

STATE OF MISSOURI

PERMIT BOOK



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: 022015-009 Project Number: 2014-07-052  
Installation Number: 031-0133

Parent Company: Capital Sand Proppant, LLC

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

Installation Name: Capital Sand Proppant, LLC - Millersville Plant

Installation Address: County Road 347, Jackson, MO 63755

Location Information: Cape Girardeau County, S36 T32N R11E, S1 T31N R11E, S6 T31N R12E, and LG 3142

Application for Authority to Construct was made for:  
Installation of a new sand plant. This review was conducted in accordance with Section (5), 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.

FEB 17 2015

EFFECTIVE DATE

DIRECTOR OR DESIGNEE  
DEPARTMENT OF NATURAL RESOURCES

## STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Department's Air Pollution Control Program of the anticipated date of start up of these air contaminant sources. The information must be made available within 30 days of actual startup. Also, you must notify the Department of Natural Resources' regional office responsible for the area within which you are located within 15 days after the actual start up of these air contaminant sources.

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant sources(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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**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 Proppant, LLC - Millersville Plant  
 Cape Girardeau County, S36 T32N R11E, S1 T31N R11E, S6 T31N R12E, and LG 3142

1. PM<sub>2.5</sub> Emission Limitation
  - A. Capital Sand Proppant, LLC - Millersville Plant shall emit less than 10.0 tons of PM<sub>2.5</sub> in any consecutive 12-month period from the entire installation (see Table 1).

Table 1: Installation-wide Emission Units

Emission Unit	Description
EU-01	Load into HSI Crusher
EU-02	HSI Crusher (Primary)
EU-03	6 Conveyors (to Radial Stacker)
EU-04	Radial Stacker
EU-05	Surge Pile #1 Wind Erosion (2 acres)
EU-06	Tunnel Conveyor
EU-07	Conveyor (to Wash Screen)
Non-emission point	Wash Screen
Non-emission point	Conveyor (from Wash Screen to VSI Crusher)
EU-08	VSI Crusher (Secondary)
EU-09	Conveyor (from VSI to EU-10)
Non-emission point	Sump (from Wash Screen to Hydrosizer)
Non-emission point	Hydrosizer Plant
Non-emission point	5 Conveyors from (Hydrosizer to Surge Pile)
EU-10	Conveyor (to EU-07)
EU-11A	Surge Pile #2 Wind Erosion (6 acres)
EU-11B	Surge Pile #2 Load Out from Pile
EU-12A	Conveyor (with Traveling Hopper)
EU-12B	Conveyor
EU-13	Traveling Feed Hopper
EU-14	Pit Haul Road
EU-15A	Waste Pile from Hydrosizer Pile Wind Erosion (0.04 acres)

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**SPECIAL CONDITIONS:**

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

EU-15B	Waste Pile from Hydrosizer Vehicular Activity
EU-15C	Waste Pile from Hydrosizer Load Out
EU-16	Conveyor (to Scalping Screen)
EU-17	Scalping Screen
EU-18	Conveyor (from Scalping Screen to Dryer)
EU-19	125 MMBtu/hr low-NOx Dryer
EU-20	Conveyor (from Dryer to Distributor Box in Screen House)
EU-21	Distribution Box
EU-22	6 Conveyors to Screen
EU-23	6 Rotex Screens
EU-24A	2 Conveyors (Screen to Storage)
EU-24B	Conveyor (Screen to Pile)
EU-25A	2 Conveyors (to Storage Dome or EU-25B)
EU-25B	Conveyor (from EU-25A to Storage dome)
EU-26	2 Storage Domes
EU-27	2 Tunnel Conveyors (from Storage Dome)
EU-28	2 Conveyors (to Truck Loading Silo)
EU-29	Truck Loading
EU-30	Sales Haul Road
EU-31A	Oversize Stockpile Wind Erosion (0.04 acres)
EU-31B	Oversize Stockpile Vehicular Activity
EU-31C	Oversize Stockpile Loadout

- 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. NO<sub>x</sub> Emission Limitation
- A. Capital Sand Proppant, LLC - Millersville Plant shall emit less than 40.0 tons of NO<sub>x</sub> in any consecutive 12-month period from the low-NO<sub>x</sub> dryer (EU-20).
  - B. Attachment B or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 2.A.

