

**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:

**032018-012**

Project Number: 2017-12-046

Installation Number: 031-0133

Parent Company:

Capital Sand Proppants, LLC

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

Installation Name:

Capital Sand Proppants, LLC

Installation Address:

418 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:

Increasing production of wet and dry sand by adding new surge piles, increasing the size of existing surge piles, adding three new wash screens with associated conveying systems, and adding a 150 MMBtu/hr natural gas fired dryer. 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.

Prepared by  
Chad Stephenson  
New Source Review Unit

Director or Designee  
Department of Natural Resources

**MAR 30 2018**

Effective Date

**STANDARD CONDITIONS:**

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

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

You must notify the Enforcement and Compliance Section of the Department's Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available within 30 days of actual startup. Also, you must notify the Department's regional office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

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

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

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

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit using the contact information below.

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

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

032018-012

**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 Proppants, LLC  
Cape Girardeau County, S36, T32N, R11E; S1, T31N, R11E; S6, T31N, R12E; and LG  
3142

1. Superseding Condition
  - A. The conditions of this permit supersede all special conditions found in the previously issued construction permit 022015-009A issued by the Air Pollution Control Program.
  - B. The conditions of this permit supersede the following special conditions found in the previously issued construction permit 022015-009 issued by the Air Pollution Control Program
    - 1) Special Condition 1
    - 2) Special Condition 2
    - 3) Special Condition 3
    - 4) Special Condition 4
    - 5) Special Condition 7
    - 6) Special Condition 8
    - 7) Special Condition 9
    - 8) Special Condition 10
2. NO<sub>x</sub> Emission Limitation
  - A. Capital Sand Proppants, LLC shall emit less than 40.0 tons of NO<sub>x</sub> in any consecutive 12-month period from the two low-NO<sub>x</sub> dryers (EU-19 and EU-59).
  - 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 2.A.
3. Equipment Requirement – Low NO<sub>x</sub> Dryer  
Capital Sand Proppants, LLC shall install operate and maintain low-NO<sub>x</sub> natural gas burners on the 125 MMBtu/hr dryer (EU-19) and the 150 MMBtu/hr dryer (EU-59).

**SPECIAL CONDITIONS:**

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

**4. Haul Road Paving Requirement**

- A. Capital Sand Proppants, LLC shall pave EU-14, EU-15B, EU-30, EU-31B (partial; approximately 2,740 feet), EU-53, EU-54B, and EU-55B with 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. Capital Sand Proppants, LLC shall establish and follow a paved haul roads cleaning, watering, vacuum-sweeping standard operating procedure (SOP). A copy of the SOP report shall be submitted to the Air Pollution Control Program's Compliance/Enforcement Section within 60 days of the submittal of the initial test report in Special Condition 8.G. The report shall include but is not limited to the following information, haul road segment/location, cleaning method/water application rate, and schedule.

**5. Documented Haul Road Watering**

- A. Capital Sand Proppants, LLC shall control dust from the unpaved portion of EU-31B (approximately 519 feet) 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.

**SPECIAL CONDITIONS:**

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

- B. Capital Sand Proppants, LLC 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.
  
- 6. Moisture Content Testing Requirement
  - A. Capital Sand Proppants, LLC shall verify that the moisture content of the material in surge piles (EU-05A, EU-05B, EU-11, EU-54, and EU-55) is greater than or equal to 7.0 percent by weight.
  
  - B. Capital Sand Proppants, LLC shall verify that the moisture content of the material in surge pile (EU-15) is greater than or equal to 15 percent by weight.
  
  - C. Capital Sand Proppants, LLC shall verify that the moisture content of the material in surge pile (EU-31) is greater than or equal to 1.4 percent by weight.
  
  - D. Capital Sand Proppants, LLC 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.
  
  - E. Testing for Special Condition 6.A., 6.B., 6.C, and 6.D. 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.
  
  - F. The initial tests for Special Condition 6.A., 6.B., 6.C, and 6.D 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.
  
  - G. 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 Proppants, LLC main office within 30 days of completion of the required test.

**SPECIAL CONDITIONS:**

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

- H. If the moisture content of either of the two tests required by Special Condition 6.F. is less than the moisture content limit in Special Condition 6.A., 6.B., 6.C, and 6.D., 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 6.A., 6.B., 6.C, and 6.D., Capital Sand Proppants, LLC shall:
  - 1.) Apply for a new permit with revised modeling to account for the revised information.
  
- 7. Silt Content Testing Requirement
  - A. Capital Sand Proppants, LLC shall verify that the silt content of the sand in surge piles (EU-11, EU-54 and EU-55) is less than or equal to 0.47 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 Proppants, LLC 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 7.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 Proppants, LLC shall apply for a new permit with revised modeling to account for the revised information.
  
