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NATURAL RESOURCES

Eric R. Greitens, Governor

Carol S. Comer, Director

NOV 16 2017

Mr. David Herbst
Chief Operation Officer
Capital Sand Proppants, LLC
418 County Road 347
Jackson, MO 63755

RE: New Source Review Permit Amendment - Permit Number: 022015-009A
Project Number: 2017-08-057; Installation Number: 031-0133

Dear Mr. Herbst:

Capital Sand Proppants, LLC requested a permit true up of permit 022015-009, by calculating a revised PM_{2.5} emission factor which is more representative of the current as-built configuration of the plant. In addition, this amendment will update equipment lists and design rates and sizes that differ from the original permit. Changes to the emission units and emission rate calculations used in this amendment will comprise of the following areas originally described in permit 022015-009:

1. Changes to Pit Area
2. Changes to Wet Plant Area
3. Changes to Dry Plant Area

PROCESS DESCRIPTIONS

1. Changes to Pit Area

The pit area will include additional equipment (EU-38, EU-39, and EU-40). Upon operation, Capital Sand found additional equipment was needed in the pit area to fully process blast material. The additional equipment includes a feed hopper for a crusher (EU-38), a jaw crusher (EU-39), and a crusher discharge conveyor (EU-40).

2. Changes to Wet Plant Area

In permit 022015-009 the wet plant area was described as having one surge pile that was approximately 2 acres (EU-05). Capital Sand actually has two surge piles instead of one. Each surge pile (EU-05A and EU-05B) is approximately 1.7 acres each. The east surge pile (EU-05A) uses the originally permitted tunnel conveyor during most weather conditions; the west surge pile (EU-05B) uses 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. When weather does not permit the east surge pile (EU-05A) using the tunnel conveyor, Capital Sand utilizes a hopper (EU-41) to



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move material from the east surge pile to the originally permitted conveyor (EU-07) for the wet screen.

The moisture content of the material in the surge piles (EU-05A and EU-05B) has also been updated, resulting in a change of emission factor. The moisture content was previously listed as 1.5% in permit 022015-009. The moisture content has been updated to 5.25% by weight. Special Condition 4 of this permit requires moisture testing to confirm.

Two conveyors (EU-09 and EU-10) have been removed from the facility. The updated calculations for this project no longer include these two conveyors. An additional three conveyors (EU-43, EU-44, and EU-45) have been added to the area. These conveyors are for the processing of EU-05B surge pile.

The surge piles (EU-11) are being adjusted from the originally permitted 6 acres to the actual collective size of the piles of 4.25 acres. In addition the moisture and silt content of the material in the surge pile (EU11) have been updated, resulting in a change of emission factor. The moisture content was previously listed as 7% in permit 022015-009. The moisture content has been updated to 4.5%. Special Condition 4 of this amendment requires moisture testing to confirm. The silt content % has been updated from 1% to 0.35%. Special Condition 5 of this amendment requires testing to confirm.

A traveling feed hopper (EU-13) and two associated conveyors (EU12A and EU12B) were originally planned to be installed. The traveling hopper was never installed and instead two stationary hoppers were installed. Emissions associated with these hopper 1 (EU12A) and hopper 2 (EU13) are included in the updated emission calculations. EU-12B has been eliminated.

A conveyor (EU-32) is being added to account for the transfer of material from the hoppers into a surge silo.

Haul roads EU-14 (surge pile 11 to conveyor haul road), EU-15B (hydrosizer waste pile haul road) and EU-31B (oversize stockpile haul road) are now paved. Calculations were updated to reflect paved haul roads with a silt loading of 2 g/m^2 . Special Condition 6 of this permit requires testing to confirm. Haul road EU-14 is for vehicular activity around the wet plant. Due to plant processes and proximity to the wet plant EU-14 is expected to be in a state of wetness. A 90% control efficiency for PM and PM_{10} and a 74% control efficiency for $\text{PM}_{2.5}$ were applied to the emission calculations for EU-14.

3. Changes to Dry Plant Area

Capital Sand 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_{2.5}; so it was conservatively assumed that all particulate emissions were PM_{2.5}. The results gave a dryer emission rate of 2.2 lb/hr of filterable PM_{2.5}. In permit 022015-009, 4.0 lb/hr was used. This amendment includes the updated emission rate.

A conveyor (EU-37) is being added to this amendment that was not included in the original permit. The conveyor transports material to the oversize stockpile (EU-31A). The oversize stockpile (EU-31A) was originally permitted as 0.04 acres. The actual size of the pile is 0.06 acres. The calculations included in the amendment reflect the actual size.

The sales haul road (EU-30) is being paved. Capital Sand requested using a silt loading of 0.8 g/m². Capital Sand plans to use a documented watering program on the paved sales haul roads (EU-30) to ensure silt loading stays below 0.8 g/m². Testing, per Special Condition 6.B, will be conducted to verify the silt loading.

This amendment is considered a true up for construction permit 022015-009. The project changes do not affect the type of construction permit that was issued. Please attach this letter and attached special conditions to the existing permit, permit 022015-009. Additionally, please replace Attachment A of permit number 022015-009 with Attachment A of this amendment. The attached special conditions include an updated installation wide emission list for the emission units described above. An updated emissions summary for the project is listed in the new Table 4.

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	Conditioned Potential Emissions of the Application
PM	25.0	N/A	N/A	48.50	23.36
PM ₁₀	15.0	N/A	N/A	31.08	14.97
PM _{2.5}	10.0	N/A	N/A	20.76	<10.0
SO _x	40.0	N/A	N/A	0.32	0.17
NO _x	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 ₂ e)	100,000	N/A	N/A	64,803	34,494
GHG (mass)	0.0 / 250.0	N/A	N/A	64,414	34,287
HAPs	10.0/25.0	N/A	N/A	1.01	0.54

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

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If you were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the administrative hearing commission, whose contact information is: Administrative Hearing Commission, United States Post Office Building, 131 West High Street, Third Floor, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: www.oa.mo.gov/ahc.

If you have any questions regarding this amendment, please do not hesitate to contact Chad Stephenson, at the department's Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM



Kendall B. Hale
Permits Section Chief

KBH:csj

Enclosures

c: Southeast Regional Office
PAMS File: 2017-08-057

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

1. **Superseding Condition**
 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.
 - A. Special Condition 1
 - B. Special Condition 4
 - C. Special Condition 10

2. **PM_{2.5} Emission Limitation**
 - A. Capital Sand Proppants, LLC shall emit less than 10.0 tons of PM_{2.5} in any consecutive 12-month period from the entire installation (see Table 1). SSM emissions as reported to the Air Pollution Control Program's Compliance/Enforcement Section in accordance with the requirements of 10 CSR 10-6.050 Start-Up, Shutdown, and Malfunction Conditions shall be included in the limit.

Table 1: Installation-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-05A	East Surge Pile Wind Erosion (1.7 acres)
EU-05B	West Surge Pile Wind Erosion (1.7 acres)
EU-05B.1	West Surge Pile Loadout
EU-06	Tunnel Conveyor
EU-41	Hopper to EU-07 conveyor
EU-07	Conveyor (to Wash Screen)

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SPECIAL CONDITIONS:

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

Non-emission point	Wash Screen
Non-emission point	Conveyor (from Wash Screen to VSI Crusher)
Non-emission point	VSI Crusher (Secondary)
EU-43	Hopper (for EU-05B)
EU-44	Conveyor 1 for material from EU-05B
EU-45	Conveyor 2 for material from EU-05B
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-11A	Surge Pile #2 Wind Erosion (4.25 acres)
EU-11B	Surge Pile #2 Load Out from Pile
EU-12A	Hopper 1 for EU-11
EU-13	Hopper 2 for EU-11
EU-14	Wet Plant Vehicular Activity
EU-15A	Waste Pile from Hydrosizer Pile (0.04 acres)
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 (paved)
EU-31A	Oversize Stockpile Wind Erosion (0.06 acres)
EU-31B	Oversize Stockpile Vehicular Activity
EU-31C	Oversize Stockpile Loadout
EU-32	Hoppers EU-12A and EU-13 into Surge Silo

SPECIAL CONDITIONS:

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

EU-37	Conveyor to Oversize Pile
EU-38	Feed Hopper for Crusher
EU-39	Jaw Crusher
EU-40	Crusher Discharge Conveyor

- 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. Haul Road Paving Requirement
- A. Capital Sand Proppants, LLC shall pave the unpaved portion of the vehicular activity area for the wet plant (EU-14), vehicular activity area for the waste pile from the hydrosizer (EU-15B), the sales haul road (EU-30), and the vehicular activity area for the oversize stockpile (EU-31B).
- B. Capital Sand Proppants, LLC shall pave EU-14, EU-15B, EU-30, and EU-31B 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.
- C. 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.
- D. 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 7.G. The report shall include but is not limited to the following information, haul road segment/location, cleaning method/water application rate, and schedule.
4. Moisture Content Testing Requirement
- A. Capital Sand Proppants, LLC shall verify that the moisture content of the material in surge pile (EU-05A and EU-05B) is greater than or equal to 5.25 percent by weight.

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

- B. Capital Sand Proppants, LLC shall verify that the moisture content of the material in surge pile (EU-11) is greater than or equal to 4.5 percent by weight.
 - C. Testing for Special Condition 4.A. and Special Condition 4.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 4.A. and Special Condition 4.B. 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 Proppants, LLC 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 4.A. and Special Condition 4.B. is less than the moisture content in Special Condition 4.A or Special Condition 4.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 4.A or Special Condition 4.B, Capital Sand Proppants, LLC 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.
5. Silt Content Testing Requirement
- A. Capital Sand Proppants, LLC shall verify that the silt content of the sand in surge pile (EU-11) is less than or equal to 0.35 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.

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

- 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 5.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 to account for the revised information.
6. Paved Haul Road Testing
- A. Silt loading for paved haul roads EU-14, EU-15B, and EU-31B shall not exceed 2.0 grams per square meter (g/m^2) on the paved haul road individual sample.
 - B. Silt loading for paved haul road EU-30 shall not exceed 0.8 grams per square meter (g/m^2) on the paved haul road individual sample.
 - C. Compliance with the silt loading limitation in Special Condition 6.A and 6.B. shall be demonstrated by conducting silt loading sampling (as 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.
 - D. 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 3 that corresponds to a compliant test.
 - 2) Watering/cleaning may be temporarily suspended during adequate

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SPECIAL CONDITIONS:

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

- 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.
- E. 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.
- F. 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 4 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 6.A. and 6.B. or there are any changes to the SOP, then Capital Sand Proppants, LLC will need to revert to testing quarterly until 4 consecutive are achieved.
- G. 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 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.

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

- H. If the results show that the silt loading exceeds the limits in Special Condition 6.A. and 6.B. 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 6.G. of this permit.

Attachment A – PM_{2.5} Compliance Worksheet

Capital Sand Proppants, LLC
 Cape Girardeau County, S36 T32N R11E, S1 T31N R11E, S6 T31N R12E, and LG 3142
 Project Number: 2017-08-057
 Installation ID Number: 031-0133
 Permit Number: 022015-009A

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

(a)	(b)		(c)	(d)	(e)	(f)	(g)	(h)	(i)
Month	Sand Processed (tons)		PM _{2.5} Emission Factor (lb/ton)	Monthly PM _{2.5} Emissions (pounds)	Monthly Startup, Shutdown and Malfunction Emissions (pounds)	Monthly PM _{2.5} Emissions (tons)	Previous Month's 12-Month PM _{2.5} Emissions (tons)	Monthly PM _{2.5} Emissions from Previous Year (tons)	Current 12-Month PM _{2.5} Emissions (tons)
Example 09/2014	Wet Sand	500,000	0.0014	700	0.00	3.30	2.0	1.0	4.30
	Dried Sand	500,000	0.0118	5,900					
	Wet Sand		0.0014						
	Dried Sand		0.0118						
	Wet Sand		0.0014						
	Dried Sand		0.0118						
	Wet Sand		0.0014						
	Dried Sand		0.0118						
	Wet Sand		0.0014						
	Dried Sand		0.0118						
	Wet Sand		0.0014						
	Dried Sand		0.0118						
	Wet Sand		0.0014						
	Dried Sand		0.0118						
	Wet Sand		0.0014						
	Dried Sand		0.0118						

- 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_{2.5} emission factor for each process.
- d) Calculate using the following equation: (d) = (b) x (c).
- e) Record the total monthly SSM, as reported to the program's Compliance/Enforcement Section according to the provisions of 10 CSR 10-6.050
- f) Calculate using the following equation: (f) = [(d) for wet sand + (d) for dry sand + (e) SSM] / 2,000
- g) Record the 12-month PM_{2.5} emissions (i) from last month.
- h) Record the monthly PM_{2.5} emissions (f) from this month last year.
- i) Calculate the new 12-month PM_{2.5} emissions using the following equation: (i) = (f) + (g) – (h)

A rolling 12- month PM_{2.5} emission total less than 10.0 tons indicates compliance with Special Condition 2.