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### SPECIAL CONDITIONS:

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

3. Moisture Content Testing Requirement
  - A. Capital Sand Proppant, LLC - Millersville Plant shall verify that the moisture content of the processed sand prior to the wash screen and the sand that enters the scalping screen (EU-17) is greater than or equal to 1.5 percent by weight.
  - B. Capital Sand Proppant, LLC - Millersville Plant shall annually verify that the moisture content of the processed sand that exits the hydrosizer plant is greater than or equal to 15 percent by weight. This verification shall be performed in the months of July or August.
  - C. Testing for Special Condition 3.A. and Special Condition 3.B. 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.
  - D. The initial tests for Special Condition 3.A. shall be conducted no later than 45 days after the start of operation. The second tests shall be performed the calendar year following the initial tests during the months of July or August.
  - E. The written analytical reports 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 reports shall be filed on-site or at the Capital Sand Proppant, LLC - Millersville Plant main office within 30 days of completion of the required test.
  - F. If the moisture content of either of the two tests required by Special Condition 3.A. and Special Condition 3.B. is less than the moisture content in Special Condition 3.A or Special Condition 3.B, another test may be performed within 15 days of the noncompliant test. If the results of that test is also less than the moisture content required by Special Condition 3.A or Special Condition 3.B, Capital Sand Proppant, LLC - Millersville Plant 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. The wet spray devices shall be installed and operational within 40 days of the second noncompliant test.

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#### SPECIAL CONDITIONS:

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

4. Documented Haul Road Watering
  - A. Capital Sand Proppant, LLC - Millersville Plant shall control dust from all haul roads and vehicular activity areas at this site using water or surfactant spray consistently and correctly at all times to prevent visible fugitive emissions from entering the ambient air beyond the property boundary. The following conditions apply to haul road and vehicular activity area watering:
    - 1) The water application rate shall be 100 gallons per 1000 square feet at least once every day.
    - 2) A quarter inch or more rainfall during the preceding 24 hours shall substitute for one daily water application
    - 3) Water/surfactant application shall not be required when the ground is frozen or when there will be no traffic on the roads.
  - B. Capital Sand Proppant, LLC - Millersville Plant shall keep the following records on file and available for inspection:
    - 1) A daily log initialed by the responsible facility operator of roads watered and quantity of water/chemical application used, or notation that there was a quarter inch or greater rainfall within the past 24 hours or that the facility was not in operation.
    - 2) Water tank size, total area of roads to be watered, and the resultant number of fills necessary to accomplish the required application rate.
    - 3) Records of watering equipment breakdowns and repairs.
5. Capture Device Requirements – Material Handling
  - A. Capital Sand Proppant, LLC - Millersville Plant shall fully enclose the material handling equipment and their drop/transfer points for EU-22 and EU-24A. Material handling from EU-22 and EU-24A shall not aspirate to the ambient air. EU-21, EU-23, and EU-26 are inherently enclosed.
  - B. Capital Sand Proppant, LLC - Millersville Plant personnel shall inspect the hooded transfer points listed in Table 3 on a quarterly basis for any signs of visible fugitive particulate emissions emanating from that emission unit. The results of the inspection shall be recorded along with documentation regarding any necessary corrective action.
  - C. Capital Sand Proppant, LLC - Millersville Plant shall use hooded transfer points to capture emissions from the emission units indicated in Table 3.

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**SPECIAL CONDITIONS:**

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

A definition for hooded transfer points can be found in the PROJECT DESCRIPTION section of this permit.

- D. Capital Sand Proppant, LLC - Millersville Plant shall design and construct each hood according to the most current version (at the time of construction) of the industrial ventilation manual entitled, "Industrial Ventilation - A Manual of Recommended Practice, American Conference of Governmental Industrial Hygienists" or an equivalent standard.
  - E. Capital Sand Proppant, LLC - Millersville Plant shall demonstrate that each hood was constructed according to Special Condition 5.D. by keeping a record of the minimum recommended volumetric airflow for each draw point.
  - F. Within 90 days of the start of operation, Capital Sand Proppant, LLC - Millersville Plant shall verify the proper operation of each hood by:
    - 1) recording the actual volumetric airflow of each draw point
    - 2) performing a visual smoke puff test at each emissions source listed below
      - a) Entrance of transfer point of EU-20 to EU-21
      - b) Exit of transfer points of EU-24A to EU-25A
      - c) Entrance and exit of transfer point EU-25A to EU-25B
      - d) Entrance of transfer points of EU-25A to Storage Domes (EU-26) and EU-25B to Storage Domes (EU-26)
      - e) Exit of transfer points of EU-27 to EU-28
6. Control Device Requirement-Baghouse
- A. Capital Sand Proppant, LLC - Millersville Plant shall control emissions from the equipment listed in Table 2 and Table 3 using baghouses as specified in the permit application.

Table 2: Enclosed Equipment Controlled by Baghouse (CD-2)

Emission Unit	Emission Unit Description
EU-21	Distribution Box
EU-22	6 Conveyors to Screen
EU-23	6 Rotex Screens
EU-24A	2 Conveyors (Screen to Storage Dome)
EU-26	2 Storage Domes

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**SPECIAL CONDITIONS:**

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

**Table 3: Hooded Transfer Points Controlled by Baghouse (CD-3)**

Emission Unit	Emission Unit Description
EU-20	Conveyor (Dryer to Distributor Box)
EU-25A	Conveyor (to Storage Dome or EU-25B)
EU-25B	Conveyor (from EU-25A to Storage Dome)
EU-27	Tunnel Conveyor (from Storage Dome)
EU-28	Conveyor (to Truck Loading Silo)

- B. The baghouses shall be operated and maintained in accordance with the manufacturer's specifications. The baghouse shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that 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. Capital Sand Proppant, LLC - Millersville Plant shall monitor and record the operating pressure drop across the baghouses at least once per day when the plant is operational. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
  - E. Capital Sand Proppant, LLC - Millersville Plant shall maintain a copy of the baghouse manufacturer's performance warranty on site.
  - F. Capital Sand Proppant, LLC - Millersville Plant shall maintain an operating and maintenance log for the baghouses 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.
7. Equipment Requirement – Operation
- A. Capital Sand Proppant, LLC - Millersville Plant shall operate the wash screen and the hydrosizer plant according to the manufacturer's specifications.

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**SPECIAL CONDITIONS:**

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

- B. Capital Sand Proppant, LLC - Millersville Plant shall maintain a copy of the manufacturer's specifications for each piece of equipment listed in Special Condition 7.A.
  
- 8. Equipment Requirement – Low NO<sub>x</sub> Dryer  
Capital Sand Proppant, LLC - Millersville Plant shall install a low-NO<sub>x</sub> natural gas burner on the 125 MMBtu/hr dryer (EU-19).
  
- 9. PM Emissions Limit and Testing Requirements
  - A. Capital Sand Proppant, LLC - Millersville Plant shall not emit more than 0.0013 pounds of filterable PM per ton of sand from each baghouse (CD-2 and CD-3) that is used to control emissions from the equipment in Table 2 and Table 3.
  
  - B. Capital Sand Proppant, LLC - Millersville Plant shall conduct performance tests on the baghouses (CD-2 and CD-3), to ensure compliance with Special Conditions 9.A.
  
  - C. During the required performance tests, all equipment connected to the control device must be in operation.
  
  - D. A completed proposed test plan must be submitted to the Air Pollution Control Program at least thirty (30) days prior to the proposed test date of any such performance test so that a pretest meeting may be arranged, if necessary, and to assure that the test date is acceptable for an observer to be present. The proposed test plan shall include specification of test methods to be used and be approved by the Director prior to conducting the above required emissions testing.
  
  - E. Within 60 days of achieving the maximum production rate of the new sand plant, and in any case, no later than 180 days after initial start-up of the systems, Capital Sand Proppant, LLC - Millersville Plant shall have conducted the required performance tests.
  
  - F. The tests shall be performed during periods of representative conditions at the maximum processing rate or within ten (10%) of the rated capacity, not including periods of start-up, shutdown or malfunction.