- 8. Paved Haul Road Testing
  - A. Silt loading for paved haul roads EU-14, EU-53, EU-54B, and EU-55B shall not exceed 2.0 grams per square meter ( $\text{g/m}^2$ ) on the paved haul road individual sample.
  - B. Silt loading for paved haul roads EU-15B and EU-31B shall not exceed 1.3 grams per square meter ( $\text{g/m}^2$ ) on the paved haul road individual sample.
  - C. Silt loading for paved haul road EU-30 shall not exceed 0.8 grams per square meter ( $\text{g/m}^2$ ) on the paved haul road individual sample.
  - D. Compliance with the silt loading limitation in Special Condition 8.A, 8.B, and 8.C. shall be demonstrated by conducting silt loading sampling (as

**SPECIAL CONDITIONS:**

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

defined in Appendix C.1 and C.2 of *AP-42 Compilation of Air Pollution Emission Factors*, Fifth Edition).

- 1) Silt loading sampling shall be conducted using a vacuum equipped with HEPA filtration.
  - 2) Each sample area shall be large enough to obtain 100 grams of material.
- E. Sampling shall be conducted between the midpoint and end of the watering/cleaning cycle, or immediately before and after a watering/cleaning cycle. If the after/before option is chosen, then the results are averaged for comparison to the silt loading limit.
- 1) The watering/cleaning method and frequency shall be conducted, at a minimum, at the same method and frequency as stated in the SOP report from Special Condition 4 that corresponds to a compliant test.
  - 2) Watering/cleaning may be temporarily suspended during adequate precipitation or inclement weather (i.e. rain exceeding 0.25 inches per day being sufficient to maintain no visible emissions, or roads covered in snow or ice). If rain exceeding 0.25 inches per day occurs, then sampling shall be conducted at the midpoint of the next cleaning cycle.
  - 3) Watering may be suspended when the ground is frozen or during periods of freezing conditions when watering would be inadvisable for traffic safety reasons, however vacuum-sweeping may still be necessary.
  - 4) Watering/cleaning may be suspended when there will be no traffic on the roads.
  - 5) Record of the watering/cleaning schedule, actual watering/cleaning conducted, and daily precipitation shall be kept on site.
- F. Analysis of samples shall be conducted in accordance with ASTM C 136 method. The silt calculation shall add all mass retained in the vacuum bag to the mass passing the #200 sieve.
- G. Testing shall be conducted once a quarter for four quarters following the issuance of this permit. The initial test shall be conducted within 30 days of this permit's issuance. Once Capital Sand Proppants, LLC demonstrates four consecutive compliant testing in accordance with this special condition, then no further testing will be required as long as the haul road SOP as established and verified by testing is maintained. If any test exceeds the limit in Special Condition 8.A., 8.B. and 8.C. or there are any changes to the SOP, then Capital Sand Proppants, LLC will need to revert to testing quarterly until four consecutive are achieved.
- H. Two copies (one hardcopy, one electronic) of the full test report and results shall be submitted to the Air Pollution Control Program Compliance/Enforcement Section within 60 days of completion of the

**SPECIAL CONDITIONS:**

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

initial testing. At a minimum, the report shall include sample road segment locations, recent weather conditions, HEPA vacuum bag model number, cleaning method and schedule, sampling date/time, tons of material shipped on the sampling day compared to the permitted capacity, legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required EPA Method for at least one sample run. Subsequent test results/reports shall be kept on site.

- I. If the results show that the silt loading exceeds the limits in Special Condition 8.A., 8.B. and 8.C. on two consecutive tests (i.e. if one or more of the three required samples per test shows a deviation, then the entire test shows a deviation, but two consecutive tests are needed to show an exceedance of the limit), then Capital Sand Proppants, LLC shall evaluate what effects the exceedance would have had on the permit applicability of this project. Capital Sand Proppants, LLC shall submit the results of any such evaluation, in a complete Application for Authority to Construct to the Permits Section within 90 days of completing the silt loading test results report required in Special Condition 8 of this permit.
9. **Equipment Requirement – Operation**
    - A. Capital Sand Proppants, LLC shall operate all wash screens and the hydrosizer plant according to the manufacturer's specifications.
    - B. Capital Sand Proppants, LLC shall maintain a copy of the manufacturer's specifications for each piece of equipment listed in Special Condition 9.A.
  10. **Control Device Requirement-Baghouse**
    - A. Capital Sand Proppants, LLC shall control emissions from the equipment listed in Table 1 and Table 2 using baghouses as specified in the permit application.

Table 1: Enclosed Equipment Controlled by Baghouse (CD-1)

Emission Unit	Emission Unit Description
EU-16	Conveyor (to scalping screen)
EU-17	Scalping Screen
EU-18	Conveyor to dryer
EU-19	125 MMBtu/hr dryer

Table 2: Enclosed Equipment Controlled by Baghouse (CD-4)

Emission Unit	Emission Unit Description
EU-59	150 MMBtu/hr dryer
EU-61	Conveyor (to scalping screen)
EU-62	Scalping Screen



**SPECIAL CONDITIONS:**

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

- 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 Proppants, LLC 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 Proppants, LLC shall maintain a copy of the baghouse manufacturer's performance warranty on site.
  - F. Capital Sand Proppants, LLC 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.
11. Application of Chemical Dust Suppressants
- A. Capital Sand Proppants, LLC shall apply a chemical dust suppressant (such as magnesium chloride, calcium chloride, lignosulfonates, etc.) to the product in the scalping screens (EU-17 and EU-62).
  - 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 years and make these records available to Department of Natural Resources' personnel upon request.
  - D. Application of the chemical dust suppressant may be suspended during periods of freezing conditions for safety reasons.

**SPECIAL CONDITIONS:**

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

**12. EU-5 Vehicular Activity Visible Emissions**

- A. Active storage pile vehicular activity areas shall emit zero visible emissions (not 0% opacity) during periods when material is being transferred by loaders from storage pile EU-5.
- B. Capital Sand Proppants, LLC shall demonstrate compliance by monitoring and recording visible emissions according to the following schedule, during periods when loaders are moving material from storage pile EU-5. Method 22 shall be used:
  - 1) Initial monitoring shall be conducted at least once every 24 hours for a period of 30 consecutive days. If weather conditions prevent the observer from conducting monitoring, the observer shall note such conditions on the data observation sheet. At least three attempts shall be made to retake visible emission readings at approximately 2 hour intervals throughout the day. If unsuccessful that day due to weather, monitoring shall be made the following day. If all monitoring attempts for a week have been unsuccessful due to weather, monitoring shall be made the next operating day where weather permits. Should monitoring result in no exceedance of the limitation during this period, then,
  - 2) Monitoring shall be conducted at least once monthly. Should monitoring result in no exceedance of the limitation for a six month period, then,
  - 3) Monitoring shall be conducted at least once quarterly.
  - 4) Monitoring shall be conducted when visible emissions are likely to be present. Monitoring shall not be conducted when winds are calm or during a precipitation event
  - 5) If at any time an exceedance is shown, then Capital Sand Proppants, LLC shall implement corrective actions, and monitoring shall revert to 12.B.1 ).
  - 6) Each Method 22 shall be conducted for a minimum of six minutes.

**13. Modification to Release Parameters Requirement**

Capital Sand Proppants, LLC shall notify the Air Pollution Control Program prior to making any modifications to the facility that impact the release parameters and/or emission rates listed in the memo: *Ambient Air Quality Impact Analysis (AAQIA) for Capital Sand Proppants, LLC*. In the event that the Air Pollution Control Program determines the changes are significant, Capital Sand Proppants, LLC shall submit an updated AAQIA indicating compliance with the NAAQS.

**14. Record Keeping and Reporting Requirements**

- A. Capital Sand Proppants, LLC 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

**032018-012**

**SPECIAL CONDITIONS:**

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

- upon request.
- B. Capital Sand Proppants, LLC 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 (6) REVIEW

Project Number: 2017-12-046

Installation ID Number: 031-0133

Permit Number 032018-012

Installation Address:

Capital Sand Proppants, LLC  
418 County Road 347  
Jackson, MO 63755

Parent Company:

Capital Sand Proppants, 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 Proppants, LLC has applied for authority to increase production of wet and dry sand by adding new surge piles, increasing the size existing surge piles, adding three new wash screens with associated conveying systems, and adding a 150 MMBtu/hr natural gas fired dryer.
- The application was deemed complete on February 26, 2018.
- 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 EU-18, EU-19, and EU-59.
- 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<sub>10</sub> and PM<sub>2.5</sub> are above de minimis levels. Potential emissions of NO<sub>x</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 performed to determine the ambient impact of PM<sub>10</sub> and PM<sub>2.5</sub>.
- Silt loading and moisture content testing is required. Emissions testing is not required for the equipment as a part of this permit. Testing may be required as part of other state, federal or applicable rules.
- A submittal of an application for an Intermediate Operating Permit is required for this installation within 90 days of equipment startup or a Part 70 Operating Permit is required within a year of equipment startup.
- Approval of this permit is recommended with special conditions.

#### PROJECT/INSTALLATION DESCRIPTION

Capital Sand Proppants, LLC owns a sand manufacturing facility located near Jackson, Missouri. The plant is currently a De Minimis source operating under a Basic Operating Permit and Permit to Construct No. 022015-009 and 022015-009A. Following the completion of this project the plant will need to submit an application for either an Intermediate Operating Permit or a Part 70 Operating Permit since unconditioned potential emissions of NO<sub>x</sub> will be above major source levels. The plant started operation in 2016. In November 2017, Capital Sand applied and received permit amendment No. 022015-009A, which served as a true up for Permit 022015-009. The permit amendment calculated a revised emission factor for PM<sub>2.5</sub> that was more representative of the current as-built configuration of the plant, and updated equipment lists that differed from the original permit. This permit is to evaluate the entire installation.

With this project, Capital Sand submitted a Section 6 permit application. Product demand has grown such that Capital Sand would like to install additional equipment. Capital Sand plans to install a second dryer, an additional wet plant, and other supporting equipment. Several emission units will be removed or modified and several new emission units will be added. Table 3 lists each existing and new emission unit and the status of each emission unit following implementation of the proposed project.

Table 3: Installation-wide Emission Units

Emission Unit	Existing Description	Updated Emission Unit Description	Emission Unit Status Following Project	MHDR (tph) used for Modeling
EU-01	Load into HSI Crusher	N/A	Unchanged	750
EU-02	HSI Crusher (Primary)	N/A	Unchanged	750
EU-03	6 Conveyors (to Radial Stacker)	N/A	Unchanged	4,500
EU-04	Radial Stacker	N/A	Unchanged	750
EU-05A	East Surge Pile Wind Erosion (1.7 acres)	05 East Surge Pile Wind Erosion	Existing, Renamed	400
EU-05B	West Surge Pile Wind Erosion (1.7 acres)	N/A	Unchanged	400
EU-05B.1	West Surge Pile Loadout	N/A	Unchanged	400
EU-06	Tunnel Conveyor	N/A	Unchanged	400
EU-07	Conveyor (to Wash Screen)	N/A	Unchanged	400
Non-emission point	Wash Screen	N/A	Unchanged	400
Non-emission point	Conveyor (from Wash Screen to VSI Crusher)	N/A	Unchanged	400
Non-emission point	VSI Crusher (Secondary)	N/A	Unchanged	400
Non-emission point	Sump (from Wash Screen to Hydrosizer)	N/A	Unchanged	400
Non-emission point	Hydrosizer Plant	N/A	Unchanged	400
Non-emission point	5 Conveyors from (Hydrosizer to Surge Pile)	N/A	Unchanged	400
EU-11A	Surge Pile #2 Wind Erosion (4.25 acres)	11 East Surge Pile	Exiting, Size Change (6 acres)	400
EU-11B	Surge Pile #2 Load Out from Pile	11 West Surge Pile	Existing EU-11B is now named EU-11C. This new EU-11B is a new emission unit	400

Emission Unit	Existing Description	Updated Emission Unit Description	Emission Unit Status Following Project	MHDR (tph) used for Modeling
EU-12A	Hopper 1 for EU-11	Conveyor (with Hopper)	Unchanged (name change)	400
EU-12B	Conveyor	N/A	The emissions associated with this source are accounted for in EU-32	400
EU-13	Hopper 2 for EU-11	Feed Hopper	Unchanged	400
EU-14A	Wet Plant Vehicular Activity (100 feet)	N/A	Unchanged	400
EU-14B	Wet Plant Vehicular Activity (87 feet)	N/A	Unchanged	400
EU-15A	Waste Pile from Hydrosizer Pile (0.04 acres)	West Pile from Hydrosizer Pile (0.12 acres)	Updated the size to 0.12 acres	400
EU-15B	Waste Pile from Hydrosizer Vehicular Activity (1,885 feet)	N/A	Unchanged	400
EU-15C	Waste Pile from Hydrosizer Load Out	N/A	Unchanged	400
EU-16	Conveyor (to Scalping Screen)	Conveyor to Scalping Screen 1	Unchanged	400
EU-17	Scalping Screen	N/A	Unchanged	400
EU-18	Conveyor (from Scalping Screen to Dryer)	Conveyor to Dryer	Unchanged	400
EU-19	125 MMBtu/hr low-NOx Dryer	N/A	Unchanged	400
EU-20	Conveyor (from Scalping Screen to Distributor Box in Screen House)	N/A	Unchanged	400
EU-21	Distribution Box	N/A	Unchanged	400
EU-22	6 Conveyors to Screen	N/A	Unchanged	400
EU-23	6 Rotex Screens	N/A	Unchanged	400
EU-24A	2 Conveyors (Screen to Storage)	N/A	Unchanged	400
EU-24B	Conveyor (Screen to Pile)	Conveyor from Screen to EU-37	Unchanged	400

EU-25A	2 Conveyors (to Storage Dome or EU-25B)	N/A	Unchanged	400
EU-25B	Conveyor (from EU-25A to Storage dome)	N/A	Unchanged	400
EU-26	2 Storage Domes	N/A	Unchanged	400
EU-27	2 Tunnel Conveyors (from Storage Dome)	N/A	Unchanged	400
EU-28	2 Conveyors (to Truck Loading Silo)	N/A	Unchanged	400
EU-29	Truck Loading	N/A	Unchanged	400
EU-30	Sales Haul Road (paved, 1,200 feet)	N/A	Unchanged	400
EU-31A	Oversize Stockpile Wind Erosion (0.06 acres)	N/A	Unchanged	400
EU-31B	Oversize Stockpile Vehicular Activity	Haul Road – Waste from Oversize Stockpile (2,740 feet paved and 519 feet unpaved)	Unchanged	400
EU-31C	Oversize Stockpile Loadout	N/A	Unchanged	400
EU-32	Hoppers EU-12A and EU-13 into Surge Silo	N/A	Unchanged	400
EU-37	Conveyor to Oversize Pile	N/A	Unchanged	400
EU-38	Feed Hopper for Crusher	N/A	Removed	400
EU-39	Jaw Crusher	N/A	Removed	400
EU-40	Crusher Discharge Conveyor	N/A	Removed	400
EU-41	Hopper to EP-7 Conveyor	N/A	Unchanged	400
EU-43	Hopper (for EU-05B)	N/A	Unchanged	400
EU-44	Conveyor 1 for material from EU-05B	N/A	Unchanged	400
EU-45	Conveyor 2 for material from EU-05B	N/A	Unchanged	400



EU-46	N/A	Hopper to conveyor 51	New	400
EU-47	N/A	Drop from conveyor 51 to conveyor 52A	New	400
EU-48	N/A	Drop from conveyor 51 to conveyor 52B	New	400
EU-49	N/A	Drop from conveyor 52A to wet screen 3	New	400
EU-50	N/A	Drop from conveyor 52B to wet screen 4	New	400
Non-emission point	N/A	Wet Screen 3	New	400
Non-emission point	N/A	Wet Screen 4	New	400
Non-emission point	N/A	Wet Screens to conveyor 53	New	400
Non-emission point	N/A	Conveyor 53 to conveyor 55	New	400
Non-emission point	N/A	Conveyor from wet screens to VSI Crusher	New	400
Non-emission point	N/A	VSI Crusher	New	400
EU-53	N/A	Haul Road – Wet Plant (381 feet)	New	400
Non-emission point	N/A	Conveyors 56-61	New	400
EU-54A	N/A	54 Surge Pile Wind Erosion (1.5 acres)	New	400
EU-54B	N/A	Surge Pile EU-54 Vehicular Activity (64 feet)	New	400
EU-54C	N/A	54 Surge Pile Load Out	New	400

EU-55A	N/A	55 Surge Pile Wind Erosion (1.5 acres)	New	400
EU-55B	N/A	Surge Pile EU- 55 Vehicular Activity (221 feet)	New	400
EU-55C	N/A	55 Surge Pile Load Out	New	400
EU-56	N/A	Hopper to Conveyor 62	New	400
EU-57	N/A	Hopper to Conveyor 63	New	400
EU-58	N/A	Conveyor 62 to Surge Silo for Dryer 1	New	400
EU-59	N/A	150 MMBtu/hr low-NOx Dryer	New	400
EU-60	N/A	Conveyor 63 to Surge Silo for Dryer 2	New	400
EU-61	N/A	Conveyor to Scalping Screen 2	New	400
EU-62	N/A	Scalping Screen 2	New	400
EU-ST	N/A	Screen Tower Dust Collector Stack	Unchanged	400
EU-DV	N/A	Dome and Vault Dust Collector Stack	Unchanged	400

Capital Sand Proppants, LLC, a sand plant, is capable of producing up to 400.0 tons of final product per hour. Capital Sand Proppants, LLC has an HSI crusher that has a MHDR equal to 750 tons of aggregate per hour. All emission units operate on power provided by the electrical grid. Capital Sand Proppants, LLC primarily sells product that will be processed by the entire plant which includes the drying operations. This operating scenario results in worst case emissions. However, Capital Sand Proppants, LLC also has the capability to process and sell wet sand that will not be processed through the entire plant. According to the applicant the truck load out serves as the bottleneck of the installation when Capital Sand Proppants, LLC sells wet and dry sand. The truck load out has an MHDR of 400 tons per hour. Therefore, the MHDR of the plant is equal to 400 tons per hour.

The non-metallic material is crushed in the primary crusher (EU-02) before being conveyed to a surge pile (EU-05). The surge pile consists of an east portion EU-05A

and a west portion (EU-05B). Each surge pile (EU-05A and EU-05B) is approximately 1.7 acres each. The surge piles use either a tunnel conveyor (EU-06) or front end loaders to move material to the next part of the process. Emissions from loadout of the EU-05B pile are considered in EU-05B.1. The vehicular activity between EU-05 and hopper EU-46 is considered a non emission point. The area is swampy with standing water due to the proximity of the road to the existing wet plant. The facility describes roads in this area as a packed wet sand road. The sand holds the water due to its packing quality. Some of the sand on the road is pre-washed sand which can form more of a clay type material, further allowing for the accumulation and retention of moisture. Roads in these areas are so wet that they can cause truck/loader tires to sink before gaining traction. The addition of the second wet plant south of the pile and hopper will further contribute to the wetness of the area. The applicant provided pictures of the area that showed standing water to support their claim that the area is a non emission point. Special Condition 12 requires Method 22 monitoring to confirm this is a non emission point.

When weather does not permit the surge pile (EU-05) using the tunnel conveyor, Capital Sand Proppants, LLC utilizes one of two hoppers (EU-41 and EU-43) to move material from the surge pile to the permitted conveyors (EU-07, EU-44 and EU-45) for one of the wet screens. Alternatively, material from east surge pile can be transported by the front end loader to a hopper (EU-46) where is conveyed (EU-47, EU-48, EU-49, EU-50) to a separate wet plant.

Material leaving the surge pile (EU-05) can be routed to one of two dryers (EU-19 and EU-59). In both instances, material is conveyed to wet plants where it is goes through wash screens. The wash screens are 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. Material exiting the wash screens is processed through the crushers (non-emission units). Material exiting the crushers is temporarily stored in surge piles (EU-11, EU-54, and EU-55). When Capital Sand Proppants, LLC produces wet sand, material is loaded from the surge piles to haul trucks. When Capital Sand Proppants, LLC produces dry material, the material will then be loaded into a traveling feed hopper and get conveyed to the low-NOx dryers (EU-19 and EU-59). After being dried, material is conveyed to scalping screens (EU-17 and EU-62). Material from the scalping screen (EU-17) is conveyed to a screening tower and then storage domes. The screening building includes a distribution box (EU-21), feed conveyors (EU-22), Rotex screens (EU-23), and three conveyors (EU-24A). Material from scalping screen (EU-62) is conveyed directly to the storage domes. The storage domes (EU-26) consist of conveyors (EU-25A and EU-25B). Material is transferred from storage domes to truck loadout silos via tunnel conveyors (EU-27) and conveyors (EU-28) prior to loading the material into trucks (EU-29).

Appendix B includes the process flow diagram submitted by the applicant.

The following New Source Review permits have been issued to Capital Sand Proppants, LLC from the Air Pollution Control Program.

Table 4: Permit History

Permit Number	Description
022015-009	New sand plant
022015-009A	True-up for permit 022015-009

## 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 13.2.1 “*Paved Roads*,” January 2011
- Section 13.2.2 “*Unpaved Roads*,” November 2006

Capital Sand Proppants, LLC performed source testing on the dryer baghouse (CD-2) stack in March of 2016. The results of the stack test were submitted to and approved by the Air Pollution Control Program’s Compliance/Enforcement section. The results of the stack test did not specify PM<sub>2.5</sub>; so it was conservatively assumed that all particulate emissions were PM<sub>2.5</sub>. The results gave a dryer emission rate of 2.2 lb/hr of filterable PM<sub>2.5</sub>. The same emission rate was used for the new dryer being added. Condensable particulate emissions from the dryers were added to filterable particulates and calculated using AP-42 Section 1.4.

Particulate emissions from the equipment in Table 5 and Table 6 of this permit are controlled by baghouses. In permit 022015-09 emissions from the emission units in Table 5 and Table 6 were estimated using an emission factor from AP-42 Section 11.19.2 for sand handling, transfer, and storage with a wet scrubber. Capital Sand Proppants, LLC uses baghouses to control these emission units. Permit 022015-009 required Capital Sand Proppants, LLC to test the emissions from the baghouses. The requirement of Permit 022015-009 was that each baghouse may not emit more than 0.0013 pounds of filterable PM per ton of product handled by the equipment. This permit updates the emissions factors to the values provided in stack test submitted to the Air Pollution Control Program’s Compliance/Enforcement Section. The emission factor developed from the stack test for the equipment in Table 5 is 0.0033 lbs/ton. The emission factor developed from the stack test for the equipment in Table 6 is 0.00011 lbs/ton.

Table 5: 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

Table 6: 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)

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 Proppants, LLC will demonstrate through testing that the silt content of EU-11, EU-54 and EU-55 is less than or equal to 0.47% by weight in accordance with Special Condition 7 of this permit. Capital Sand Proppants, LLC will also demonstrate through testing that the moisture content of the material in surge piles (EU-05A, EU-05B, EU-11, EU-54, and EU-55) is greater than or equal to 7.0 percent by weight and that the processed sand prior to the scalping screens (EU-17 and EU-62) is greater than 1.5 percent by weight.. Furthermore, Capital Sand Proppants, LLC will demonstrate through testing that the moisture content of the material in surge pile (EU-15) is greater than or equal to 15 percent by weight and that the moisture content of the material in surge pile (EU-31) is greater than or equal to 1.4 percent by weight.

Wind erosion emissions were calculated based on maximum storage pile sizes of 3.4 acres (EU-5), 6 acres (EU-11), 0.12 acres (EU-15), 0.06 acres (EU-31), 1.5 acres (EU-54) and 1.5 acres (EU-55). For EU-5, EU-11, EU-54 and EU-55 approximately ¼ of the potential maximum size was used. According to the applicant only ¼ of these storage piles are actively used and natural crusting of the surface occurs on the remaining portion of the storage piles making the remaining emissions negligible.

Haul roads EU-14, EU-53, EU-54B, and EU-55B are paved. Capital Sand Proppants, LLC requested using a silt loading of 2.0 g/m<sup>2</sup> on these haul roads. Haul roads EU-15B and EU-31B are paved. Capital Sand Proppants, LLC requested using a silt loading of 1.3 g/m<sup>2</sup> for EU-15B and EU-31B. Haul road EU-30 is paved. Capital Sand Proppants, LLC requested using a silt loading of 0.8 g/m<sup>2</sup> for EU-30. Testing, per Special Condition 8, will be conducted to verify the above silt loadings. Due to plant processes and proximity to the wet plant EU-14, EU-53, EU-54B, and EU-55B are expected to be in a

state of constant wetness. A 97% control efficiency for PM and PM<sub>10</sub> and a 90% control efficiency for PM<sub>2.5</sub> was proposed by the applicant and applied to the emission calculations for EU-14, EU-53, EU-54B, and EU-55B. The Air Pollution Control Program has a default 90% control efficiency for PM and PM<sub>10</sub> and a 74% control efficiency for PM<sub>2.5</sub> for documented watering; however these are based on daily watering application rates which would be expected to dry over the course of the day as compared to the constant moisture on the roads as a result of the continuously running wet plants.

Documented haul road watering will be used to control particulate emissions from the unpaved portion of EU-31. 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.

The equipment labeled non-emission points in Table 3 are considered non-emission units due to the very high moisture content of the material processed.

Capital Sand Proppants, LLC is applying a dust suppressant to the material in the two scalping screens (EU-17 and EU-62). A 75% control efficiency for PM, PM<sub>10</sub> and PM<sub>2.5</sub> is applied to the emission calculations for EU-17 and EU-62 and the downstream open conveyors (EU-24B and EU-37) in addition to the truck load out (EU-29).

Table 7 provides an emissions summary for this project. Existing potential emissions are from Permit 022015-009A. Existing actual emissions are from the 2017 EIQ. 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). The 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 7: Emissions Summary (tpy)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Conditioned Potential Emissions	Existing Actual Emissions (2017 EIQ)	New Installation Conditioned Potential
PM	25.0	23.36	N/D	66.07
PM <sub>10</sub>	15.0	14.97	8.02	43.46
PM <sub>2.5</sub>	10.0	<10.0	6.09	34.75
SO <sub>x</sub>	40.0	0.17	0.06	0.71
NO <sub>x</sub>	40.0	<40.0	13.97	<40.0
VOC	40.0	1.57	0.54	6.49
CO	100.0	24.0	8.38	99.19
GHG (CO <sub>2</sub> e)	N/A	34,494	N/D	142,568
GHG (mass)	N/A	34,287	N/D	141,711
HAPs	10.0/25.0	0.54	N/D	2.23

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<sub>10</sub> and PM<sub>2.5</sub> are above de minimis levels.

### APPLICABLE REQUIREMENTS

Capital Sand Proppants, LLC 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. For a complete list of applicable requirements for your installation, please consult your operating permit.

### GENERAL REQUIREMENTS

- *Operating Permits*, 10 CSR 10-6.065
- *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 applies but all of the equipment is inherently compliant with the rule because of the high moisture content.
- *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

#### AMBIENT AIR QUALITY IMPACT ANALYSIS

Ambient air quality modeling was performed to determine the ambient impact of PM<sub>10</sub> and PM<sub>2.5</sub>. More information regarding the modeling analysis can be found in the memo “Ambient Air Quality Impact Analysis (AAQIA) for Capital Sand Proppants, LLC –(March 2018)” from the Modeling Unit.

Table 8: PM<sub>10</sub> and PM<sub>2.5</sub> NAAQS Ambient Air Quality Modeling Results

Pollutant	Modeled Impact	NAAQS	Time Period
PM <sub>10</sub>	53.01	150	24-hour
PM <sub>2.5</sub>	11.20	12	Annual
PM <sub>2.5</sub>	28.15	35	24-hour

#### 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 December 18, 2017, received December 21, 2017, designating Capital Sand Proppants, LLC as the owner and operator of the installation.
- The Ambient Air Quality Impact Analysis (AAQIA) for Capital Sand Proppants, LLC –(March 2018)



**Attachment A – NO<sub>x</sub> Compliance Worksheet (EU-19 and EU-59)**

Capital Sand Proppants, LLC

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

Project Number: 2017-12-046

Installation ID Number: 031-0133

Permit Number: ~~03~~**2018-012**

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

(a)	(b)	(c)	(d)	(e)	(f)
Date (Month/Year)	Amount of Natural Gas Used (MMCF)	Emission Factor (lb/MMCF)	This Month's NO <sub>x</sub> Emissions (tons)	Emissions from This Month Last Year (tons)	12-Month Rolling Total NO <sub>x</sub> Emissions (tons)
Ex. 10/2014	100.0	140	7.0	24.0	32.0
Ex. 11/2014	50.0	140	3.5	3.0	32.5
		140			
		140			
		140			
		140			
		140			
		140			
		140			
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		140			
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		140			
		140			
		140			
		140			
		140			

- a) Record the date
- b) Record the amount of natural gas used this month
- c) Emission Factor from AP-42 Section 1.4 "Natural Gas Combustion"
- d) Calculate using the following equation (d) = (b) x (c) / 2000
- e) Record the NO<sub>x</sub> emissions from this month last year
- f) Calculate using the following equation (f)<sub>this month</sub> = (f)<sub>last month</sub> - (e) + (d) + the sum of all NO<sub>x</sub> emissions as reported to the Air Pollution Control Program's Compliance/Enforcement Section according to the provisions of 10 CSR 10-6.050 for the month

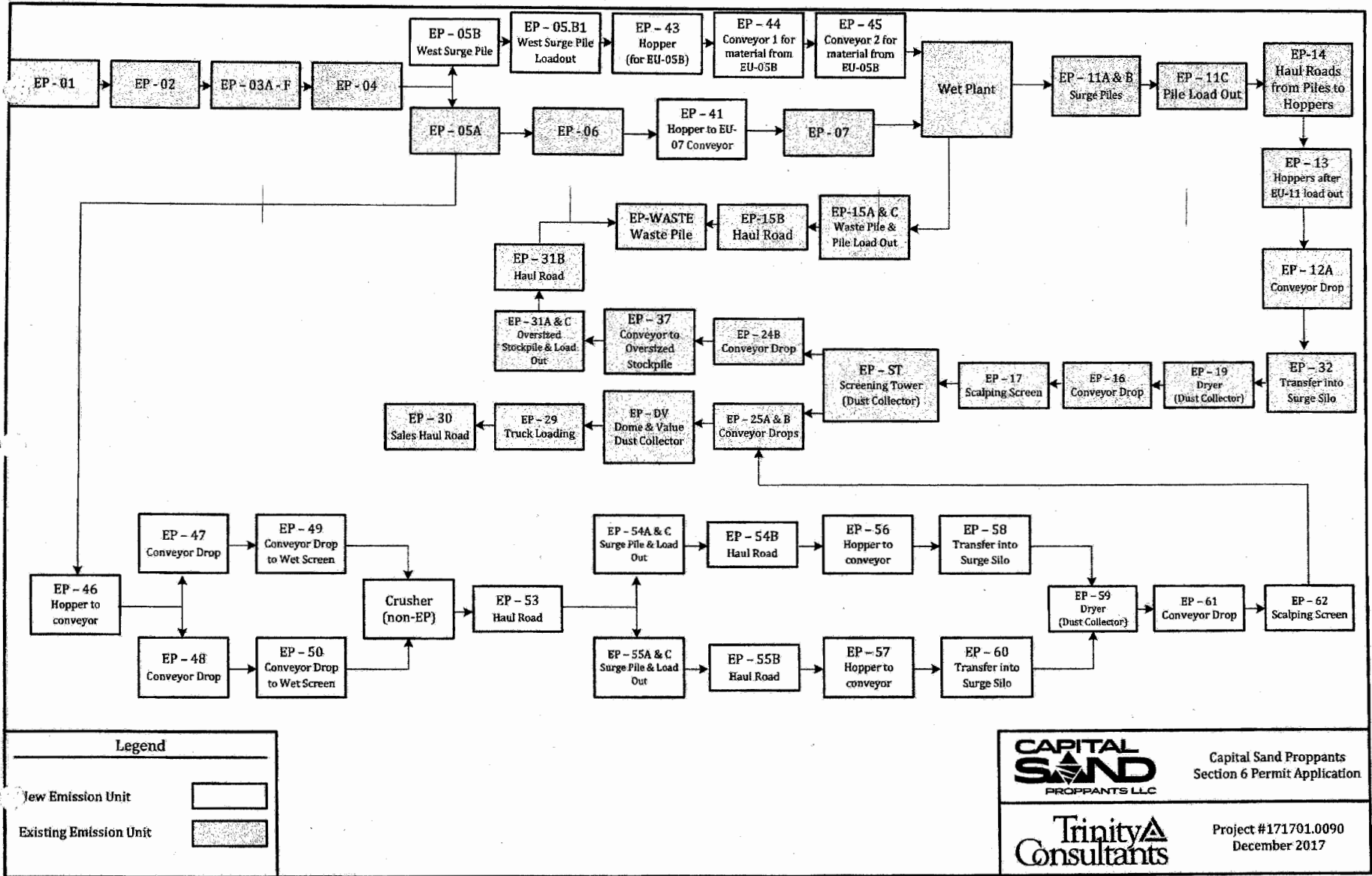
A rolling 12-month NO<sub>x</sub> emission total less than 40.0 tons indicates compliance with Special Condition 2.

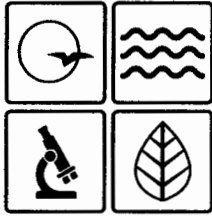
## APPENDIX A

### Abbreviations and Acronyms

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

## APPENDIX B: Process Flow Diagram





Missouri Department of dnr.mo.gov

# NATURAL RESOURCES

Eric R. Greitens, Governor

Carol S. Comer, Director

**MAR 30 2018**

Mr. Scott Jinks  
Plant Manager  
Capital Sand Proppants, LLC  
418 County Road 347  
Jackson, MO 63755

RE: New Source Review Permit - Project Number: 2017-12-046

Dear Mr. Jinks:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. Also, note the special conditions on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions, your new source review permit application and with your amended operating permit is necessary for continued compliance. 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](http://www.oa.mo.gov/ahc).

If you have any questions regarding this permit, please do not hesitate to contact Chad Stephenson, at the Department of Natural Resources' Air Pollution Control Program,



Mr. Scott Jinks  
Page Two

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

A handwritten signature in cursive script, appearing to read "S Heckenkamp".

Susan Heckenkamp  
New Source Review Unit Chief

SH:csj

Enclosures

c: Southeast Regional Office  
PAMS File: 2017-12-046

Permit Number: