hr)

- **PM, Particulate Matter:**
  - PM, Particulate Matter

- **CO, Carbon Monoxide:**
  - CO, Carbon Monoxide

- **NO, Nitrogen Oxides:**
  - NO, Nitrogen Oxides

- **SO, Sulfur Oxides:**
  - SO, Sulfur Oxides

- **HAP, Hazardous Air Pollutants:**
  - HAP, Hazardous Air Pollutants

- **CO2, Carbon Dioxide:**
  - CO2, Carbon Dioxide

- **CH4, Methane:**
  - CH4, Methane

- **VMT, Vehicle Miles Traveled:**
  - VMT, Vehicle Miles Traveled
<table>
<thead>
<tr>
<th>Equipment</th>
<th>Equipment Number</th>
<th>Description</th>
<th>SCC</th>
<th>Maximum Hours</th>
<th>Units of Measure</th>
<th>Control Type</th>
<th>Calculated Emission Factor (%)</th>
<th>Control Efficiency (%)</th>
<th>Emission Factor (lbs/hour)</th>
<th>Emission Allowable (lbs/hour)</th>
<th>Potential Emissions (tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes
- **Maximum Hours:** The maximum number of hours the equipment was operated.
- **Units of Measure:** The units in which the equipment's production or emissions are measured.
- **Control Type:** The type of control in place for the emissions.
- **Calculates Emission Factor:** The calculated emission factor for the equipment.
- **Control Efficiency:** The efficiency of the control system.
- **Emission Factor (lbs/hour):** The emission factor for the equipment.
- **Emission Allowable (lbs/hour):** The allowable emission limit for the equipment.
- **Potential Emissions (tons):** The potential emissions for the equipment.

### Additional Information
- **Road 1:** Equipment Description/SCC: Detailed description of the equipment and the SCC for each entry.
- **Road 2:** Emission Calculations: Detailed calculations for emission factors, potential emissions, and allowable emissions.
- **Road 3:** Equipment Operating Data: Detailed data on the equipment's operating parameters.
- **Road 4:** Equipment Operating Data: Additional data on the equipment's operating parameters.

---

**Equipment Details**

- **Road 1:** Equipment Description/SCC
- **Road 2:** Emission Calculations
- **Road 3:** Equipment Operating Data
- **Road 4:** Equipment Operating Data
<table>
<thead>
<tr>
<th>Emission Title Number</th>
<th>Emission Source Number</th>
<th>Description</th>
<th>SCC</th>
<th>Method 100% Hourly Unit of Measurement</th>
<th>Control Device Type</th>
<th>Control Emission</th>
<th>Control Emission</th>
<th>Pollutant</th>
<th>Emission Factor</th>
<th>Emission Factor (lbs/hr)</th>
<th>Potential Emissions (tons/yr)</th>
<th>Total Averaged Emissions (tons/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>EP9</td>
<td>One 30&quot; conveyor to double bin</td>
<td>113.00</td>
<td>Tons</td>
<td>Process</td>
<td>No Control</td>
<td>75%</td>
<td>3.0%</td>
<td>PM$_{10}$</td>
<td>0.0000601</td>
<td>1.026E-01</td>
<td>6.91E-01</td>
</tr>
<tr>
<td>N</td>
<td>EP10</td>
<td>One 14X14 double bin with discharge</td>
<td>110.00</td>
<td>Tons</td>
<td>Process</td>
<td>No Control</td>
<td>75%</td>
<td>3.0%</td>
<td>PM$_{10}$</td>
<td>0.0000601</td>
<td>1.026E-01</td>
<td>6.91E-01</td>
</tr>
<tr>
<td>N</td>
<td>EP11</td>
<td>One 30&quot; conveyor to load truck</td>
<td>110.00</td>
<td>Tons</td>
<td>Process</td>
<td>No Control</td>
<td>75%</td>
<td>3.0%</td>
<td>PM$_{10}$</td>
<td>0.0000601</td>
<td>1.026E-01</td>
<td>6.91E-01</td>
</tr>
<tr>
<td>N</td>
<td>EP12</td>
<td>One 24&quot; conveyor to load truck</td>
<td>110.00</td>
<td>Tons</td>
<td>Process</td>
<td>No Control</td>
<td>75%</td>
<td>3.0%</td>
<td>PM$_{10}$</td>
<td>0.0000601</td>
<td>1.026E-01</td>
<td>6.91E-01</td>
</tr>
</tbody>
</table>
MAY 10 2017

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

RE: New Source Review Permit - Project Number: 2017-02-069

Dear Mr. Branstetter:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix B 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 and with 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.

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 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.oa.mo.gov/ahc.
If you have any questions regarding this permit, please do not hesitate to contact Hans Robinson at the Department of Natural Resources’ 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:hrj

Enclosures

c: Kansas City Regional Office
   PAMS File: 2017-02-069

Permit Number: 052017-003