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**SPECIAL CONDITIONS:**

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

- G. Two (2) copies of a written report of the performance test results shall be submitted to the Director within ninety (90) days of the completion of the tests. The report must include legible copies of the raw data sheets, analytical instrument laboratory data and complete sample calculations from the required Environmental Protection Agency (EPA) method for at least one (1) sample run.
10. Silt Content Testing Requirement
- A. Capital Sand Proppant, LLC - Millersville Plant shall verify that the silt content of the sand in Surge Pile #2 (EP-11) is less than or equal to one percent by weight.
  - B. Testing shall be conducted according to the method prescribed by the ASTM C117-04, C-136 or another approved by the Director.
  - C. The initial test shall be conducted no later than 45 days after the start of operation.
  - D. The written analytical reports shall include the raw data and silt 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 Capital Sand Proppant, LLC - Millersville Plant main office within 30 days of completion of the required test.
  - E. If the silt content of the test is greater than the silt content in Special Condition 10.A. another test may be performed within 15 days of the noncompliant test. If the results of that test also exceed the limit, Capital Sand Proppant, LLC - Millersville Plant shall apply for a new permit to account for the revised information
11. Record Keeping and Reporting Requirements
- A. Capital Sand Proppant, LLC - Millersville Plant 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 Proppant, LLC - Millersville Plant 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 show an exceedance of a limitation imposed by this permit.

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

Project Number: 2014-07-052  
Installation ID Number: 031-0133  
Permit Number:

Capital Sand Proppant, LLC - Millersville Plant  
County Road 347  
Jackson, MO 63755

Complete: September 26, 2014

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

Cape Girardeau County, S36 T32N R11E, S1 T31N R11E, S6 T31N R12E, and LG  
3142

REVIEW SUMMARY

- Capital Sand Proppant, LLC - Millersville Plant has applied for authority to install a new sand plant.
- HAPs of concern from this process are products of natural gas combustion in the dryer. All potential HAPs emissions are below the respective SMALs.
- 40 CFR Part 60 Subpart OOO, *Standards of Performance for Nonmetallic Mineral Processing Plants*, applies to this installation.
- 40 CFR Part 60 Subpart UUU, *Standards of Performance for Calciners and Dryers in Mineral Industries*, applies to this installation
- None of the NESHAPs apply to this installation. None of the currently promulgated MACT regulations apply to the proposed equipment.
- Baghouses are being used to control the particulate emissions from the equipment in this permit.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM<sub>2.5</sub> are conditioned below de minimis levels. Potential emissions of PM are above the de minimis level but remains below the major source level.
- This installation is located in Cape Girardeau 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. No modeling standard currently exists for PM.
- Emissions testing is required by 40 CFR Part 60 Subparts OOO and UUU.
- A Basic Operating Permit application is required for this installation within 30 days of equipment startup.
- Approval of this permit is recommended with special conditions.

### INSTALLATION DESCRIPTION

Capital Sand Proppant, LLC - Millersville Plant has proposed the installation of a new sand plant. The plant is located in Jackson, MO on County Road 347. Capital Sand Proppant, LLC - Millersville Plant will crush sandstone into specified sizes of sand. No other equipment is currently on site.

No permits have been issued to Capital Sand Proppant, LLC - Millersville Plant from the Air Pollution Control Program.

### PROJECT DESCRIPTION

Capital Sand Proppant, LLC - Millersville Plant will install a new sand plant that is capable of producing up to 400.0 tons of final product per hour. Capital Sand Proppant, LLC - Millersville Plant will install an HSI crusher that has a MHDR equal to 750 tons of aggregate per hour. The primary crusher will be powered by a diesel engine, 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. All other emission units will operate on power provided by the electrical grid. Capital Sand Proppant, LLC - Millersville Plant will primarily sell product that will be processed by the entire plant which includes the drying operation. This operating scenario results in worst case emissions. Therefore, the bottlenecked rate of throughput equal to 400 tons per hour is used for calculation of PTE. However, Capital Sand Proppant, LLC - Millersville Plant will also have the capability to process and sell wet sand that will not be processed through the entire plant. Therefore, the MHDR for the wet sand process is equal to 750 tons per hour. Attachment A allows Capital Sand Proppant, LLC - Millersville Plant to account for the type of product produced. The 125 MMBtu/hr low-NOx natural gas fired dryer will serve as the bottleneck of this installation (MHDR equal to 400 tph) when the sand is processed through it. The primary crusher will serve as the bottleneck of the installation when Capital Sand Proppant, LLC - Millersville Plant sells wet sand. The equipment that will be located on site can be found in Table 1 of this permit.

The non-metallic material will be crushed in the primary crusher (EU-02) before being conveyed to a surge pile. Following the first surge pile, material will enter a Cedarapids 8'x20' triple deck wash screen (non-emission unit). The wash screen is flooded with water to assist with screening efficiency and to create a slurry that is pumped to the hydrosizer plant (non-emission unit). The wash screen cannot operate without water. Oversized material exiting the triple deck screen will be processed through the secondary crusher (EU-08) and returned to the triple deck wash screen. Material exiting the hydrosizing plant will be temporarily stored in surge piles (EU-11). When Capital Sand Proppant, LLC - Millersville Plant produces wet sand, material will be loaded from the surge piles (EU-11) to haul trucks. When Capital Sand Proppant, LLC - Millersville Plant produces dry material, the material will then be loaded into a traveling feed hopper and get conveyed to a Peerless 4' by 12' scalping screen (EU-17) before entering the low-NOx dryer (EU19). After being dried, material will be conveyed to the screening building that includes a distribution box (EU-21), feed conveyors (EU-22), Rotex screens (EU-23), and three conveyors (EU-24A). Following the screening building, material will be transferred to storage domes (EU-26) by conveyors (EU-25A and EU-25B). Material will be transferred from storage domes to truck loadout silos via tunnel conveyors (EU-27) and conveyors (EU-28) prior to loading the material into trucks.

The hooded transfer points discussed in this permit are enclosed structures located at the transfer points of the specified conveyors. The hooded transfer points are constructed of metal that surrounds the head of the conveyor and the transfer point of the receiving equipment (e.g. tail of a conveyor or the top of a storage dome). The interface between the hood and the conveyor belting is sealed with rubber flashing at all points except the entrance and exit of the hood. Rubber skirts will be used to minimize the opening between the belt and the hood at the entrance and exit of the hood. The hoods will route particulate emissions from the transfer points listed in Table 3 to a baghouse.

## EMISSIONS/CONTROLS EVALUATION

The emission factors used in this analysis were obtained from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition:

- Section 1.4 "*Natural Gas Combustion*," July 1998
- Section 11.19.1 "*Sand & Gravel Processing*," November 1995
- Section 11.19.2 "*Crushed Stone Processing and Pulverized Mineral Processing*," August 2004
- Section 13.2.2 "*Unpaved Roads*," November 2006

Particulate emissions from the equipment in Table 2 of this permit will be controlled by baghouses. Emissions from the emission units in Table 2 and Table 3 are estimated using an emission factor from AP-42 Section 11.19.2 for sand handling, transfer, and storage with a wet scrubber. However, Capital Sand Proppant, LLC - Millersville Plant will use baghouses to control these emission units. Therefore, this permit requires Capital Sand Proppant, LLC - Millersville Plant to test the emissions from the baghouses. Each baghouse may not emit more than 0.0013 pounds of filterable PM per ton of product handled by the equipment as stated in Special Condition 9 of this

permit.

Documented haul road watering will be used to control particulate emissions from the haul roads and vehicular activity areas. A 90% control efficiency for PM and PM<sub>10</sub> and a 40% control efficiency for PM<sub>2.5</sub> are applied to the emission calculations for the haul roads and vehicular activity areas for documented watering. Particulate 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." Capital Sand Proppant, LLC - Millersville Plant will demonstrate through testing that the silt content of Surge Pile #2 (EP-11) and the Waste Pile from the Hydrosizer (EU-15) is less than or equal to 1% by weight in accordance with Special Condition 10 of this permit. Capital Sand Proppant, LLC - Millersville Plant will demonstrate through testing that inherent moisture content of the sand is greater than or equal to 1.5% by weight in accordance with Special Condition 3 of this permit.

The equipment labeled non-emission points in Table 1 are considered non-emission units due to the very high moisture content of the material processed.

Table 4 provides an emissions summary for this project. Existing potential emissions and existing actual emissions do not exist because this is a greenfield site. Potential emissions of the application represent the potential of the entire installation based on the bottlenecked production rate (400 tph), assuming continuous operation (8760 hours per year) because that is the worst case emissions scenario. The new installation conditioned potential emissions of PM, PM<sub>10</sub>, and PM<sub>2.5</sub> are based on a voluntary de minimis PM<sub>2.5</sub> emission limitation. New installation conditioned potential emissions of SO<sub>x</sub>, NO<sub>x</sub>, VOC, CO, GHG, and HAPs are based on the voluntary NO<sub>x</sub> emission limitation to the de minimis level.

Table 4: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions	Potential Emissions of the Application	New Installation Conditioned Potential
PM	25.0	N/A	N/A	68.38	21.39
PM <sub>10</sub>	15.0	N/A	N/A	42.27	13.22
PM <sub>2.5</sub>	10.0	N/A	N/A	31.97	<10.0
SO <sub>x</sub>	40.0	N/A	N/A	0.32	0.17
NO <sub>x</sub>	40.0	N/A	N/A	75.15	<40.0
VOC	40.0	N/A	N/A	2.95	1.57
CO	100.0	N/A	N/A	45.09	24.0
GHG (CO <sub>2</sub> e)	100,000	N/A	N/A	64,803.8	34,494
GHG (mass)	0.0 / 250.0	N/A	N/A	64,414.2	34,287
HAPs	10.0/25.0	N/A	N/A	1.01	0.54

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

## PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM<sub>2.5</sub> are conditioned below de minimis levels.

## APPLICABLE REQUIREMENTS

Capital Sand Proppant, LLC - Millersville Plant 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

- *Operating Permits*, 10 CSR 10-6.065
- *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

## SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400 applies but all of the equipment is inherently compliant with the rule
- *New Source Performance Regulations*, 10 CSR 10-6.070
  - *Standards of Performance for Nonmetallic Mineral Processing Plants* applies to this installation
  - *Standards of Performance for Calciners and Dryers in Mineral Industries* applies to this installation

## STAFF RECOMMENDATION

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

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J Luebbert  
New Source Review Unit

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Date

### PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated September 17, 2014, received September 26, 2014, designating Capital Sand Proppant, LLC as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

## Attachment A – PM<sub>2.5</sub> Compliance Worksheet

Capital Sand Proppant, LLC - Millersville Plant  
 Cape Girardeau County, S36 T32N R11E, S1 T31N R11E, S6 T31N R12E, and LG 3142  
 Project Number: 2014-07-052  
 Installation ID Number: 031-0133  
 Permit Number: \_\_\_\_\_

This sheet covers the period from \_\_\_\_\_ to \_\_\_\_\_.  
 (month, year) (month, year)

(a)	(b)		(c)	(d)	(e)	(f)	(g)	(h)
Month	Sand Processed (tons)		PM <sub>2.5</sub> Emission Factor (lb/ton)	Monthly PM <sub>2.5</sub> Emissions (pounds)	Monthly PM <sub>2.5</sub> Emissions (tons)	Previous Month's 12-Month PM <sub>2.5</sub> Emissions (tons)	Monthly PM <sub>2.5</sub> Emissions from Previous Year (tons)	Current 12-Month PM <sub>2.5</sub> Emissions (tons)
<i>Example</i> 09/2014	<i>Wet Sand</i>	<i>500,000</i>	<i>0.0031</i>	<i>1,550</i>	<i>5.325</i>	<i>2.0</i>	<i>1.0</i>	<i>6.325</i>
	<i>Dried Sand</i>	<i>500,000</i>	<i>0.0182</i>	<i>9,100</i>				
	Wet Sand		0.0031					
	Dried Sand		0.0182					
	Wet Sand		0.0031					
	Dried Sand		0.0182					
	Wet Sand		0.0031					
	Dried Sand		0.0182					
	Wet Sand		0.0031					
	Dried Sand		0.0182					
	Wet Sand		0.0031					
	Dried Sand		0.0182					
	Wet Sand		0.0031					
	Dried Sand		0.0182					
	Wet Sand		0.0031					
	Dried Sand		0.0182					

- a) Record the current date.
- b) Record this month's sand that has been processed to be sold as wet sand and the amount of sand that has been dried
- c) PM<sub>2.5</sub> emission factor for each process.
- d) Calculate using the following equation: (d) = (b) x (c).
- e) Calculate using the following equation: (e) = [(d) for wet sand + (d) for dry sand] / 2,000
- f) Record the 12-month PM<sub>2.5</sub> emissions (h) from last month.
- g) Record the monthly PM<sub>2.5</sub> emissions (e) from this month last year.
- h) Calculate the new 12-month PM<sub>2.5</sub> emissions using the following equation: (h) = (e) + (f) – (g)

A rolling 12- month PM<sub>2.5</sub> emission total less than 10.0 tons indicates compliance with Special Condition 1.



## APPENDIX A

### Abbreviations and Acronyms

<b>%</b> .....percent	<b>m/s</b> ..... meters per second
<b>°F</b> .....degrees Fahrenheit	<b>Mgal</b> ..... 1,000 gallons
<b>acfm</b> .....actual cubic feet per minute	<b>MW</b> ..... megawatt
<b>BACT</b> ..... Best Available Control Technology	<b>MHDR</b> ..... maximum hourly design rate
<b>BMPs</b> ..... Best Management Practices	<b>MMBtu</b> .... Million British thermal units
<b>Btu</b> ..... British thermal unit	<b>MMCF</b> ..... million cubic feet
<b>CAM</b> ..... Compliance Assurance Monitoring	<b>MSDS</b> ..... Material Safety Data Sheet
<b>CAS</b> ..... Chemical Abstracts Service	<b>NAAQS</b> ... National Ambient Air Quality Standards
<b>CEMS</b> ..... Continuous Emission Monitor System	<b>NESHAPs</b> National Emissions Standards for Hazardous Air Pollutants
<b>CFR</b> ..... Code of Federal Regulations	<b>NO<sub>x</sub></b> ..... nitrogen oxides
<b>CO</b> ..... carbon monoxide	<b>NSPS</b> ..... New Source Performance Standards
<b>CO<sub>2</sub></b> ..... carbon dioxide	<b>NSR</b> ..... New Source Review
<b>CO<sub>2</sub>e</b> ..... carbon dioxide equivalent	<b>PM</b> ..... particulate matter
<b>COMS</b> ..... Continuous Opacity Monitoring System	<b>PM<sub>2.5</sub></b> ..... particulate matter less than 2.5 microns in aerodynamic diameter
<b>CSR</b> ..... Code of State Regulations	<b>PM<sub>10</sub></b> ..... particulate matter less than 10 microns in aerodynamic diameter
<b>dscf</b> ..... dry standard cubic feet	<b>ppm</b> ..... parts per million
<b>EQ</b> ..... Emission Inventory Questionnaire	<b>PSD</b> ..... Prevention of Significant Deterioration
<b>EP</b> ..... Emission Point	<b>PTE</b> ..... potential to emit
<b>EPA</b> ..... Environmental Protection Agency	<b>RACT</b> ..... Reasonable Available Control Technology
<b>EU</b> ..... Emission Unit	<b>RAL</b> ..... Risk Assessment Level
<b>fps</b> ..... feet per second	<b>SCC</b> ..... Source Classification Code
<b>ft</b> ..... feet	<b>scfm</b> ..... standard cubic feet per minute
<b>GACT</b> ..... Generally Available Control Technology	<b>SDS</b> ..... Safety Data Sheet
<b>GHG</b> ..... Greenhouse Gas	<b>SIC</b> ..... Standard Industrial Classification
<b>gpm</b> ..... gallons per minute	<b>SIP</b> ..... State Implementation Plan
<b>gr</b> ..... grains	<b>SMAL</b> ..... Screening Model Action Levels
<b>GWP</b> ..... Global Warming Potential	<b>SO<sub>x</sub></b> ..... sulfur oxides
<b>HAP</b> ..... Hazardous Air Pollutant	<b>SO<sub>2</sub></b> ..... sulfur dioxide
<b>hr</b> ..... hour	<b>tph</b> ..... tons per hour
<b>hp</b> ..... horsepower	<b>tpy</b> ..... tons per year
<b>lb</b> ..... pound	<b>VMT</b> ..... vehicle miles traveled
<b>lbs/hr</b> ..... pounds per hour	<b>VOC</b> ..... Volatile Organic Compound
<b>MACT</b> ..... Maximum Achievable Control Technology	
<b>µg/m<sup>3</sup></b> .....micrograms per cubic meter	

Mr. Steve Bohlken  
President  
Capital Sand Proppant, LLC - Millersville Plant  
P.O. Box 104990  
Jefferson City, MO 65110

RE: New Source Review Permit - Project Number: 2014-07-052

Dear Mr. Bohlken:

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

If you 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, Truman State Office Building, P.O. Box 1557, Jefferson City, Missouri 65102 [www.oa.mo.gov/ahc](http://www.oa.mo.gov/ahc).

If you have questions regarding this permit, please contact J Luebbert, Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102, (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp  
New Source Review Unit Chief

SH:jl

Enclosures

c: Southeast Regional Office  
PAMS File: 2014-07-052  
Permit Number: