

STATE OF 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: 012011-007

Project Number: 2010-10-058

Installation ID: 157-0037

Parent Company: Proppant Specialists, LLC

Parent Company Address: 2003 Nine Road, Brady, TX 76825

Installation Name: Proppant Specialists, LLC

Installation Address: 312 Highway M, Perryville, MO 63775

Location Information: Perry County (S28, T36N, R10E)

Application for Authority to Construct was made for:

The installation of a new 150 tons per hour sand drying operation, the replacement of equipment at the existing 100 tons per hour sand drying operation and the debottlenecking of the existing rock crushing operation. 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.

JAN 05 2011

EFFECTIVE DATE

A handwritten signature in black ink, appearing to read "James Kavanagh".

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 Departments' 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 of Natural Resources 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 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 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 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.

SPECIAL CONDITIONS:

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

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

1. **Superseding Condition**
The conditions of this permit supersede all special conditions found in the previously issued Construction Permits 122006-003, 032010-003 and 092010-114 from the Air Pollution Control Program.
2. **Best Management Practices Requirement**
Proppant Specialists, LLC shall control fugitive emissions from all of the haul roads and vehicular activity areas at this site by performing Best Management Practices as defined in Attachment AA.
3. **Annual Emission Limit**
 - A. Proppant Specialists, LLC shall emit less than 15.0 tons of PM₁₀ combined in any 12-month period from the 150 tons per hour drying operation and the rock crushing/washing operation. Equipment and activities from these operations are listed in Table 1 and Table 2.

Table 1: Equipment/Activities of the Rock Crushing/Washing Operation

Emission Point	Description
EP2	Loading of Fragmented Stone
EP3	Haul Road
EP4	Unloading of Fragmented Stone
EP5	Grizzly Feeder
EP6	Primary Crusher
EP6A	Underconveyor
EP7	Quarry Conveyor QC-1 to Primary Wet Scalping Screen
EP10	Secondary Crusher
EP11	Quarry Conveyor QC-3 to Secondary Crusher
EP12	Quarry Conveyor QC-4 to QC-1
EP12A	Quarry Conveyor Reject Sand

SPECIAL CONDITIONS:

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

Table 2: Equipment/Activities of the 150 tons per hour drying operation

Emission Point	Description
EP13	Storage Piles
EP14	Storage Pile Load Out
EP43	Hopper
EP44	Belt Feeder
EP45	Dryer Feed Conveyor
EP46	Dryer
EP47	Conveyor to Elevator D2-2
EP48	Elevator to Screens
EP35	Screens
EP49	Four Dry Product conveyors
EP50	Four Dry Product Elevators
EP51	Six new 200 ton Silos
EP51A	Truck Loadout From 200 ton silos
EP52	40 ton Waste Silo
EP52A	Truck Loadout from Waste Silo

- B. Proppant Specialists, LLC shall demonstrate compliance with Special Condition 3.A using Attachment A or other equivalent forms that have been approved by the Air Pollution Control Program, including electronic forms.
4. Control Device Requirement - Impingement Scrubbers
- A. Proppant Specialists, LLC shall control PM_{2.5} and PM₁₀ emissions from the following equipment using an impingement scrubber (CD-9) as specified in the permit application.
- 1.) For the 100 Tons Per Hour (tph) Drying Operation
 - a. Dry Feed Conveyor 2 (EP-17)
 - b. Dry Feed Elevator 1 (EP-18)
 - c. Dry Screen Tower (EP-19)
 - d. Four Dry Product Screw Conveyors (EP-20)
 - e. Four Dry Product Elevators (EP-21)
 - f. Four Dry Product Loadout Silos (EP-33)
 - g. Truck Loadout (EP-33A)
 - 2.) For the 25 tph Drying Operation
 - a. Hopper (EP-24)
 - b. Feeder (EP-25)
 - c. Conveyor (EP-26)
 - d. Dry Product Conveyor (EP-28)

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SPECIAL CONDITIONS:

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

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- e. Dry Product Elevator (EP-29)
 - f. Two Dry Product Screens (EP-30)
- 3.) For Equipment Shared by the 25 tph and 100 tph Drying Operation
 - a. Four Dry Product Silos (EP-22)
 - b. Truck Loadout (EP-22A)
 - c. Two Dry Product Conveyors (EP-31)
 - d. Two Dry Product Elevators (EP-32)
 - 4.) For the 150 tph Drying Operation
 - a. Conveyor to Elevator D2-2 (EP-47)
 - b. Elevator to Screens (EP-48)
- B. The scrubbers shall be operated and maintained in accordance with the manufacturer's specifications. Each scrubber shall be equipped with a gauge or meter that indicates the pressure drop across the scrubber. Each scrubber shall also be equipped with a flow meter that indicates the flow through the scrubbers. These gauges and meters shall be located in such a way that they may be easily observed by Department of Natural Resources' personnel.
 - C. Proppant Specialists, LLC shall monitor and record the operating pressure drop across each scrubber at least once every twenty-four (24) hours during the time that the scrubber is operating. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer.
 - D. Proppant Specialists, LLC shall monitor and record the flow rate through the scrubber at least once every twenty-four (24) hours while the scrubber is operating. The flow rates shall be maintained within the design conditions specified by the manufacturer.
 - E. Proppant Specialists, LLC shall maintain an operating and maintenance log for the scrubbers 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.
- 5. Control Device Requirements – Cyclones and Impingement Scrubbers in Series
 - A. Proppant Specialists, LLC shall control PM_{2.5} and PM₁₀ emissions from the 25 tph fluid bed dryer (EP-27), the 100 tph fluid bed dryer (EP-16) and the 150 tph fluid bed dryer (EP-46) using a cyclone (CD-7, CD-11 or CD-13) followed by an impingement scrubber (CD-8, CD-12 or CD-14) as specified in the permit application.

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

- B. The cyclones shall be operated and maintained in accordance with the manufacturer's specifications.
 - C. The scrubbers shall be operated and maintained in accordance with the manufacturer's specifications. Each scrubber shall be equipped with a gauge or meter that indicates the pressure drop across the scrubber. Each scrubber shall also be equipped with a flow meter that indicates the flow through the scrubbers. These gauges and meters shall be located in such a way that they may be easily observed by Department of Natural Resources' personnel.
 - D. Proppant Specialists, LLC shall monitor and record the operating pressure drop across each scrubber at least once every twenty-four (24) hours during the time that the scrubber is operating. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer.
 - E. Proppant Specialists, LLC shall monitor and record the flow rate through the scrubber at least once every twenty-four (24) hours while the scrubber is operating. The flow rates shall be maintained within the design conditions specified by the manufacturer.
 - F. Proppant Specialists, LLC shall maintain an operating and maintenance log for the cyclone and scrubber system which shall include the following:
 - 1.) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
 - 2.) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
6. Control Device Requirements – Baghouse
- A. Proppant Specialists, LLC shall control PM_{2.5} and PM₁₀ emissions from the following equipment in the 150 tph drying operation using a baghouse (CD-15) as specified in the permit application.
 - 1.) Six New Dry Product Screens (EP-35)
 - 2.) Four Dry Product Conveyors (EP-49)
 - 3.) Four Dry Product Elevators (EP-50)
 - 4.) Six 200 Ton Silos (EP-51)
 - 5.) Truck Loadout from the 200 Ton Silos (EP-51A)
 - 6.) One 40 Ton Waste Silo (EP-52)
 - 7.) Truck Loadout from the 40 Ton Waste Silos (EP-52A)
 - B. The baghouse 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

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

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- gauges or meters shall be located such that the 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. Proppant Specialists, LLC shall monitor and record the operating pressure drop across the baghouses at least once every twenty-four hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
 - E. Proppant Specialists, LLC shall maintain an operating and maintenance log of the baghouse which shall include the following:
 - 1.) Incidents of malfunction, with impacts on emissions, duration or events, probable causes, and corrective actions; and
 - 2.) Maintenance activities, with inspection schedules, repair actions, and replacements, etc.
7. PM_{10} Emissions Limit and Testing Requirements
- A. Proppant Specialists, LLC shall not emit more than 0.001 pounds of filterable PM_{10} per ton of sand from the screenhouse scrubber stack (CD-9).
 - B. Proppant Specialists, LLC shall not emit more than 0.006 pounds of filterable PM_{10} per ton of sand from the 150 tons per hour (tph) dryer scrubber stack (CD-14).
 - C. Proppant Specialists, LLC shall not emit more than 0.0013 pounds of filterable PM_{10} per ton of sand from the baghouse (CD-15) used to control emissions from screening and handling equipment of the 150 tph dryer.
 - D. Proppant Specialists, LLC shall conduct performance tests on the screenhouse scrubber stack (CD-9), the 150 tph dryer scrubber stack (CD-14) and the 150 tph drying operation baghouse (CD-15) to ensure compliance with Special Conditions 7.A., 7.B. and 7.C.
 - E. During the required performance tests, all equipment connected to the control device must be in operation.
 - F. 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

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

- 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.
- G. Within 60 days of achieving the maximum production rate of the new 150 tons per hour dryer and the screenhouse, and in any case, no later than 180 days after initial start-up of the systems, Proppant Specialists, LLC shall have conducted the required performance tests.
- H. 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.
- I. 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.
8. **Minimum Distance to Property Boundary Requirement**
The primary emission points of the installation, which are the crushing operation grizzly feeder (EP-5), the 25 tph fluid bed dryer (EP-27), the 100 tph bed dryer (EP-16) and the 150 tph fluid bed dryer (EP-46), shall be located at least 900 feet from the nearest property boundary.
9. **Operational Requirements**
Proppant Specialists, LLC shall process all rock through the grizzly feeder (EP-5) and one of the three dryers (EP-16, EP27 and EP-46). Bypassing the grizzly feeder and dryers for processing is prohibited.
10. **Concurrent Operation Restrictions**
Proppant Specialists, LLC is prohibited from operating whenever other plants are located at the site.
11. **Record Keeping Requirement**
Proppant Specialists, LLC shall maintain all records required by this permit for not less than five years and make them available to any Missouri Department of Natural Resources' personnel upon request.
12. **Reporting Requirement**
Proppant Specialists, LLC shall report to the Air Pollution Control Program's Enforcement Section P.O. Box 176, Jefferson City, MO 65102, no later than ten days

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SPECIAL CONDITIONS:

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

after any exceedances of the limitations imposed by this permit.

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

Project Number: 2010-10-058
Installation ID Number: 157-0037
Permit Number:

Proppant Specialists, LLC
312 Highway M
Perryville, MO 63775

Complete: March 1, 2010

Parent Company:
Proppant Specialists, LLC
2003 Nine Road
Brady, TX 76825

Perry County (S28, T36N, R10E)

PROJECT DESCRIPTION

Proppant Specialists, LLC owns and operates a sand crushing, washing and drying installation in Perry County (S28, T36N, R10E). Before this project, the facility consisted of one 250 tons per hour (tph) sand crushing and washing operation, a 100 tph sand drying operation and also a 40 tph sand drying operation. The facility is powered through primary electrical power. No diesel engines/generators are used at the site.

In March, 2010, the facility submitted an application (Project 2010-03-008) which included the following changes.

For the crushing/washing operation:

- Increase the maximum hourly design rate of the crushing operation from 250 tph to 330 tph.
- Replace the primary screen (EP-8) with two wet primary scalping screens.
- Remove the existing secondary wet scalping screen and replace with two new secondary wet scalping screens.
- Install slurry pumps, which will pump sand to the new secondary wet scalping screens, in place of quarry conveyor 4. Conveyor 4 will be relocated to handle sand from the VSI Crusher (EP-10)
- Add one conveyor to convey wet sand from the secondary wet scalping screen to the existing conveyor EP-12A.
- Add a de-watering cyclone and screen for coarse sand storage pile.
- Add one conveyor to convey washed sand from the dewatering cyclone and screen to the coarse

sand stacker.

- Convert the coarse sand slurry cyclone stacker to a belt stacker to convey washed sand to the storage pile.

For the drying operations:

- Install a new 150 tph drying operation. The 40 tph drying operation will be kept as a backup operation in case one of the other drying operations break down.
- Add one Rotex screen to the existing two (2) Rotex screens in the screenhouse (EP-35) to screen sand from the 150 tons per hour drying operation. Each Rotex screen is rated at 50 tons per hour.
- Remove the ten (10) Longhorn screens in the screenhouse (EP-35) and replacing them with two (2) Rotex Screens, each rated at 50 tons per hour.

However, in October, 2010, the facility submitted an application (Project 2010-10-058) which included the following changes, some of which modified those made earlier in Project 2010-03-008.

- Instead of being changed to a backup operation, the 40 tph drying operation will remain in operation.
- The 40 tph drying operation will change its listed maximum hourly design rate to 25 tph. The facility originally had planned to produce 40 tph with this operation, but realized, after the start of operations, that the dryer is not capable of producing 40 tph. Instead, it can only produce 25 tph of sand.
- The four dry project screw conveyors (EP-20), four dry product elevators (EP-21), four dry product silos (EP-33) and truck loadout (EP-33A) originally used at the 150 tph drying operation will be moved to handle dried sand from the 100 tph drying operation.
- The following equipment approved previously will not be installed: Dry product elevator (EP-36), dry product conveyor (EP-37) and dry product silo with 1,250 ton capacity (EP-38).
- The three Rotex screens approved in the previous project (2010-03-008) for the 150 tph dryer will now process sand from the 100 tph dryer. Six new Rotex screens will be installed to screen sand from the 150 tph dryer.
- Some of the equipment being added to the 150 tph dryer will be controlled by a baghouse instead of an impingement scrubber. These equipment are listed in Special Condition 7.A.

All of these changes are combined into one project. After this review, the facility will consist of one 330 tph rock crushing and washing operation, a 25 tph drying operation, a 100 tph drying operation and a 150 tph drying operation. The maximum annual production rate of the rock crushing operation is 275 tph because the three dryers act as bottlenecks for the installation.

The applicant will be using one of the methods described in Attachment AA, "Best Management Practices," to control emissions from haul roads and vehicular activity areas. This installation is located in Perry 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.

To simplify permitting for this installation, all of the conditions in previous permits issued to the installation (122006-003, 032010-003 and 092010-114) have been superseded. Conditions in the previous permits that are still required are transferred to this permit. In permit 122006-003, the rock crushing and washing operation and the 100 tons per hour drying operation are limited to 15.0 tons of

PM₁₀ combined. However, calculations based on new data (i.e. stack testing results performed by Aeromet Engineering, Inc., November, 2009) and the new operation design (i.e. taking into account the removed and replaced equipment) show that the combined PM₁₀ emissions of these two operations are less than 15.0 tons per year. Therefore, this limit is no longer needed and is not included in this permit.

TABLES

The following permits have been issued to Proppant Specialists, LLC from the Air Pollution Control Program.

Table 1: Permit History

Permit Number	Description
122006-003	New sand crushing, washing and drying installation.
122006-003A	Correcting typographical errors in the previous permit 122006-003
031010-003	Adding three silos, two elevators and two conveyors
092010-114	Adding a new 150 tph dryer, replacing and adding new equipment to the existing 100 tph drying operation and the debottlenecking of the existing rock crushing operation.

The table below summarizes the emissions of this project. The existing actual emissions were taken from the 2009 EIQ. The potential emissions of the application are the emissions from the processing of the extra 150 tons per hour of sand at the crushing/washing operation and the 150 tons per hour from the new drying operation. The project conditioned potential emissions are based on a voluntary limit of 15.0 tons per year of PM₁₀ combined from the rock crushing/washing operation and the 150 tons per hour dryer to avoid increment analysis.

Table 2: Emissions Summary (tons per year)

Air Pollutant	De Minimis Level/ SMAL	¹ Existing Potential Emissions (tons)	Existing Actual Emissions (2009 EIQ)	Potential Emissions of the Project (tons)	² Project Conditioned Potential Emissions (tons)	³ New Installation-Wide Potential Emissions
PM _{2.5}	10.0	N/D	0.10	9.04	N/D	23.91
PM ₁₀	15.0	N/D	4.72	26.50	<15.0	33.95
SO _x	40.0	N/D	0.05	0.00	N/D	0.01
NO _x	40.0	N/D	9.74	27.59	N/D	36.67
VOC	40.0	N/D	0.26	0.44	N/D	0.61
CO	100.0	N/D	1.64	4.65	N/D	6.05
Total HAPs	25.0	N/D	0.09	0.24	N/D	0.33

N/D = Not Determined

¹Existing potential emissions are not determined (N/D). The emissions calculations in previous permit projects (2006-09-020 , 2009-02-003 and 2009-08-016 are not based on new stack testing information or updated emission factors and give an inaccurate representation of existing emissions.

²Conditioned potential emissions of pollutants other than PM₁₀ are listed as N/D because the facility can balance production between the 150 tph drying operation and the rock crushing/washing operation to reach 15.0 tons of PM₁₀. The conditioned potential emissions of all other pollutants are expected to be below their respective *de minimis* levels.

³New installation-wide potential emissions take into account the 15.0 tons per year PM₁₀ limit from this project.

Table 3: Ambient Air Quality Impact Analysis

Pollutant	¹ NAAQS/ RAL ($\mu\text{g}/\text{m}^3$)	Averaging Time	² Maximum Modeled Impact ($\mu\text{g}/\text{m}^3$)	Limited Impact ($\mu\text{g}/\text{m}^3$)	Background ($\mu\text{g}/\text{m}^3$)	³ Daily Limit (tons/day)
⁴ PM ₁₀	150.0	24-hour	96.07	N/A	20.0	6,960

¹National Ambient Air Quality Standards (NAAQS) and Risk Assessment Level (RAL)

²Modeled impact at maximum capacity with controls

³The Daily Limit (ton/day) is the final amount of sand that can be produced by the installation.

⁴Solitary operation only.

Table 4: SCREEN3 Input Parameters

Equipment Description	Stack Height (m)	Stack Inside Diameter (m)	Stack Gas Exit Velocity (m/s)	Stack Gas Exit Temperature (K)	Dispersion Coefficient
40 tph dryer	14	0.41	25.60	327.6	Rural
100 tph dryer	14	0.91	25.90	328.0	Rural
150 tph dryer	13.4	1.07	29.92	329.0	Rural

EMISSIONS CALCULATIONS

PM_{2.5} and PM₁₀ Emissions from the rock-crushing equipment were calculated using emission factors from AP-42 Section 11.19.2 "Crushed Stone Processing and Pulverized Mineral Processing," August, 2004. The controlled emission factors were used because the inherent moisture content of the crushed rock is greater than 1.5% by weight. The facility has already submitted data that verifies the moisture content being greater than 1.5% by weight so moisture content testing conditions are not included in this permit. Filterable PM₁₀ emissions from the 100 tph dryer were calculated using an emission factor (0.006 lbs per ton of sand) developed from a series of stack tests performed in November, 2009 by Aeromet Engineering, Inc. Filterable PM₁₀ emissions from the 150 tph dryer were calculated using the same emission factor but the facility will have to conduct a performance test on the 150 tph dryer to ensure that the emission factor is not exceeded. Combustion emissions, which includes the condensable PM₁₀ emissions from the dryers, were calculated using emission factors from AP-42, Section 1.5, "Liquefied Petroleum Gas Combustion," July, 2008.

The PM₁₀ emission factor from the screenhouse scrubber was estimated to be 0.0008 lbs per ton of sand and is developed from the stack tests performed in November, 2009 by Aeromet Engineering, Inc. However, after discussion with the company's representative (Midwest Environmental Consultants), the emission factor was rounded to 0.001 lbs per ton of sand to provide a margin of error because the company will have to perform a new stack test to ensure compliance. The limit of 0.001 lbs per ton of sand shall only be for filterable PM₁₀ because the equipment (e.g. conveyors, silos, screens, etc) controlled by the screenhouse scrubber is not expected to emit condensable PM₁₀. The facility asked to use 0.0013 lbs/ton as the emission factor for PM₁₀ from the new baghouse and will be required to perform stack test(s) to ensure that this factor is not exceeded. The filterable and condensable PM_{2.5} emissions from the dryers and the filterable PM_{2.5} emissions from the screens were calculated conservatively by assuming that all of the PM₁₀ is PM_{2.5} because no particle size distribution can be found for the dryers and the PM_{2.5} emissions are still below its *de minimis* level even under this conservative assumption.

The wet primary scalping screens, the slurry pumps, the wet secondary scalping screens, and the conveyors that transport sand from these equipment are not expected to emit any pollutants because the processed sand is completely wet. Emissions from haul roads and vehicular activity areas were

calculated using the predictive equation from AP-42 Section 13.2.2 “Unpaved Roads,” November 2006. A 90% control efficiency is applied to the emission calculations for the use of BMPs. Emissions from load-in and load-out of storage piles were calculated using the predictive equation from AP-42, Section 13.2.4, “Aggregate Handling and Storage Piles,” November, 2006. The moisture content of the aggregate is greater than 1.5% by weight. Fugitive emissions from truck loadouts were also calculated using the predictive equation from AP-42, Section 13.2.4 and giving the scrubber a 90% capture efficiency. The stack emissions from the truck loadouts are included in the 0.001 lbs/ton emission factor used for the scrubber (CD-9). 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.”

AMBIENT AIR QUALITY IMPACT ANALYSIS

An ambient air quality impact analysis (AAQIA) was performed to determine the impact of the pollutants listed in Table 3. The Air Pollution Control Program requires an AAQIA of PM₁₀ for all asphalt, concrete and rock-crushing operations regardless of the level of PM₁₀ emissions if a permit is required. An AAQIA is required for other pollutants if their emissions exceed their respective de minimis or screening model action level (SMAL). The AAQIA was performed using the Air Pollution Control Program’s generic nomographs and when appropriate, the EPA modeling software SCREEN3. For each pollutant that was modeled, the maximum concentration that occurs at or beyond the site boundary was compared to the National Ambient Air Quality Standard (NAAQS) or Risk Assessment Level (RAL) for the pollutant. If during continuous operation the modeled concentration of a pollutant is greater than the applicable NAAQS or RAL, the plant’s production is limited to ensure compliance with the standard. In cases where the plant is providing material for a highway project, the ambient impact is evaluated in accordance with a memorandum issued by the Air Pollution Control Program titled “Permitting Asphalt/Concrete Plants for Temporary Highway Projects,” dated April 10, 2000. This memorandum states that air quality should be analyzed at the nearest residence or location where the public could reasonably expect to be found instead of all ambient air. This practice generally allows for a less restrictive daily production level while protecting the public.

The results of the AAQIA shows that the four operations at the site can operate at maximum capacity for the entire day (twenty-four hours) without violating the NAAQS. Therefore, no production limit is necessary for this installation. This facility is not permitted to operate with any other plants at this site. This plant uses BMPs to control emissions from haul roads and vehicular activity areas, so emissions from these sources were not included in the AAQIA. Instead they were addressed as a background concentration of 20 µg/m³ of PM₁₀ in accordance with the Air Pollution Control Program’s BMPs interim policy.

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 PM₁₀ are conditioned below de minimis levels.

APPLICABLE REQUIREMENTS

Proppant Specialists, 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

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110. The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required June 1 for the previous year's emissions.
- A modification to your Basic Operating Permit is required for this installation within 30 days of new equipment startup.
- *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

- 40 CFR 60 Subpart OOO, "Standards of Performance for Nonmetallic Mineral Processing Plants" applies to each crusher, screen, elevator, conveyor, storage bin and enclosed truck loading station.
- 40 CFR 60, Subpart UUU, "Standards of Performance for Calciners and Dryers in Mineral Industries" applies to the dryers.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPS) or National Emission Standards for Hazardous Air Pollutants for Source Categories (MACTS) apply to the proposed equipment.

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.

Chia-Wei Young
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated October 22, 2010, received October 26, 2010, designating Proppant Specialists, LLC as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

Attachment AA: Best Management Practices

Haul roads and vehicular activity areas shall be maintained in accordance with at least one of the following options when the portable plant is operating.

1. Pavement
 - A. The operator shall pave the area with materials such as asphalt, concrete or other materials approved by the Air Pollution Control Program. The pavement will be applied in accordance with industry standards to achieve control of fugitive emissions¹ while the plant is operating.
 - B. Maintenance and repair of the road surface will be conducted as necessary to ensure that the physical integrity of the pavement is adequate to achieve control of fugitive emissions from these areas while the plant is operating.
 - C. The operator shall periodically wash or otherwise clean all of the paved portions of the haul roads as necessary to achieve control of fugitive emissions from these areas while the plant is operating.

2. Application of Chemical Dust Suppressants
 - A. The operator shall apply a chemical dust suppressant (such as magnesium chloride, calcium chloride, lignosulfonates, etc.) to unpaved areas.
 - B. The quantities of the chemical dust suppressant shall be applied and maintained in accordance with the manufacturer's recommendation (if available) and in sufficient quantities to achieve control of fugitive emissions from these areas while the plant is operating.
 - C. The operator shall record the time, date and the amount of material applied for each application of the chemical dust suppressant agent on the above areas. The operator shall keep these records with the plant for not less than five (5) years and make these records available to Department of Natural Resources personnel upon request.

3. Application of Water-Documented Daily
 - A. The operator shall apply water to unpaved areas. Water shall be applied at a rate of 100 gallons per day per 1,000 square feet of unpaved or untreated surface area while the plant is operating.
 - B. Precipitation may be substituted for watering if the precipitation is greater than one quarter of one inch and is sufficient to control fugitive emissions.
 - C. Watering may also be suspended when the ground is frozen, during periods of freezing conditions when watering would be inadvisable for traffic safety reasons, or when there will be no traffic on the roads.
 - D. The operator shall record the date, volume of water application and total surface area of active haul roads or the amount of precipitation that day. The operators shall also record the rationale for not watering (e.g. freezing conditions or not operating).
 - E. The operator shall keep these records with the plant for not less than five (5) years, and the operator shall make these records available to Department of Natural Resources personnel upon request

¹For purposes of this document, Control of Fugitive Emissions means to control particulate matter that is not collected by a capture system and visible emissions to the extent necessary to prevent violations of the air pollution law or regulation. (Note: control of visible emission is not the only factor to consider in protection of ambient air quality.)

Attachment BB: Emission Calculations
 Proppant Specialists, LLC
 2010-10-058

Description	¹ MHDR	MHDR Units	² PM ₁₀ EF	EF Units	² Control Eff. %	Emissions (lb/hr)	³ Modeling Rate (lb/hr)
Drilling	290.0000	Tons	0.000000	Lbs/ton	0.00	0.0000	0.0000
Blasting	290.0000	Tons	0.000000	Lbs/ton	0.00	0.0000	0.0000
Loading of Fragmented Stone	290.0000	Tons	0.000016	Lbs/ton	0.00	0.0046	0.0046
Haul Road #1	4.7078	VMT	2.527839	Lbs/VMT	90.00	1.1901	1.1901
Unloading of Fragmented Stone	290.0000	Tons	0.000016	Lbs/ton	0.00	0.0046	0.0046
Grizzly Feeder	290.0000	Tons	0.000016	Lbs/ton	0.00	0.0046	0.0046
Primary Crusher	200.0000	Tons	0.002400	Lbs/ton	75.00	0.1200	0.1200
Underconveyor	290.0000	Tons	0.001100	Lbs/ton	95.80	0.0134	0.0134
Quarry Conveyor QC -1 to Primary Wet Scalping Screen	423.0000	Tons	0.001100	Lbs/ton	95.80	0.0195	0.0195
Secondary Crusher	133.0000	Tons	0.002400	Lbs/ton	75.00	0.0798	0.0798
Quarry Conveyor QC-3 to VSI (EP10)	133.0000	Tons	0.001100	Lbs/ton	95.80	0.0061	0.0061
Quarry Conveyor QC-4 to QC-1 (EP7)	133.0000	Tons	0.001100	Lbs/ton	95.80	0.0061	0.0061
Quarry Conveyor Reject Sand	13.0000	Tons	0.001100	Lbs/ton	95.80	0.0006	0.0006
Wind Erosion	4.0000	Acres	0.089166	Lbs/Acre.Hr	0.00	0.3567	0.3567
Storage Pile Vehicular Activity	25.0000	Tons	0.007945	Lbs/ton	90.00	0.0199	0.0199
Storage Pile Load Out	25.0000	Tons	0.004125	Lbs/ton	0.00	0.1031	0.1031
Hopper	25.0000	Tons	0.001100	Lbs/ton	95.80	0.0012	0.0012
Feeder	25.0000	Tons	0.001100	Lbs/ton	95.80	0.0012	0.0012
Conveyor	25.0000	Tons	0.001100	Lbs/ton	95.80	0.0012	0.0012
40 tph Fluid Bed Dryer, 6 MMBTU/hr Propane	25.0000	Tons	0.019100	Lbs/ton	0.00	0.4775	0.4775
Dry Product Conveyor	25.0000	Tons	0.001000	Lbs/ton	0.00	0.0250	0.0250
Dry Product Elevator	25.0000	Tons	0.000000	Lbs/ton	0.00	0.0000	0.0000
Dry Product Screens	25.0000	Tons	0.000000	Lbs/ton	0.00	0.0000	0.0000
Two (2) Dry Product Conveyors	25.0000	Tons	0.000000	Lbs/ton	0.00	0.0000	0.0000
Two (2) Dry Product Elevators	25.0000	Tons	0.000000	Lbs/ton	0.00	0.0000	0.0000
Four Dry Product Load Out Silos	25.0000	Tons	0.000000	Lbs/ton	0.00	0.0000	0.0000
Truck Load Out	25.0000	Tons	0.069272	Lbs/ton	90.00	0.1732	0.1732
Fluid Bed Dryer Combustion	0.0663	Mgal	0.400000	Lbs/Mgal	0.00	0.0265	0.0265
Storage Pile Wind Erosion	4.0000	Acres	0.089166	Lbs/Acre.Hr	0.00	0.3567	0.3567
Storage Pile Vehicular Activity	100.0000	Tons	0.007945	Lbs/ton	90.00	0.0795	0.0795

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Storage Pile Load Out	100.0000	Tons	0.001045	Lbs/ton	0.00	0.1045	0.1045
Dry Feed Conveyor DC-1	100.0000	Tons	0.001100	Lbs/ton	95.80	0.0046	0.0046
Fluid Bed Dryer, 20 MMBtu/hr, 0.2210 Mgal/hr	100.0000	Tons	0.006000	Lbs/ton	0.00	0.6000	0.6000
Dry Feed Conveyor DC-2	100.0000	Tons	0.000000	Lbs/ton	0.00	0.0000	0.0000
Dry Feed Elevator	100.0000	Tons	0.000000	Lbs/ton	0.00	0.0000	0.0000
Dry Screen Tower (5 Screens)	100.0000	Tons	0.001000	Lbs/ton	0.00	0.1000	0.1000
Two (2) Dry Product Conveyors	40.0000	Tons	0.000000	Lbs/ton	0.00	0.0000	0.0000
Two (2) Dry Product Elevators	40.0000	Tons	0.000000	Lbs/ton	0.00	0.0000	0.0000
Four (4) Dry Product Loadout Silos	40.0000	Tons	0.000000	Lbs/ton	0.00	0.0000	0.0000
Truck Loadout	40.0000	Tons	0.069272	Lbs/ton	90.00	0.2771	0.2771
Four (4) Dry Product 16-inch Diameter Conveyors	60.0000	Tons	0.000000	Lbs/ton	0.00	0.0000	0.0000
Four (4) Dry Product Elevators	60.0000	Tons	0.000000	Lbs/ton	0.00	0.0000	0.0000
Four (4) Dry Product Loadout Silos	60.0000	Tons	0.000000	Lbs/ton	0.00	0.0000	0.0000
Truck Loadout	60.0000	Tons	0.069272	Lbs/ton	90.00	0.4156	0.4156
Fluid Bed Dryer Combustion Products	0.2210	Mgal	0.600000	Lbs/Mgal	0.00	0.1326	0.1326
Product Haul Road	4.0404	VMT	2.649425	Lbs/VMT	90.00	1.0705	1.0705
Storage Pile Wind Erosion	4.0000	Acres	0.089166	Lbs/Acre.Hr	0.00	0.3567	0.3567
Storage Pile Vehicular Activity	150.0000	Tons	0.007945	Lbs/ton	90.00	0.1192	0.1192
Storage Pile Load Out	150.0000	Tons	0.004125	Lbs/ton	0.00	0.6188	0.6188
Hopper	150.0000	Tons	0.001100	Lbs/ton	95.80	0.0069	0.0069
Feeder	150.0000	Tons	0.000016	Lbs/ton	0.00	0.0024	0.0024
Dryer Feed Conveyor D2-1	150.0000	Tons	0.001100	Lbs/ton	95.80	0.0069	0.0069
Fluid Bed Dryer, 30 MMBtu/hr, Propane	150.0000	Tons	0.006000	Lbs/ton	0.00	0.9000	0.9000
Existing Screw Conveyor to Elevator	150.0000	Tons	0.001000	Lbs/ton	0.00	0.1500	0.1500
Existing Elevator to EP35 Screen	150.0000	Tons	0.000000	Lbs/ton	0.00	0.0000	0.0000
Six New Rotex Screen	150.0000	Tons	0.001300	Lbs/ton	0.00	0.1950	0.1950
Four (4) New Dry Product Conveyors	150.0000	Tons	0.000000	Lbs/ton	0.00	0.0000	0.0000
Four (4) New Dry Product Elevators	150.0000	Tons	0.000000	Lbs/ton	0.00	0.0000	0.0000

Attachment BB: Emission Calculations

Proppant Specialists, LLC

2010-10-058

Six (6) New 200 Tons Silos	150.0000	Tons	0.000000	Lbs/ton	0.00	0.0000	0.0000
Fluid Bed Dryer Combustion	0.3315	Mgal	0.600000	Lbs/Mgal	0.00	0.1989	0.1989
One New Waste Sand Silo, 40 Ton Capacity	150.0000	Tons	0.000000	Lbs/ton	0.00	0.0000	0.0000
Silo Truck Loadout	140.0000	Tons	0.069272	Lbs/ton	90.00	0.9698	0.9698
Waste Sand Silo Truck Loadout	10.0000	Tons	0.069272	Lbs/ton	90.00	0.0693	0.0693
Product Haul Road	6.0606	VMT	2.649425	Lbs/VMT	90.00	1.6057	1.6057

¹Maximum Hourly Design Rate (MHDR)

²Some emission factors and control device efficiencies are listed as zero (0) because they are included among other equipment.

³The Modeling Rate is the emission rate scaled to the daily hours of operation at MHDR allow by the permit.

Mr. Ronald Jordan
President
Proppant Specialists, LLC
2003 Nine Road
Brady, TX 76825

RE: New Source Review Permit - Project Number: 2010-10-058

Dear Mr. Jordan:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, 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.

If you have any questions regarding this permit, please do not hesitate to contact Chia-Wei Young at the Departments' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102, or by telephone at (573) 751-4817. Thank you for your time and attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:cyk

Enclosures

c: Southeast Regional Office
PAMS File: 2010-10-058

Permit Number: