MISSISSIPPI SAND

Rule 13 Permit Application
Benwood Terminal

Benwood, West Virginia

Prepared By:

ERM

ENVIRONMENTAL RESOURCES MANAGEMENT, Inc.
Hurricane, West Virginia

October 2015

Mississippi Sand, LLC
1716 Hidden Creek Court, Suite 150
St. Louis, MO 63131

October 6, 2015

Mr. William F. Durham, Director
WV Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, West Virginia 25304

Re: Mississippi Sand, LLC, Benwood, West Virginia
Benwood Terminal Rule 13 Permit Application

Dear Director Durham:

Enclosed are one (1) original hard copy and two (2) CD-ROMs of a Rule 13 Air Permit Application for the construction of a frac sand storage and handling facility at Mississippi Sand's Benwood Terminal in Marshall County, West Virginia. A check for $1,000 is enclosed for the application fee.

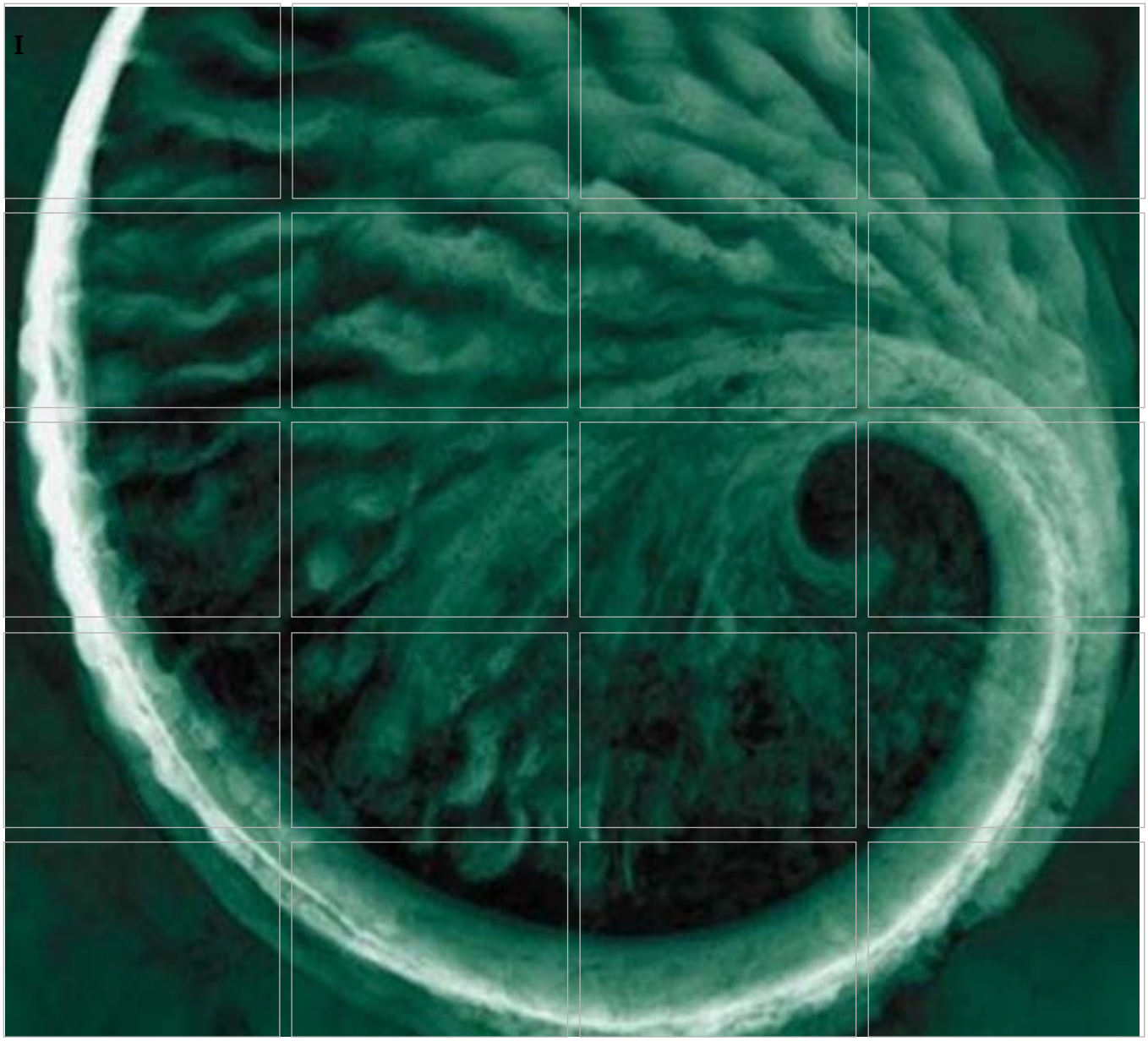
If you have any questions concerning this permit application, please contact Mr. Jason Bish at (314) 678-7855.

Sincerely,

Jason Bish
Vice President of Safety and Regulatory Management

cc: Justin Spencer, ERM – Justin.Spencer@erm.com

Enclosures:



Prepared For:

MISSISSIPPI SAND

Rule 13 Air Permit Application

Benwood Facility, Marshall County, WV

October 2015

Environmental Resources Management
204 Chase Drive
Hurricane, West Virginia, 25526

www.erm.com

ERM

The world's leading sustainability consultancy

Prepared for:

Mississippi Sand

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Benwood Facility, Marshall County, WV

8 October 2015

Grant Morgan
Project Manager

David Carpenter
Project Director

Environmental Resources Management
204 Chase Drive
Hurricane, West Virginia 25526

http://www.erm.com

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LIST OF APPENDICES

1.0 INTRODUCTION

Mississippi Sand, LLC (MS) submits this Rule 13 Permit Application to the WVDEP's Department of Air Quality for the Benwood Terminal located in Marshall County, West Virginia. This application addresses the operational activities associated with the handling, warehousing, and loading of frac sand at the Benwood Terminal.

2.0 FACILITY DESCRIPTION

The Benwood Terminal operates in Marshall County, WV and consists of a barge unloading dock, storage and handling warehouse, and a customer truck loading operation. Frac sand arrives via barge to the truck loading dock. Frac sand is unloaded via floating crane using an open clamshell bucket to onshore dump trucks (TP01). The trucks are covered with tarps during transport. Loaded trucks travel on an unpaved haul road to an enclosed warehouse. The unpaved haul road employs dust suppression to reduce fugitive particulate matter emissions at times when the haul roads are in use by Mississippi Sand trucks.

The dump trucks enter the warehouse building to unload the product (TP02). The warehouse is operated with six (6) exhaust fans that create a zone of negative pressure. The influence of these fans reduces the likelihood that fugitive emissions will be emitted from the entrances/exits of the warehouse building. The exhaust fans will serve as the emission point where fugitive particulate matter generated within the warehouse is realized (E01). Once the product is unloaded from the dump trucks onto the warehouse floor, a front end loader will transfer material to one of three (3) fully enclosed stockpiles (SB01-SB03). Each stockpile within the warehouse building will contain a different sized sand product, according to API specifications. When the product is ready for transport to end user, the front end loader will transfer the material from the stockpiles to a hopper (TP04). Material will pass onto belt conveyer BC01 (TP05). From BC01, material is transferred to belt conveyor BC02 (TP06). BC02 passes from the inside of the warehouse to the outside for customer truck loading.

The customer loadout process is conducted with a telescopic chute from the BC02 to the tanker truck. Once the customer truck has been filled, the truck is weighed for processing. Upon completion of this process, the tanker trucks depart from the facility by traveling on paved haul roads.

The applicant seeks to authorize the operation of:

- One (1) barge unloading dock;
- One (1) dump truck unloading transfer point;
- One (1) front end loader unloading transfer point:
- One (1) hopper;
- Two (2) belt conveyors;
- Three (3) fully enclosed indoor stockpiles and;
- Paved and unpaved haul road activity.

A process flow diagram is included in this application in Attachment F.

3.0 REGULATORY DISCUSSION

This section outlines the State and Federal air quality regulations that could be reasonably expected to apply to the Benwood Terminal and makes an applicability determination for each regulation based on activities conducted at the site and the emissions of regulated air pollutants. This review is presented to supplement and/or add clarification to the information provided in the WVDAQ Rule 13 permit application forms.

The West Virginia State Regulations address applicable state (i.e. State Implementation Plan) rules as well as federal regulations, including Prevention of Significant Deterioration or Nonattainment New Source Review Preconstruction Permitting, Title V, New Source Performance Standards, and National Emission Standards for Hazardous Air Pollutants. The regulatory requirements in reference to Benwood Terminal are described in detail in the below section.

3.1 WEST VIRGINIA STATE AIR REGULATIONS

3.1.1 45 CSR 04 – To Prevent and Control the Discharge of Air Pollutants into the Air Which Causes or Contributes to an Objectionable Odor

Operations conducted at the Benwood Terminal are subject to this requirement. Based on the nature of the process at the terminal, the presence of objectionable odors is unlikely.

3.1.2 45 CSR 06 – Control of Air Pollution from the Combustion of Refuse

The Benwood Terminal does not combust refuse. Open burning will be prohibited.

3.1.3 45 CSR 07 – To Prevent and Control Particulate Matter Air Pollution from Manufacturing Processes and Associated Operations

Operations at the Benwood Terminal do not qualify as a manufacturing process, since Mississippi Sand only warehouses and ships product. Mississippi Sand operations do not perform any action, operation or treatment, embracing chemical, industrial, or manufacturing efforts, nor employs equipment used in connection of manufacturing or processing that may emit smoke, particulate matter, or gaseous matter.

3.1.4 45 CSR 10 – To Prevent and Control Air Pollution from the Emission of Sulfur Oxides

The Benwood Terminal will not operate fuel burning units that may emit sulfur dioxide or other sulfur compounds.

3.1.5 45 CSR 13 – Permits for Construction, Modification, Relocation, and Operation of Stationary Sources of Air Pollutants

This Rule 13 permit application is being submitted for the operational activities associated with Mississippi Sand's Benwood Terminal.

3.1.6 45 CSR 14 / 45 CSR 19 – Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration / Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contributed to Non-attainment

Federal construction permitting programs regulate new and modified sources of attainment pollutants. The Rule 13 applicability criteria exclude facilities that meet the definition of a major source, as defined in 45 CSR 19, from being eligible for the general permit.

Operation of equipment at the Benwood Terminal will not exceed major source emission thresholds established by these permitting programs. Mississippi Sand will monitor future construction and modification activities at the site closely and will compare any future increase in emissions with major source thresholds to ensure these activities will not trigger either program.

3.1.7 45 CSR 16 – Standards of Performance for New Stationary Sources (NSPS)

45 CSR 16 applies to all registrants that are subject to any of the NSPS requirements described in more detail in the Federal Regulations section. There are no applicable requirements of NSPS in this Rule 13 permit application.

3.1.8 45 CSR 17 – To Prevent and Control Particulate Matter Air Pollution from Materials Handling, Preparation, Storage, and Other Sources of Fugitive Particulate Matter

45 CSR 17 applies to sources which generate particulate matter. The main requirement of 45 CSR 17 is the prohibition of fugitive particulate matter which causes or contributes to statutory air pollution.

The Benwood Terminal will comply with this requirement and will utilize a system to minimize fugitive particulate matter that includes the following:

- Use of dust suppression on haul roads;
- Covering material transport vehicles;
- Installation of fans and fabric filters; and
- Minimize drop height during unloading activities.

3.1.9 45 CSR 30 – Requirements for Operating Permits

45 CSR 30 applies to the requirements of the federal Title V operating permit program (40 CFR 70). The major source thresholds with respect to the West Virginia Title V operating permit program regulations are 10 tons per year (tpy) of a single HAP, 25 tpy of any combination of HAP, and 100 tpy of all other regulated pollutants.

The potential emissions of all regulated pollutants are below the corresponding threshold(s) at this facility. The facility is not major source with respect to the Title V operating permit program.

3.1.10 45 CSR 34 – National Emission Standards for Hazardous Air Pollutants (NESHAP)

45 CSR 34 applies to all registrants that are subject to any of the NESHAP requirements described in more detail in the Federal Regulations section. There are no applicable requirements of NESHAP in this Rule 13 permit application.

3.2 FEDERAL REGULATIONS

The following NSPS included in the Rule 13 permit application are not applicable to the Benwood Terminal:

3.2.1 40 CFR 60, Subpart OOO (Standards of Performance for Nonmetallic Mineral Processing Plants)

40 CFR 60 OOO applies to Nonmetallic Mineral Processing Plants and equipment used to crush or grind any nonmetallic mineral. The Benwood Terminal will not crush, grind, or perform any further processing of the material, and therefore is not subject to the requirements of this Rule. The Benwood Terminal will handle and store material for off-site transport only.

No additional NSPS are currently applicable to this facility.

The following NESHAP included in the Rule 13 permit application are applicable to the Benwood Terminal:

No NESHAP are applicable to this facility.

4.0 BENWOOD TERMINAL FUGITIVE DUST EMISSION SOURCES

4.1 PRODUCT SPECIFICATIONS

Frac sand handled at the Benwood Terminal is high-purity quartz sand with durable and round grains. It is a crush resistant material produced for use by the petroleum industry. It is used in the hydraulic fracturing process to produce petroleum liquids, such as oil, natural gas, and natural gas liquids from formations that lack adequate pore space for these fluids/gases to flow to a well. Most frac sand is made from high purity sandstone. Frac sand at the Benwood Terminal will have been processed, dried, and sized by a Mississippi Sand processing plant, prior to delivery to the Marshall County, WV Benwood Terminal. Frac sand must remain in a dry state in order to meet the quality control requirements of the customer and therefore has to be transported and stored in an enclosure to protect it from moisture.

4.2 BARGE UNLOADING

A fully enclosed barge will deliver the processed frac sand to the Benwood Terminal unloading dock. An open clamshell will be used to unload the frac sand to onshore trucks. The clamshell utilized in the unloading process will be a floating crane, owned and operated by the barging company. Due to leasing restrictions, Mississippi can utilize the unloading dock for 12 hours in a 24 hour period. The handling facility has not restrictions and will operating 24/7. Mississippi Sand will enact best management practices and applicable requirements outlined in 45 CSR 17 during the unloading process to minimize fugitive dust emissions. The clamshell drop height will be lowered to ensure minimal drop height of the material to the truck bed. Mississippi Sand anticipates little product loss during this process; however, any product that accumulates on the loading dock will be removed and disposed of prior the end of the shift.

The clamshell unloading operation will take place at a barge unloading dock that exists within an engineered depression along the river bank. This depression is approximately 15 feet below grade creating an earthen berm along the river bank which acts as a wind shield during unloading operations. This unloading location combined with Mississippi Sand's best management practices will further reduce potential fugitive emissions generated during the unloading process.

4.3 HAUL ROADS

Loaded trucks will be covered to reduce additional fugitive dust generation during transport to the unloading location approximately 0.25 miles away. Per the requirements of 45 CSR 17, a dust suppression system will be installed on the haul road to control and further reduce fugitive dust emissions. Mississippi Sand will apply dust suppression to the haul roads when used by Mississippi Sand trucks. A facility wide speed limit of 5 mph will be enacted to ensure trucking operations generate minimal fugitive particulate matter.

4.4 WAREHOUSE OPERATIONS

Trucks will enter an enclosed building for product unloading, product sorting, and delivery to the customer. In addition to one (1) truck unloading operation, activities and equipment in the enclosed building consist of one (1) front end loader transfer point, three (3) stockpiles, two (2) belt conveyors, and one (1) hopper.

Upon entry into the warehouse building, the dump truck will unload product to the warehouse floor. Truck unloading operations will be conducted using best management practices to reduce the likelihood of fugitive dust generation. Best management practices will include minimizing dump angle, conducting dump

operations away from bay doors, and utilizing ventilation fans during unloading operations.

The material will be moved as little as possible to optimize throughput and reduce emissions. Product is transferred from the ground of the warehouse to one (1) of three (3) sand storage piles by a front end loader. Upon delivery, barges may contain different grades of sand. The grades of frac sand differ by particle size, according to API specifications. The stockpiles are intended for temporary storage and are utilized to sort the different grades of sand prior to shipment.

When the product is ready for transport to end user, the front end loader will transfer the material from the stockpiles to a hopper (TP04). Material will pass onto belt conveyer BC01 (TP05). From BC01, material is transferred to belt conveyor BC02 (TP06). BC02 passes from the inside of the warehouse to the outside for customer truck loading.

The entire conveyor process, including the hopper, conveyor to conveyor transfer point, and customer truck load out will be controlled using a baghouse system. The proposed system utilizes a 10 hp fan motor to collect fugitive dust generated at the controlled transfer points. Collected fugitive dust is routed through a closed vent system to two (2) baghouse filters. The proposed baghouse system will reduce the amount of airborne fugitive particulate matter; however, the unit is not specifically designed for the intended purpose. This equipment has been customized to the needs of the facility and manufacturer guaranteed control efficiencies can no longer be considered valid. For this reason, Mississippi Sand proposes the operation of a baghouse system during customer loading events as a best management practice to reduce fugitive particulate matter and does not seek a control efficiency associated with the operation of this equipment.

The warehouse building will be equipped with six (6) filtered ventilation fans. The fans will be installed on the north side of the building at a height of approximately 15 feet and exhaust outward from the building. The operation of these fans will create a zone of negative pressure that reduces the likelihood of fugitive emissions escaping through the bay doors of the enclosed warehouse. The exhaust fans will serve as the emission point where fugitive particulate matter generated within the warehouse is realized (E01). The exhaust fans will be operated with filter screens to reduce the amount of airborne particulate matter that will be emitted from the enclosed warehouse. Mississippi Sand will document weekly inspections of the filters and replace as needed. At a minimum filters will be replaced quarterly.

Although there is a measure of particulate control provided by the fan filters, the design of these fan units and filter screens makes it difficult to determine appropriate control measure efficiencies. Furthermore, any compliance demonstration testing that could be required is impractical, since these units do not exist within a stack. For these reasons, Mississippi Sand proposes the operation of these ventilation fan filters as a best management practice to reduce fugitive particulate matter and does not seek any control reductions with the operation of these fans.

4.5 CUSTOMER TRUCK LOADING OPERATIONS

Product loading will occur from an enclosed belt conveyor with telescopic chute to tanker trucks. Utilizing a telescopic chute will reduce the amount of fugitive particulate matter that will be emitted from the operation. The product will be routed from the conveyor belt, through a load box, and connected to the telescopic chute for transport. The load box will be equipped with a fume hood to collect generated particulate matter emissions and route them to the baghouse unit. The tanker truck will have an air return line routed to the baghouse unit

that will operate under negative pressure from the 10 hp fan pulling to the baghouse. For truck loading operations, Mississippi Sand does not seek a control efficiency associated with the operation of this equipment and proposes this operation as a best management practice. The product trucks will be weighted for prior to the customer trucks leaving the facility via paved haul roads.

The Process Flow Diagram (Attachment F) outlines all major processes and equipment, including the building emission point. Supporting calculations in Attachment N group each emission point located in the enclosed building together.

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

601 57th Street, SE
Charleston, WV 25304
(304) 926-0475
www.dep.wv.gov/daq

APPLICATION FOR NSR PERMIT AND TITLE V PERMIT REVISION (OPTIONAL)

PLEASE CHECK ALL THAT APPLY TO **NSR (45CSR13)** (IF KNOWN):

☒ **CONSTRUCTION** ☐ **MODIFICATION** ☐ **RELOCATION**
☐ **CLASS I ADMINISTRATIVE UPDATE** ☐ **TEMPORARY**
☐ **CLASS II ADMINISTRATIVE UPDATE** ☐ **AFTER-THE-FACT**

PLEASE CHECK TYPE OF **45CSR30 (TITLE V)** REVISION (IF ANY):

☐ **ADMINISTRATIVE AMENDMENT** ☐ **MINOR MODIFICATION**
☐ **SIGNIFICANT MODIFICATION**

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS **ATTACHMENT S** TO THIS APPLICATION

FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

Section I. General

1. Name of applicant *(as registered with the WV Secretary of State's Office):*
Mississippi Sand, LLC

2. Federal Employer ID No. ***(FEIN):***
26-1506512

3. Name of facility *(if different from above):*
Benwood Terminal

4. The applicant is the:
☐ **OWNER** ☐ **OPERATOR** ☒ **BOTH**

5A. Applicant's mailing address:
1716 Hidden Creek Court, Ste 150, St. Louis, MO 63131

5B. Facility's present physical address:
748 McMechen Street, Building 19 North, Benwood Industrial Court, Benwood, WV 26031

6. **West Virginia Business Registration.** Is the applicant a resident of the State of West Virginia? ☒ **YES** ☐ **NO**

- If **YES,** provide a copy of the **Certificate of Incorporation/Organization/Limited Partnership** (one page) including any name change amendments or other Business Registration Certificate as **Attachment A.**
- If **NO,** provide a copy of the **Certificate of Authority/Authority of L.L.C./Registration** (one page) including any name change amendments or other Business Certificate as **Attachment A.**

7. If applicant is a subsidiary corporation, please provide the name of parent corporation:

8. Does the applicant own, lease, have an option to buy or otherwise have control of the *proposed site?* ☒ **YES** ☐ **NO**

- If **YES,** please explain: **The applicant leases and operates the proposed site**.
- If **NO,** you are not eligible for a permit for this source.

9. Type of plant or facility (stationary source) to be **constructed, modified, relocated, administratively updated** or **temporarily permitted** (e.g., coal preparation plant, primary crusher, etc.): **Industrial Sand Facility – Bulk Transfer and Handling**

10. North American Industry Classification System **(NAICS)** code for the facility:
212322

11A. DAQ Plant ID No. (for existing facilities only):
N/A

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):
N/A

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

12A.

- For **Modifications, Administrative Updates** or **Temporary permits** at an existing facility, please provide directions to the *present location* of the facility from the nearest state road;
- For **Construction** or **Relocation permits,** please provide directions to the *proposed new site location* from the nearest state road. Include a **MAP** as **Attachment B**.

From WV Route 2 head north on US-250N for 1.5 miles. Take exit toward 4th Street/Benwood and continue for 0.2 miles onto McMechen Street. In 400 feet, turn right onto 4th Street. Continue for 0.4 miles to Water Street. In 0.1 miles turn left onto 8th Street. Turn right onto Marshall Street. Follow access road approximately 0.3 miles to Benwood Terminal.

12.B. New site address (if applicable):	12C. Nearest city or town:	12D. County:
748 McMechen Street, Building 19 North, Benwood Industrial Court, Benwood, WV 26031	**Benwood**	**Marshall**
12.E. UTM Northing (KM): **4,428.881**	12F. UTM Easting (KM): **522.548**	12G. UTM Zone: **17T**

13. Briefly describe the proposed change(s) at the facility:
The Benwood Terminal Industrial Sand site is a proposed new facility and is planned to be operational by February 5, 2016.

14A. Provide the date of anticipated installation or change: **Upon permit issuance.** – If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: / /	14B. Date of anticipated Start-Up if a permit is granted: **Upon permit issuance.**

14C. Provide a **Schedule** of the planned **Installation** of/**Change** to and **Start-Up** of each of the units proposed in this permit application as **Attachment C** (if more than one unit is involved).

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:
Hours Per Day **24** Days Per Week **7** Weeks Per Year **52**

16. Is demolition or physical renovation at an existing facility involved? ☐ **YES** ☒ **NO**

17**. Risk Management Plans.** If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see www.epa.gov/ceppo), submit your **Risk Management Plan (RMP)** to U. S. EPA Region III.

18**. Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process *(if known).* A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance *(if known).* Provide this information as **Attachment D.**

Section II. Additional attachments and supporting documents.

19. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

20. Include a **Table of Contents** as the first page of your application package.

21. Provide a **Plot Plan,** e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as **Attachment E** (Refer to ***Plot Plan Guidance***) **.**
– Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).

22. Provide a **Detailed Process Flow Diagram(s)** showing each proposed or modified emissions unit, emission point and control device as **Attachment F.**

23. Provide a **Process Description** as **Attachment G.**
– Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H.**

– For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I.**

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J.**

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K.**

28. Check all applicable **Emissions Unit Data Sheets** listed below:

☐ Bulk Liquid Transfer Operations	☒ Haul Road Emissions	☐ Quarry
☐ Chemical Processes	☐ Hot Mix Asphalt Plant	☐ Solid Materials Sizing, Handling and Storage Facilities
☐ Concrete Batch Plant	☐ Incinerator	☐ Storage Tanks
☐ Grey Iron and Steel Foundry	☐ Indirect Heat Exchanger	

☒ General Emission Unit, specify: **Conveying and Storing**

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L.**

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

☐ Absorption Systems	☐ Baghouse	☐ Flare
☐ Adsorption Systems	☐ Condenser	☐ Mechanical Collector
☐ Afterburner	☐ Electrostatic Precipitator	☐ Wet Collecting System

☐ Other Collectors, specify

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M.**

30. Provide all **Supporting Emissions Calculations** as **Attachment N,** or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O.**

➢ Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and ***Example Legal Advertisement*** for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33**. Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?

☐ **YES** ☒ **NO**

➢ If **YES,** identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's ***"Precautionary Notice – Claims of Confidentiality"*** guidance found in the ***General Instructions*** as **Attachment Q.**

Section III. Certification of Information

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below:

☐ Authority of Corporation or Other Business Entity	☐ Authority of Partnership
☐ Authority of Governmental Agency	☒ Authority of Limited Partnership

Submit completed and signed **Authority Form** as **Attachment R.**

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

Certification of Truth, Accuracy, and Completeness

I, the undersigned ☒ **Responsible Official** / ☐ **Authorized Representative,** hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

Compliance Certification

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE _____ *(Please use blue ink)* DATE: 9-29-15 *(Please use blue ink)*

35B. Printed name of signee: **Tony Giordano**		35C. Title: **President**
35D. E-mail: **TGiordano@mississippi-sand.com**	36E. Phone: 314.219.7900	36F. FAX: 314.677.3828
36A. Printed name of contact person (if different from above):		36B. Title:
36C. E-mail:	36D. Phone:	36E. FAX:

PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:

- ☒ **Attachment A: Business Certificate**
- ☒ **Attachment B: Map(s)**
- ☒ **Attachment C: Installation and Start Up Schedule**
- ☒ **Attachment D: Regulatory Discussion**
- ☒ **Attachment E: Plot Plan**
- ☒ **Attachment F: Detailed Process Flow Diagram(s)**
- ☒ **Attachment G: Process Description**
- ☒ **Attachment H: Material Safety Data Sheets (MSDS)**
- ☒ **Attachment I: Emission Units Table**
- ☒ **Attachment J: Emission Points Data Summary Sheet**
- ☒ **Attachment K: Fugitive Emissions Data Summary Sheet**
- ☒ **Attachment L: Emissions Unit Data Sheet(s)**
- ☐ **Attachment M: Air Pollution Control Device Sheet(s)**
- ☒ **Attachment N: Supporting Emissions Calculations**
- ☒ **Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans**
- ☒ **Attachment P: Public Notice**
- ☒ **Attachment Q: Business Confidential Claims**
- ☒ **Attachment R: Authority Forms**
- ☐ **Attachment S: Title V Permit Revision Information**
- ☒ **Application Fee**

Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.

FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:

- ☐ *Forward 1 copy of the application to the Title V Permitting Group and:*
- ☐ *For Title V Administrative Amendments:*
  - ☐ *NSR permit writer should notify Title V permit writer of draft permit,*
- ☐ *For Title V Minor Modifications:*
  - ☐ *Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,*
  - ☐ *NSR permit writer should notify Title V permit writer of draft permit.*
- ☐ *For Title V Significant Modifications processed in parallel with NSR Permit revision:*
  - ☐ *NSR permit writer should notify a Title V permit writer of draft permit,*
  - ☐ *Public notice should reference both 45CSR13 and Title V permits,*
  - ☐ *EPA has 45 day review period of a draft permit.*

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

Table of Contents

Attachment A

BUSINESS CERTIFICATE

State of West Virginia

Certificate

I, Natalie E. Tennant, Secretary of State of the State of West Virginia, hereby certify that

MISSISSIPPI SAND, LLC

was duly authorized under the laws of this state to transact business in West Virginia as a foreign limited liability company on July 16, 2015.

The company is filed as an at-will company, for an indefinite period.

I further certify that the LLC (PLLC) has not been revoked by the State of West Virginia nor has a Certificate of Cancellation been issued.

Therefore, I hereby issue this

CERTIFICATE OF AUTHORIZATION

Validation ID:8WV4T_ATDPB

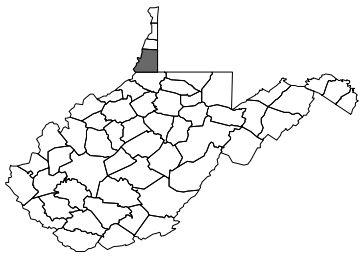
Given under my hand and the Great Seal of the State of West Virginia on this day of August 11, 2015

Natalie E. Tennant

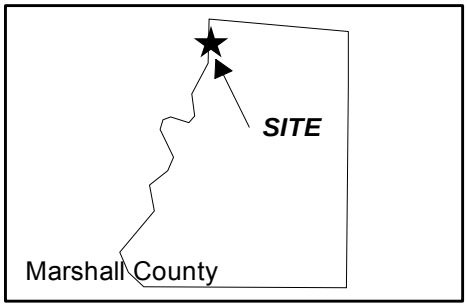
Secretary of State

Attachment B

LOCATION MAP



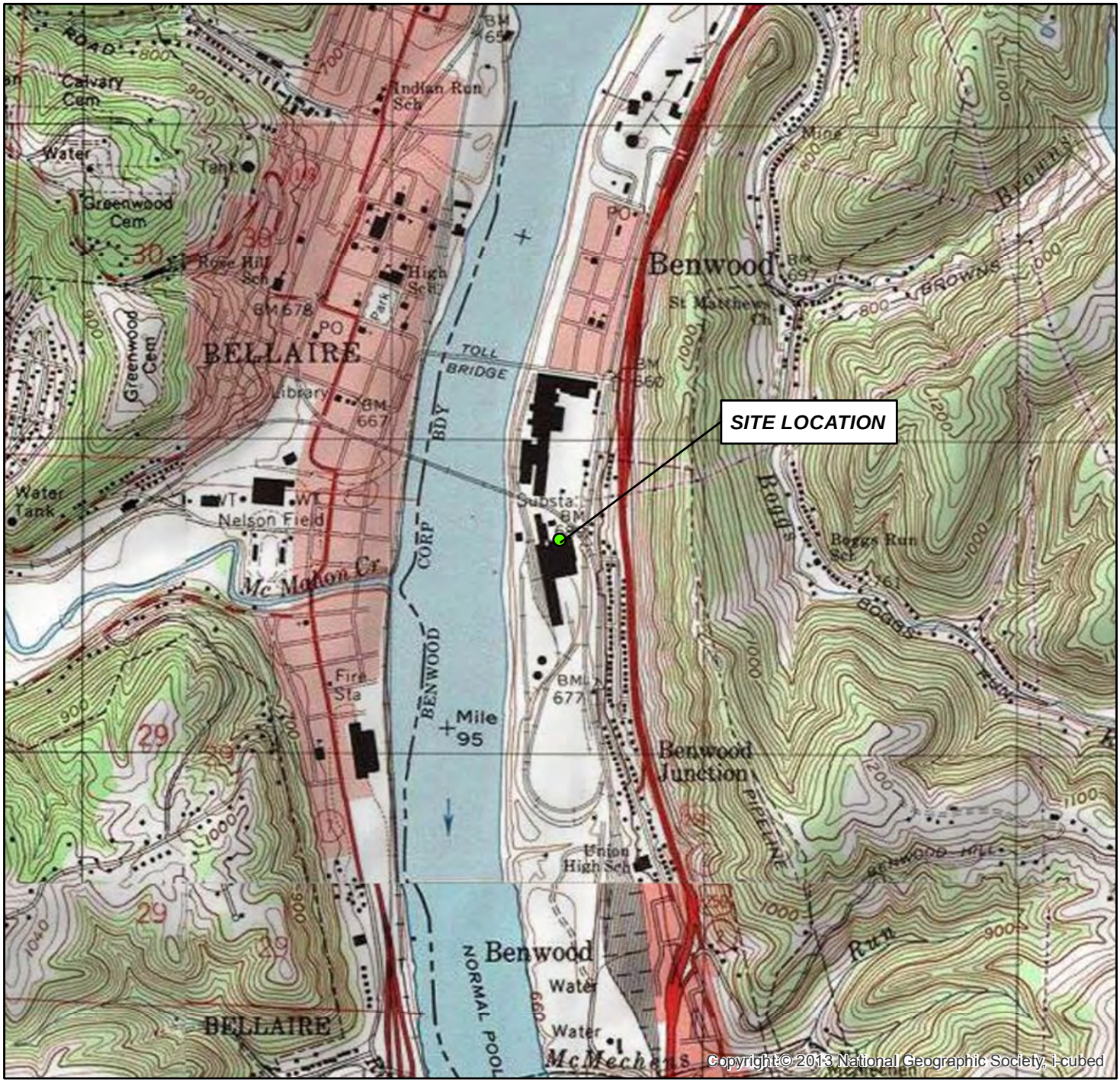
West Virginia



0 1,000 2,000 4,000 Feet

N

LAT. 40.009831 LON. -80.735801
MARSHALL COUNTY
WEST VIRGINIA



USGS 1:24K 7.5' Quadrangle:
Wheeling, WV

SITE LOCATION MAP

ERM	**Mississippi Sand's** Benwood Terminal Mississippi Sand's Marshall, West Virginia	GIS Review: JS CHK'D: JS 0311923
Drawn By: SRV-9/28/15	**Environmental Resources Management**	ATTACHMENT B

J:\GIS\Projects\SiteLocationMaps\Mississippi Sands_MXD\Figure1-SiteLocationMap.mxd - 9/28/2015|SRV

Attachment C

INSTALLATION SCHEDULE

Attachment C
Schedule of Changes

Mississippi Sand, LLC. proposes that the facility be permitted to operate as soon as possible, but no later than February 5, 2016.

Attachment D

REGULATORY DISCUSSION

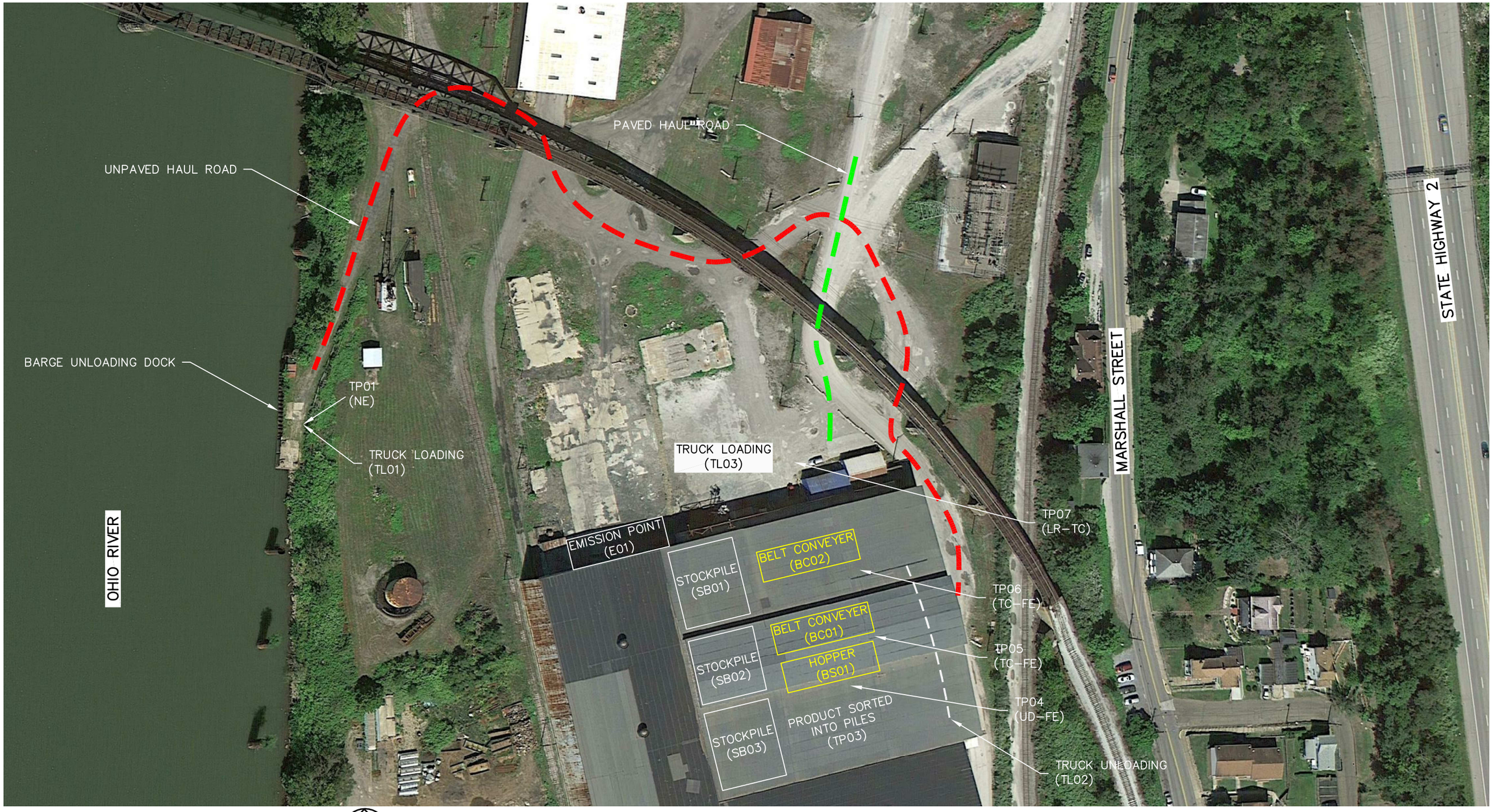
Attachment D
Regulatory Discussion

Mississippi Sand, LLC has included a State and Federal Regulatory discussion in the introduction to this permit application.

Attachment E

PLOT PLAN

SITE LAYOUT MAP



N

0 100 200

SCALE (IN FEET)

Drawn By GML	ERM®	MISSISSIPPI SAND	CHK'D JS
CADD Review RMK		Benwood Terminal	0311923
Date Drawn/Rev'd 10/6/15		Environmental Resources Management	FIGURE 1

R:\Cadd\Clnt\M-P\Mississippi Sand\0311923\0311923-01.dwg, SITE LAYOUT MAP, 10/7/2015 7:20:12 AM, GML

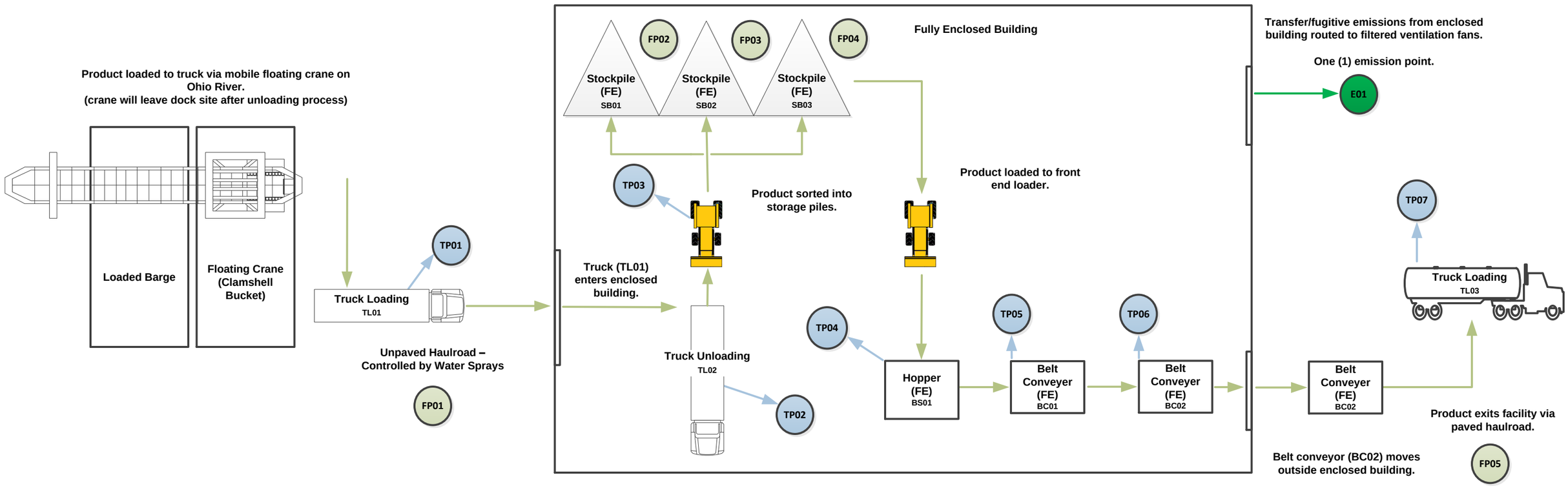
Attachment F

DETAILED PROCESS FLOW DIAGRAM

Attachment F

Mississippi Sand Benwood Terminal

Process Flow Diagram



Attachment G

PROCESS DESCRIPTION

Attachment G
Process Description

This permit application is being filed for Mississippi Sand, LLC, and addresses operational activities associated with the Benwood Terminal. Frac sand arrives via barge to the truck loading dock. Frac sand is unloaded via floating crane using an open clamshell bucket to onshore dump trucks (TP01). The trucks are covered with tarps during transport. Loaded trucks travel on an unpaved haul road to an enclosed warehouse. The unpaved haul road employs dust suppression to reduce fugitive particulate matter emissions at times when the haul roads are in use by Mississippi Sand trucks.

The dump trucks enter the warehouse building to unload the product (TP02). The warehouse is operated with six (6) exhaust fans that create a zone of negative pressure. The influence of these fans reduces the likelihood that fugitive emissions will be emitted from the entrances/exits of the warehouse building. The exhaust fans will serve as the emission point where fugitive particulate matter generated within the warehouse is realized (E01). Once the product is unloaded from the dump trucks onto the warehouse floor, a front end loader will transfer material to one of three (3) fully enclosed stockpiles (SB01-SB03). Each stockpile within the warehouse building will contain a different sized sand product, according to API specifications. When the product is ready for transport to end user, the front end loader will transfer the material from the stockpiles to a hopper (TP04). Material will pass onto belt conveyer BC01 (TP05). From BC01, material is transferred to belt conveyor BC02 (TP06). BC02 passes from the inside of the warehouse to the outside for customer truck loading.

The customer loadout process is conducted with a telescopic chute from the BC02 to the tanker truck. Once the customer truck has been filled, the truck is weighed for processing. Upon completion of this process, the tanker trucks depart from the facility by traveling on paved haul roads.

A process flow diagram is included as Attachment F.

Attachment H

MATERIAL SAFETY DATA SHEETS

MISSISSIPPI SAND

Frac Sand

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision Date: 11/21/2014 Supersedes Date: 01/17/2014 Version: 1.0

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

Product Identifier

Product Form: Mixture

Product Name: Frac Sand

Intended Use of the Product

Hydraulic Fracturing

Name, Address, and Telephone of the Responsible Party

Producer

Mississippi Sand, LLC
1716 Hidden Creek Court
Town & Country MO 63131

Emergency Telephone Number

Emergency number : Mississippi Sand, LLC (314) 219-7900 / (314) 220-7198 / (314) 220-7163

SECTION 2: HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

Classification (GHS-US)

Carc. 1A H350
STOT SE 3 H335
STOT RE 1 H372

Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US) :

GHS07 GHS08

Signal Word (GHS-US) : Danger

Hazard Statements (GHS-US) : H335 - May cause respiratory irritation
H350 - May cause cancer (Inhalation)
H372 - Causes damage to organs (lung/respiratory system) through prolonged or repeated exposure (Inhalation)

Precautionary Statements (GHS-US) : P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe dust
P261 - Avoid breathing dust
P264 - Wash Hands and forearms thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear eye protection, protective clothing, protective gloves
P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P308+P313 - If exposed or concerned: Get medical advice/attention
P312 - Call a POISON CENTER/doctor/physician if you feel unwell
P314 - Get medical advice and attention if you feel unwell
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container local, regional, national, territorial, provincial, and international regulations

Other Hazards Not available

Unknown Acute Toxicity (GHS-US) Not available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substances

Mixture

Name	Product identifier	% (w/w)	Classification (GHS-US)
Quartz	(CAS No) 14808-60-7	< 95	Carc. 1A, H350 STOT SE 3, H335 STOT RE 1, H372
Calcium oxide	(CAS No) 1305-78-8	< 5	Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335
Magnesium oxide	(CAS No) 1309-48-4	< 5	Not classified
Iron oxide (Fe2O3)	(CAS No) 1309-37-1	< 5	Comb. Dust Aquatic Chronic 2, H411

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

Description of First Aid Measures

General: If medical advice is needed, have product container or label at hand.

Inhalation: If inhaled, remove to fresh air and keep at rest in a position comfortable for breathing. Obtain medical attention if breathing difficulty persists.

Skin Contact: Rinse immediately with plenty of water. Gently wash with plenty of soap and water. Obtain medical attention if irritation persists.

Eye Contact: Immediately rinse with water for a prolonged period while holding the eyelids wide open. Seek medical attention if material is embedded in eye. If eye irritation persists: Get medical advice and attention.

Ingestion: If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

Most Important Symptoms and Effects Both Acute and Delayed

General: Repeated or prolonged inhalation may damage lungs. Dust may cause mechanical irritation to eyes, nose, throat, and lungs.

Inhalation: May cause irritation to the respiratory tract, sneezing, coughing, burning sensation of throat with constricting sensation of the larynx and difficulty in breathing.

Skin Contact: Prolonged contact with large amounts of dust may cause mechanical irritation. Dust may cause irritation in skin folds or by contact in combination with tight clothing.

Eye Contact: Dust may cause mechanical irritation to eyes.

Ingestion: Abdominal pain.

Chronic Symptoms: Respiratory difficulties. May cause cancer.

Indication of Any Immediate Medical Attention and Special Treatment Needed

Not available

SECTION 5: FIREFIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: None known.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not flammable.

Explosion Hazard: No particular fire or explosion hazard.

Reactivity: Hazardous reactions will not occur under normal conditions.

Advice for Firefighters

Precautionary Measures Fire: Fight fire with normal precautions from a reasonable distance.

Firefighting Instructions: Not flammable.

Protection During Firefighting: Use normal individual fire protective equipment.

Hazardous Combustion Products: Not applicable

Reference to Other Sections
Refer to section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
General Measures: Do not breathe dust. Avoid generation of dust during clean-up of spills. Recover the product by vacuuming, shovelling or sweeping. Vacuum must be fitted with HEPA filter to prevent release of particulates during clean-up.
For Non-Emergency Personnel
Protective Equipment: Wear suitable protective clothing, gloves and eye/face protection. Use recommended respiratory protection.
Emergency Procedures: Collect as any solid.
For Emergency Personnel Not applicable
Environmental Precautions Not applicable
Methods and Material for Containment and Cleaning Up
Methods for Cleaning Up: Avoid generation of dust during clean-up of spills. Recover the product by vacuuming, shovelling or sweeping. Vacuum must be fitted with HEPA filter to prevent release of particulates during clean-up.
Reference to Other Sections

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling
Additional Hazards When Processed: Do not breathe dust.
Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Always wash your hands immediately after handling this product, and once again before leaving the workplace. Do not eat, drink or smoke in areas where product is used.
Conditions for Safe Storage, Including Any Incompatibilities
Storage Conditions: Store in a dry, cool place. Keep container tightly closed.
Storage Area: Store in dry, cool area.
Special Rules on Packaging: Keep container closed when not in use.
Specific End Use(s) Hydraulic Fracturing

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Calcium oxide (1305-78-8)		
USA ACGIH	ACGIH TWA (mg/m³)	2 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	5 mg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	2 mg/m³
USA IDLH	US IDLH (mg/m³)	25 mg/m³
Alberta	OEL TWA (mg/m³)	2 mg/m³
British Columbia	OEL TWA (mg/m³)	2 mg/m³
Manitoba	OEL TWA (mg/m³)	2 mg/m³
New Brunswick	OEL TWA (mg/m³)	2 mg/m³
Newfoundland & Labrador	OEL TWA (mg/m³)	2 mg/m³
Nova Scotia	OEL TWA (mg/m³)	2 mg/m³
Nunavut	OEL STEL (mg/m³)	4 mg/m³
Nunavut	OEL TWA (mg/m³)	2 mg/m³
Northwest Territories	OEL STEL (mg/m³)	4 mg/m³
Northwest Territories	OEL TWA (mg/m³)	2 mg/m³
Ontario	OEL TWA (mg/m³)	2 mg/m³
Prince Edward Island	OEL TWA (mg/m³)	2 mg/m³
Québec	VEMP (mg/m³)	2 mg/m³
Saskatchewan	OEL STEL (mg/m³)	4 mg/m³
Saskatchewan	OEL TWA (mg/m³)	2 mg/m³
Yukon	OEL STEL (mg/m³)	4 mg/m³
Yukon	OEL TWA (mg/m³)	2 mg/m³

Magnesium oxide (1309-48-4)		
USA ACGIH	ACGIH TWA (mg/m³)	10 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	15 mg/m³
USA IDLH	US IDLH (mg/m³)	750 mg/m³
Alberta	OEL TWA (mg/m³)	10 mg/m³
British Columbia	OEL STEL (mg/m³)	10 mg/m³
British Columbia	OEL TWA (mg/m³)	3 mg/m³
Manitoba	OEL TWA (mg/m³)	10 mg/m³
New Brunswick	OEL TWA (mg/m³)	10 mg/m³
Newfoundland & Labrador	OEL TWA (mg/m³)	10 mg/m³
Nova Scotia	OEL TWA (mg/m³)	10 mg/m³
Nunavut	OEL STEL (mg/m³)	20 mg/m³
Nunavut	OEL TWA (mg/m³)	10 mg/m³
Northwest Territories	OEL STEL (mg/m³)	20 mg/m³
Northwest Territories	OEL TWA (mg/m³)	10 mg/m³
Ontario	OEL TWA (mg/m³)	10 mg/m³
Prince Edward Island	OEL TWA (mg/m³)	10 mg/m³
Québec	VEMP (mg/m³)	10 mg/m³
Saskatchewan	OEL STEL (mg/m³)	20 mg/m³
Saskatchewan	OEL TWA (mg/m³)	10 mg/m³
Yukon	OEL STEL (mg/m³)	10 mg/m³
Yukon	OEL TWA (mg/m³)	10 mg/m³

Iron oxide (Fe2O3) (1309-37-1)		
USA ACGIH	ACGIH TWA (mg/m³)	5 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	5 mg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	5 mg/m³
USA IDLH	US IDLH (mg/m³)	2500 mg/m³
Alberta	OEL TWA (mg/m³)	5 mg/m³
British Columbia	OEL STEL (mg/m³)	10 mg/m³
British Columbia	OEL TWA (mg/m³)	5 mg/m³
Manitoba	OEL TWA (mg/m³)	5 mg/m³
New Brunswick	OEL TWA (mg/m³)	10 mg/m³ (regulated under Rouge)
Newfoundland & Labrador	OEL TWA (mg/m³)	5 mg/m³
Nova Scotia	OEL TWA (mg/m³)	5 mg/m³
Nunavut	OEL TWA (mg/m³)	10 mg/m³ (total mass)
Northwest Territories	OEL TWA (mg/m³)	10 mg/m³ (total mass)
Ontario	OEL TWA (mg/m³)	5 mg/m³
Prince Edward Island	OEL TWA (mg/m³)	5 mg/m³
Québec	VEMP (mg/m³)	10 mg/m³ (containing no Asbestos and <1% Crystalline silica, regulated under Rouge)
Saskatchewan	OEL STEL (mg/m³)	20 mg/m³ (regulated under Rouge)
Saskatchewan	OEL TWA (mg/m³)	10 mg/m³ (regulated under Rouge)
Yukon	OEL STEL (mg/m³)	20 mg/m³ (regulated under Rouge)
Yukon	OEL TWA (mg/m³)	10 mg/m³ (regulated under Rouge)

Quartz (14808-60-7)		
USA ACGIH	ACGIH TWA (mg/m³)	0.025 mg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	0.05 mg/m³
USA IDLH	US IDLH (mg/m³)	50 mg/m³
Alberta	OEL TWA (mg/m³)	0.025 mg/m³
British Columbia	OEL TWA (mg/m³)	0.025 mg/m³

Manitoba	OEL TWA (mg/m³)	0.025 mg/m³
New Brunswick	OEL TWA (mg/m³)	0.1 mg/m³
Newfoundland & Labrador	OEL TWA (mg/m³)	0.025 mg/m³
Nova Scotia	OEL TWA (mg/m³)	0.025 mg/m³
Nunavut	OEL TWA (mg/m³)	0.3 mg/m³ (total mass)
Northwest Territories	OEL TWA (mg/m³)	0.3 mg/m³ (total mass)
Ontario	OEL TWA (mg/m³)	0.10 mg/m³ (designated substances regulation)
Prince Edward Island	OEL TWA (mg/m³)	0.025 mg/m³
Québec	VEMP (mg/m³)	0.1 mg/m³
Saskatchewan	OEL TWA (mg/m³)	0.05 mg/m³
Yukon	OEL TWA (mg/m³)	300 particle/mL

Exposure Controls

Appropriate Engineering Controls: Ensure adequate ventilation, especially in confined areas. Avoid dust production.

Personal Protective Equipment: In case of dust production: dustproof clothing. In case of dust production: protective goggles. Insufficient ventilation: wear respiratory protection.

Materials for Protective Clothing: Not available

Hand Protection: Not required for normal conditions of use.

Eye Protection: Safety glasses.

Skin and Body Protection: Wear suitable protective clothing. Wash contaminated clothing before reuse.

Respiratory Protection: Use NIOSH-approved air-purifying or supplied-air respirator where airborne concentrations of dust are expected to exceed exposure limits.

Consumer Exposure Controls: Do not breathe dust.Wear recommended personal protective equipment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	:	Solid
Appearance	:	Fine, angular, sugar-like particles, white, tan or pale gray.
Odor	:	Odorless
Odor Threshold	:	Not available
pH	:	Not available
Relative Evaporation Rate (butylacetate=1)	:	Not available
Melting Point	:	1710 °C (3110 °F)
Freezing Point	:	Not applicable
Boiling Point	:	2230 °C 4046 °F)
Flash Point	:	Not applicable
Auto-ignition Temperature	:	Not applicable
Decomposition Temperature	:	Not available
Flammability (solid, gas)	:	Not applicable
Lower Flammable Limit	:	Not applicable
Upper Flammable Limit	:	Not applicable
Vapor Pressure	:	Not available
Relative Vapor Density at 20 °C	:	Not available
Relative Density	:	Not available
Specific Gravity	:	2.7
Solubility	:	Negligible.
Log Pow	:	Not available

Log Kow	:	Not available
Viscosity, Kinematic	:	Not available
Viscosity, Dynamic	:	Not available
Explosive properties	:	None known.
Explosion Data – Sensitivity to Mechanical Impact	:	Not available
Explosion Data – Sensitivity to Static Discharge	:	Not available

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Hazardous reactions will not occur under normal conditions.

Chemical Stability: Stable under normal temperture and pressure.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Incompatible materials.

Incompatible Materials: Avoid strong oxidizers.

Hazardous Decomposition Products: Quartz (silica) will dissolve in hydroflouric acid producing a corrosive gas, silicon tetrafluoride.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity: Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Not classified.

Serious Eye Damage/Irritation: Not classified.

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Teratogenicity: Not available

Carcinogenicity: May cause cancer (Inhalation).

Specific Target Organ Toxicity (Repeated Exposure): Causes damage to organs (lung/respiratory system) through prolonged or repeated exposure (Inhalation).

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): May cause respiratory irritation.

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: May cause irritation to the respiratory tract, sneezing, coughing, burning sensation of throat with constricting sensation of the larynx and difficulty in breathing.

Symptoms/Injuries After Skin Contact: Prolonged contact with large amounts of dust may cause mechanical irritation. Dust may cause irritation in skin folds or by contact in combination with tight clothing.

Symptoms/Injuries After Eye Contact: Dust may cause mechanical irritation to eyes.

Symptoms/Injuries After Ingestion: Abdominal pain.

Frac Sand	
Additional information	Accelerated Silicosis can occur with exposure to high concentrations of respirable crystalline silica over a relatively short period; the lung lesions can appear within five years of the initial exposure. The progression can be rapid. Accelerated silicosis is similar to chronic or ordinary silicosis, except that the lung lesions appear earlier and the progression is more rapid. Acute Silicosis can occur with exposures to very high concentrations of respirable crystalline silica over a very short time period, sometimes as short as a few months. The symptoms of acute silicosis include progressive shortness of breath, fever, cough and weight loss. Acute silicosis can be fatal.

Chronic Symptoms: Respiratory difficulties. May cause cancer.

Frac Sand	
Additional information	Repeated or prolonged exposure to respirable crystalline silica dust will cause lung damage in the form of silicosis. Symptoms will include progressively more difficult breathing, cough, fever, and weight loss. Acute silicosis can be fatal.

Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Calcium oxide (1305-78-8)	
ATE (oral)	500.000 mg/kg
Iron oxide (Fe2O3) (1309-37-1)	
LD50 Oral Rat	> 10000 mg/kg
Quartz (14808-60-7)	
LD50 Oral Rat	> 5000 mg/kg
Iron oxide (Fe2O3) (1309-37-1)	
IARC Group	3
Quartz (14808-60-7)	
IARC Group	1
National Toxicity Program (NTP) Status	Known Human Carcinogens.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity Not classified

Calcium oxide (1305-78-8)	
LC50 Fish 1	1070 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [static])

Persistence and Degradability

Frac Sand	
Persistence and Degradability	Not readily biodegradable.

Bioaccumulative Potential

Frac Sand	
Bioaccumulative Potential	Not expected to bioaccumulate.
Calcium oxide (1305-78-8)	
BCF fish 1	(no bioaccumulation)

Mobility in Soil Not applicable

Other Adverse Effects Not available

SECTION 13: DISPOSAL CONSIDERATIONS

Regional Legislation (waste): Disposal must be done according to official regulations.

Waste Disposal Recommendations: Non hazardous waste

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT Not regulated for transport

14.2 In Accordance with IMDG Not regulated for transport

14.3 In Accordance with IATA Not regulated for transport

14.4 In Accordance with TDG Not regulated for transport

SECTION 15: REGULATORY INFORMATION

US Federal Regulations

Frac Sand	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard
Calcium oxide (1305-78-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Magnesium oxide (1309-48-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Iron oxide (Fe2O3) (1309-37-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

Quartz (14808-60-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

US State Regulations

Quartz (14808-60-7)	
U.S. - California - Proposition 65 - Carcinogens List	WARNING: This product contains chemicals known to the State of California to cause cancer.

Calcium oxide (1305-78-8)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Idaho - Occupational Exposure Limits - TWAs
U.S. - Massachusetts - Right To Know List
U.S. - Michigan - Occupational Exposure Limits - TWAs
U.S. - Minnesota - Hazardous Substance List
U.S. - Minnesota - Permissible Exposure Limits - TWAs
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
U.S. - New York - Occupational Exposure Limits - TWAs
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 8-Hour
U.S. - Oregon - Permissible Exposure Limits - TWAs
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Vermont - Permissible Exposure Limits - TWAs
U.S. - Washington - Permissible Exposure Limits - STELs
U.S. - Washington - Permissible Exposure Limits - TWAs
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 25 Feet to Less Than 40 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 40 Feet to Less Than 75 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 75 Feet or Greater
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights Less Than 25 Feet

Magnesium oxide (1309-48-4)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Idaho - Occupational Exposure Limits - TWAs
U.S. - Massachusetts - Right To Know List
U.S. - Michigan - Occupational Exposure Limits - TWAs
U.S. - Minnesota - Hazardous Substance List
U.S. - Minnesota - Permissible Exposure Limits - TWAs
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New York - Occupational Exposure Limits - TWAs
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 8-Hour
U.S. - Oregon - Permissible Exposure Limits - TWAs
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term

U.S. - Vermont - Permissible Exposure Limits - TWAs
U.S. - Washington - Permissible Exposure Limits - STELs
U.S. - Washington - Permissible Exposure Limits - TWAs

Iron oxide (Fe2O3) (1309-37-1)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Idaho - Occupational Exposure Limits - TWAs
U.S. - Massachusetts - Right To Know List
U.S. - Michigan - Occupational Exposure Limits - TWAs
U.S. - Minnesota - Hazardous Substance List
U.S. - Minnesota - Permissible Exposure Limits - TWAs
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New York - Occupational Exposure Limits - TWAs
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 8-Hour
U.S. - Oregon - Permissible Exposure Limits - TWAs
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Vermont - Permissible Exposure Limits - TWAs
U.S. - Washington - Permissible Exposure Limits - STELs
U.S. - Washington - Permissible Exposure Limits - TWAs
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 25 Feet to Less Than 40 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 40 Feet to Less Than 75 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 75 Feet or Greater
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights Less Than 25 Feet

Quartz (14808-60-7)
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Idaho - Occupational Exposure Limits - Mineral Dusts
U.S. - Illinois - Toxic Air Contaminant Carcinogens
U.S. - Illinois - Toxic Air Contaminants
U.S. - Maine - Chemicals of High Concern
U.S. - Massachusetts - Right To Know List
U.S. - Michigan - Occupational Exposure Limits - TWAs
U.S. - Minnesota - Chemicals of High Concern
U.S. - Minnesota - Hazardous Substance List
U.S. - Minnesota - Permissible Exposure Limits - TWAs
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
U.S. - Oregon - Permissible Exposure Limits - Mineral Dusts
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Vermont - Permissible Exposure Limits - TWAs

U.S. - Washington - Permissible Exposure Limits - STELs U.S. - Washington - Permissible Exposure Limits - TWAs

Canadian Regulations

Frac Sand	
WHMIS Classification	Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects

Calcium oxide (1305-78-8)	
Listed on the Canadian DSL (Domestic Substances List) inventory. Listed on the Canadian Ingredient Disclosure List	
WHMIS Classification	Class E - Corrosive Material

Magnesium oxide (1309-48-4)	
Listed on the Canadian DSL (Domestic Substances List) inventory. Listed on the Canadian Ingredient Disclosure List	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria

Iron oxide (Fe2O3) (1309-37-1)	
Listed on the Canadian DSL (Domestic Substances List) inventory. Listed on the Canadian Ingredient Disclosure List	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria

Quartz (14808-60-7)	
Listed on the Canadian DSL (Domestic Substances List) inventory. Listed on the Canadian Ingredient Disclosure List	
WHMIS Classification	Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by CPR.

SECTION 16: OTHER INFORMATION

Revision date : 01/17/2014

Indication of Changes : Revision date

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Carc. 1A	Carcinogenicity Category 1A
Comb. Dust	Combustible Dust
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Skin Corr. 1B	Skin corrosion/irritation Category 1B
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
	May form combustible dust concentrations in air
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H335	May cause respiratory irritation
H350	May cause cancer

H372	Causes damage to organs through prolonged or repeated exposure
H411	Toxic to aquatic life with long lasting effects

TO THE PURCHASER/END USER/CUSTOMER ("CUSTOMER"): CUSTOMER UNDERSTANDS AND ACKNOWLEDGES THAT THE SAND, AS DELIVERED OR AS APPLIED, MAY CONTAIN FREE SILICA. CUSTOMER HAS REVIEWED THE SAFETY DATA SHEET ("SDS") REGARDING THE SAND AND HAS INFORMED ITS EMPLOYEES AND AGENTS (I) NOT TO BREATHE EXCESSIVE AMOUNTS OF THE DUST, AND (II) OF ALL OTHER APPLICABLE RISKS CONTAINED IN SUCH SDS. CUSTOMER ACKNOWLEDGES THAT (i) IT IS FAMILIAR WITH RISKS POSED BY EXPOSURE TO PRODUCTS CONTAINING SILICA, (ii) IT IS AWARE THAT THE PROLONGED EXPOSURE TO SILICA DUST CONTAINED IN THE SAND MAY CAUSE SEVERE IRREVERSIBLE LUNG DAMAGE, AND SOME MEDICAL REPORTS INDICATE SUCH INHALATION MAY CAUSE LUNG CANCER, DEBILITATING ARTHRITIS, AND SKIN AND EYE IRRITATION, AND (iii) IT IS AWARE THAT PRODUCTS CONTAINING SILICA DUST SHOULD NOT BE USED WITHOUT THE ACCOMPANYING USE OF NIOSH/MSHA/OSHA APPROVED RESPIRATORY PROTECTIVE EQUIPMENT.

Party Responsible for the Preparation of This Document

Mississippi Sand, LLC (314) 219-7900

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

North America GHS US 2012 & WHMIS 2

Attachment I

EQUIPMENT LIST FORM

Attachment I

Emission Units Table

(includes all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status)

Emission Unit ID[1]	Emission Point ID[2]	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type[3] and Date of Change	Control Device[4]
TL01	TP01	Barge (Clamshell) to Truck - Loading	2015	110 tons/hr	NEW	NONE
TL02	E01	Truck Unloading	2015	110 tons/hr	NEW	UL-FE
SB01	E01	End Loader to Fully Enclosed Stockpile **(Load one stockpile at a time)	2015	13,335 tons/ 15,000 ft2	NEW	SL-FE
SB02	E01	End Loader to Fully Enclosed Stockpile **(Load one stockpile at a time)	2015	13,335 tons/ 7,000 ft2	NEW	SL-FE
SB03	E01	End Loader to Fully Enclosed Stockpile **(Load one stockpile at a time)	2015	13,335 tons/ 7,000 ft2	NEW	SL-FE
BS01	E01	Stockpile to Hopper	2015	55 tons/hr	NEW	UD-FE
BC01	E01	Hopper to Belt Conveyor	2015	55 tons/hr	NEW	TC-FE
BC02	E01	Belt Conveyor (BC01) to Belt Conveyor (BC02)	2015	55 tons/hr	NEW	TC-FE
TL03	TP07	BC02 to Product loading Truck	2015	55 tons/hr	NEW	LR-TC
TL01	FP01	Unpaved Haulroad - Fugitive Emission	2015	2 Trucks	NEW	WS
TL03	FP05	Paved Haulroad - Fugitive Emission	2015	7 Trucks	NEW	NONE

[1] For Emission Units (or Sources) use the following numbering system:1S, 2S, 3S,... or other appropriate designation.
[2] For Emission Points use the following numbering system:1E, 2E, 3E, ... or other appropriate designation.
[3] New, modification, removal
[4] For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.

Attachment J

EMISSION POINTS DATA SUMMARY SHEET

Attachment J
EMISSION POINTS DATA SUMMARY SHEET

Table 1: Emissions Data

Emission Point ID No. *(Must match Emission Units Table & Plot Plan)*	Emission Point Type[1]	Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)*		Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)*		Vent Time for Emission Unit *(chemical processes only)*		All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)*	Maximum Potential Uncontrolled Emissions[4]		Maximum Potential Controlled Emissions[5]		Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)*	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^4)
		ID No.	Source	ID No.	Device Type	Short Term[2]	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
Point Source Emissions															
TP01	Volume	TL01	Frac Sand - Transfer Point	NA	NA	NA	NA	PM PM10 PM2.5	1.065 0.504 0.230	2.323 1.099 0.502	1.065 0.504 0.230	2.323 1.099 0.502	Solid	AP-42, 13.2.4	NA
E01	Volume	TL02 SB01 SB02 SB03 BS01 BC01 BC02	Frac Sand - Transfer Point	NA	Full Enclosure	NA	NA	PM PM10 PM2.5	0.993 0.393 0.097	4.153 1.631 0.382	0.232 0.092 0.024	0.843 0.375 0.095	Solid	AP-42, 13.2.4 11.19.2-2	NA
TP07	Volume	TL03	Frac Sand - Transfer Point	NA	Full Enclosure – Telescopic Chute	NA	NA	PM PM10 PM2.5	0.165 0.061 0.017	0.720 0.264 0.074	0.041 0.015 0.004	0.066 0.017 0.018	Solid	AP-42, 11.19.2-2	NA
Fugitive Emissions															
FP01	Fugitive – Unpaved Haul Road	TL01	Fugitive Emission	NA	Water Spray	NA	NA	PM PM10 PM2.5	7.03 1.79 0.18	39.18 9.98 1.00	2.11 0.54 0.05	11.75 3.00 0.30	Solid	AP-42	NA
FP05	Fugitive – Paved Haul Road	TL03	Fugitive Emission	NA	NA	NA	NA	PM PM10 PM2.5	2.41 0.48 0.12	10.31 2.06 0.50	2.39 0.48 0.12	10.24 2.05 0.50	Solid	AP-42	NA

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

[1] Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

[2] Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

[3] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. **DO NOT LIST** H_2, H_2O, N_2, O_2, and Noble Gases.

[4] Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[5] Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[6] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

[7] Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m^3) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO_2, use units of ppmv (See 45CSR10).

Attachment J
EMISSION POINTS DATA SUMMARY SHEET

Table 2: Release Parameter Data								
Emission Point ID No. *(Must match Emission Units Table)*	Inner Diameter (ft.)	Exit Gas			Emission Point Elevation (ft)		UTM Coordinates (km)	
		Temp. (^{o}F)	Volumetric Flow [1] (acfm) *at operating conditions*	Velocity (fps)	Ground Level *(Height above mean sea level)*	Stack Height [2] *(Release height of emissions above ground level)*	Northing	Easting
E01	**3.5 ft x six (6) fans**	**Ambient**	**6,200 CFM**	**102.6**	**659 ft**	**12 ft**	**522.548**	**4,428.881**
TP07	**1.0 ft**	**Ambient**	**Drop Batch**	**Drop Batch**	**659 ft**	**12 ft**	**522.548**	**4,428.881**

[1] Give at operating conditions. Include inerts.
[2] Release height of emissions above ground level.

Attachment K

FUGITIVE EMISSIONS DATA SUMMARY SHEET

Attachment K

FUGITIVE EMISSIONS DATA SUMMARY SHEET

The FUGITIVE EMISSIONS SUMMARY SHEET provides a summation of fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. Note that uncaptured process emissions are not typically considered to be fugitive, and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET.

Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions).

APPLICATION FORMS CHECKLIST - FUGITIVE EMISSIONS
1.) Will there be haul road activities? ☒ Yes ☐ No ☒ If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.
2.) Will there be Storage Piles? ☒ Yes ☐ No ☒ If YES, complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET.
3.) Will there be Liquid Loading/Unloading Operations? ☐ Yes ☒ No ☐ If YES, complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET.
4.) Will there be emissions of air pollutants from Wastewater Treatment Evaporation? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
5.) Will there be Equipment Leaks (e.g. leaks from pumps, compressors, in-line process valves, pressure relief devices, open-ended valves, sampling connections, flanges, agitators, cooling towers, etc.)? ☐ Yes ☒ No ☐ If YES, complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS UNIT DATA SHEET.
6.) Will there be General Clean-up VOC Operations? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
7.) Will there be any other activities that generate fugitive emissions? ☒ Yes ☐ No ☒ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET or the most appropriate form.
If you answered "NO" to all of the items above, it is not necessary to complete the following table, "Fugitive Emissions Summary."

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants - Chemical Name/CAS [1]	Maximum Potential Uncontrolled Emissions [2]		Maximum Potential Controlled Emissions [3]		Est. Method Used [4]
		lb/hr	ton/yr	lb/hr	ton/yr	
Haul Road/Road Dust Emissions Paved Haul Roads	PM PM10 PM2.5	2.41 0.48 0.12	10.31 2.06 0.50	2.39 0.48 0.12	10.24 2.05 0.50	EE
Unpaved Haul Roads	PM PM10 PM2.5	7.03 1.79 0.18	39.18 9.98 1.00	2.11 0.54 0.05	11.75 3.00 0.30	EE
Storage Pile Emissions	PM PM10	0.19 0.09	0.81 0.38	0.04 0.02	0.16 0.08	EE
Loading/Unloading Operations						
Wastewater Treatment Evaporation & Operations						
Equipment Leaks		Does not apply		Does not apply		
General Clean-up VOC Emissions						
Other						

[1] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. DO NOT LIST H_2, H_2O, N_2, O_2, and Noble Gases.

[2] Give rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[3] Give rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[4] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

Attachment L

EMISSION UNIT DATA SHEETS

Attachment L
FUGITIVE EMISSIONS FROM UNPAVED HAULROADS

UNPAVED HAULROADS (including all equipment traffic involved in process, haul trucks, endloaders, etc.)

		PM	PM-10
k =	Particle size multiplier	0.80	0.36
s =	Silt content of road surface material (%)	4.8	4.8
p =	Number of days per year with precipitation >0.01 in.	157	157

Item Number	Description	Number of Wheels	Mean Vehicle Weight (tons)	Mean Vehicle Speed (mph)	Miles per Trip	Maximum Trips per Hour	Maximum Trips per Year	Control Device ID Number	Control Efficiency (%)
1	Truck Loading (Barge) #1	10	22.5	5	0.5	1.1	12,264	WS	70
2	Truck Loading (Barge) #2	10	22.5	5	0.5	1.1	12,264	WS	70
3									
4									
5									
6									
7									
8									

Source: *AP-42 Fifth Edition – 13.2.2 Unpaved Roads*

$E = k \times 5.9 \times (s \div 12) \times (S \div 30) \times (W \div 3)^{0.7} \times (w \div 4)^{0.5} \times ((365 - p) \div 365) =$ lb/Vehicle Mile Traveled (VMT)

Where:

		PM	PM-10
k =	Particle size multiplier	0.80	0.36
s =	Silt content of road surface material (%)	4.8	4.8
S =	Mean vehicle speed (mph)	5	5
W =	Mean vehicle weight (tons)	22.5	22.5
w =	Mean number of wheels per vehicle	10	10
p =	Number of days per year with precipitation >0.01 in.	157	157

For lb/hr: [lb ÷ VMT] × [VMT ÷ trip] × [Trips ÷ Hour] = lb/hr

For TPY: [lb ÷ VMT] × [VMT ÷ trip] × [Trips ÷ Hour] × [Ton ÷ 2000 lb] = Tons/year

SUMMARY OF UNPAVED HAULROAD EMISSIONS

Item No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
1	3.51	19.59	1.05	5.88	0.90	4.99	0.27	1.50
2	3.51	19.59	1.05	5.88	0.90	4.99	0.27	1.50
3								
4								
5								
6								
7								
8								
TOTALS	7.03	39.18	2.11	11.75	1.79	9.98	0.54	3.00

FUGITIVE EMISSIONS FROM PAVED HAULROADS

INDUSTRIAL PAVED HAULROADS (including all equipment traffic involved in process, haul trucks, endloaders, etc.)

I =	Industrial augmentation factor (dimensionless)	See Attachment N - AP42
n =	Number of traffic lanes	See Attachment N - AP42
s =	Surface material silt content (%)	See Attachment N - AP42
L =	Surface dust loading (lb/mile)	See Attachment N - AP42

Item Number	Description	Mean Vehicle Weight (tons)	Miles per Trip	Maximum Trips per Hour	Maximum Trips per Year	Control Device ID Number	Control Efficiency (%)
1	Truck Loading (Product) #1	20	0.5	0.4	3,429	NA	0
2	Truck Loading (Product) #2	20	0.5	0.4	3,429	NA	0
3	Truck Loading (Product) #3	20	0.5	0.4	3,429	NA	0
4	Truck Loading (Product) #4	20	0.5	0.4	3,429	NA	0
5	Truck Loading (Product) #5	20	0.5	0.4	3,429	NA	0
6	Truck Loading (Product) #6	20	0.5	0.4	3,429	NA	0
7	Truck Loading (Product) #7	20	0.5	0.4	3,429	NA	0
8	Front End Loader	10	0.1	0.34	3,000	SL-FE	80

Source: *AP-42 Fifth Edition – 11.2.6 Industrial Paved Roads*

$E = 0.077 \times I \times (4 \div n) \times (s \div 10) \times (L \div 1000) \times (W \div 3)^{0.7}$ = lb/Vehicle Mile Traveled (VMT)

Where:

I =	Industrial augmentation factor (dimensionless)	See Attachment N - AP42
n =	Number of traffic lanes	See Attachment N - AP42
s =	Surface meterial silt content (%)	See Attachment N - AP42
L =	Surface dust loading (lb/mile)	See Attachment N - AP42
W =	Average vehicle weight (tons)	See Attachment N - AP42

For lb/hr: [lb ÷ VMT] × [VMT ÷ trip] × [Trips ÷ Hour] = lb/hr

For TPY: [lb ÷ VMT] × [VMT ÷ trip] × [Trips ÷ Hour] × [Ton ÷ 2000 lb] = Tons/year

SUMMARY OF PAVED HAULROAD EMISSIONS

Item No.	Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY
1	0.34	1.46	0.34	1.46
2	0.34	1.46	0.34	1.46
3	0.34	1.46	0.34	1.46
4	0.34	1.46	0.34	1.46
5	0.34	1.46	0.34	1.46
6	0.34	1.46	0.34	1.46
7	0.34	1.46	0.34	1.46
8	0.02	0.09	0.00	0.02
TOTALS	2.41	10.31	2.39	10.24

CONVEYS, HOPPERS, AND TRANSFER POINTS
AFFECTED SOURCE SHEET

Source Identification Number[1]	Date of Construction, Reconstruction, or Modification (Month/Year)[2]	Type of Material Handled[3]	Size of Material Handled[4]	Maximum Material Transfer Rate[5]		Average Moisture Content (%)[6]	Control Device[7]
				tons/hour	tons/year		
Conveyors and Hopper							
BC01	06/2015	SM	0.8 – 0.5 millimeters	55	480,000	1	FE
BC02	06/2015	SM	0.8 – 0.5 millimeters	55	480,000	1	FE
BS01	06/2015	SM	0.8 – 0.5 millimeters	55	480,000	1	FE
Transfer Points							
TP01	06/2015	SM	0.8 – 0.5 millimeters	110	480,000	1	NE
TP02	06/2015	SM	0.8 – 0.5 millimeters	110	480,000	1	UL-FE
TP03	06/2015	SM	0.8 – 0.5 millimeters	55	480,000	1	SL-FE
TP04	06/2015	SM	0.8 – 0.5 millimeters	55	480,000	1	UD-FE
TP05	06/2015	SM	0.8 – 0.5 millimeters	55	480,000	1	TC-FE
TP06	06/2015	SM	0.8 – 0.5 millimeters	55	480,000	1	TC-FE
TP07	06/2015	SM	0.8 – 0.5 millimeters	55	480,000	1	LR-TC

1. Enter the appropriate Source Identification Number for each conveyor using the following codes. For example, multiple belt conveyors should be designated BC-1, BC-2, BC-3 etc. Transfer points are considered emission points, not sources, and should not be included in the *Conveying Affected Source Sheet*. Transfer Point Identification Numbers shall be assigned in the *Emission Calculation Sheet*.

BC	Belt Conveyor	BE	Bucket Elevator	DL	Drag-link Conveyor
PS	Pneumatic System	SC	Screw Conveyor	VC	Vibrating Conveyor
OT	Other				

2. Enter the date that each crusher and screen was constructed, reconstructed, or modified.
3. Enter the type of material being handled - Raw Material (RM) Sized Material (SM) Refuse (R) Other (O)
4. Enter the nominal size of the material being conveyed (e.g. sized material- ¾" x 0). If more than one material is handled by the listed conveyor, list each material and enter the appropriate data for each material.
5. Enter the maximum material transfer rate for each conveyor in tons per hour and tons per year.
6. Enter the average percent moisture content of the conveyed material.
7. Enter the control device for the conveyor. PE - Partial Enclosure (example 3/4 hoop), FE - Full Enclosure, N – None

STORAGE ACTIVITY
AFFECTED SOURCE SHEET

Source Identification Number[1]	SB01	SB02	SB03			
Type of Material Stored[2]	Sized Material	Sized Material	Sized Material			
Average Moisture Content (%)[3]	1%	1%	1%			
Maximum Yearly Storage Throughput (tons)[4]	160,000*	160,000*	160,000*	*Each stockpile will contain varying grades of sand. Maximum stockpile storage throughput will vary, but will not exceed facility maximum of 480,000 tons.		
Maximum Storage Capacity (tons)[5]	13,335	13,335	13,335			
Maximum Base Area (ft^2)[6]	15,000**	7,000	7,000	**SB01 is a larger stockpile, but will contain equal amounts of sand as SB02 and SB03.		
Maximum Pile Height (ft)[7]	12	12	12			
Method of Material Load-in[8]	FE	FE	FE			
Load-in Control Device Identification Number[9]	SL-FE	SL-FE	SL-FE			
Storage Control Device Identification Number[9]	FE	FE	FE			
Method of Material Load-out[8]	FE	FE	FE			
Load-out Control Device Identification Number[9]	UD-FE	UD-FE	UD-FE			

1. Enter the appropriate Source Identification Number for each storage activity using the following codes. For example, if the facility utilizes three storage bins, four open stockpiles and one storage building (full enclosure), the Source Identification Numbers should be BS-1, BS-2, and BS-3; OS-1, OS-2, OS-3, and OS-4; and SB-1, respectively.
   - BS Bin or Storage Silo (full enclosure)
   - E3 Enclosure (three sided enclosure)
   - OS Open Stockpile
   - SB Storage Building (full enclosure)
   - SF Stockpiles with wind fences
   - OT Other
2. Describe the type of material stored or stockpiled. (e.g. sized material, raw material, refuse, etc).
3. Enter the average percent moisture content of the stored material.
4. Enter the maximum yearly storage throughput for each storage activity.
5. Enter the maximum storage capacity for each storage activity in tons (e.g. silo capacity, maximum stockpile size, etc.)
6. For stockpiles, enter the maximum stockpile base area.
7. For stockpiles, enter the maximum stockpile height.
8. Enter the method of load-in or load-out to/from stockpiles or bins using the following codes:
   - CS Clamshell
   - SS Stationary Conveyor/Stacker
   - FC Fixed Height Chute from Bins
   - ST Stacking Tube
   - FE Front Endloader
   - TC Telescoping Chute from Bins
   - MC Mobile Conveyor/Stacker
   - TD Truck Dump
   - UC Under-pile or Under-Bin Reclaim Conveyor
   - PC Pneumatic Conveyor/Stacker
   - RC Rake or Bucket Reclaim Conveyor
   - OT Other
9. Enter the appropriate Control Device Identification Number for each storage activity. Refer to Table A - *Control Device Listing* and *Control Device Identification Number Instructions* in the *Reference Document* for Control Device ID prefixes and numbering.

Attachment M

AIR POLLUTION CONTROL DEVICE SHEETS (NOT APPLICABLE)

Attachment N

SUPPORTING EMISSIONS CALCULATIONS

INPUTS

Include all information for each emission source and transfer point as listed in the permit application.

Name of applicant: **Mississippi Sand, LLC**
Name of plant: **Benwood Terminal**

1. TRANSFER POINTS (including all conveyor transfer points, equipment transfer points etc.)

		PM	PM-10
k =	Particle Size Multiplier (dimensionless)	0.74	0.35
U =	Mean Wind Speed (mph)	7	

Transfer Point ID No.	Transfer Point Description Include ID Numbers of all conveyors, crushers, screens, stockpiles, etc. involved	Material Moisture Content %	Maximum Transfer Rate TPH	Maximum Transfer Rate TPY	Control Device ID Number	Control Efficiency %
TP01	Barge to loading truck	1	110	480,000	NE	0
TP02	Truck unloading	1	110	480,000	UL-FE	70
TP03	End loader to storage pile	1	55	480,000	SL-FE	80
TP04	End loader to hopper	1	55	480,000	UD-FE	70
TP05	Hopper to belt (BC01)	1	55	480,000	TC-FE	80
TP06	Belt (BC01) to belt (BC02)	1	55	480,000	TC-FE	80
TP07	Belt (BC02) to loading truck	1	55	480,000	LR-TC	75

2. WIND EROSION OF STOCKPILES (including all stockpiles of raw coal, clean coal, coal refuse, etc.)

p =	number of days per year with precipitation >0.01 inch	157
f =	percentage of time that the unobstructed wind speed exceeds 12 mph at the mean pile height	100

Source ID No.	Stockpile Description	Silt Content of Material %	Stockpile base area Max. sqft	Control Device ID Number	Control Efficiency %
SB01	Stockpile 1	1	15,000	SL-FE	80
SB02	Stockpile 2	1	7,000	SL-FE	80
SB03	Stockpile 3	1	7,000	SL-FE	80

3. UNPAVED HAULROADS (including all equipment traffic involved in process, haul trucks, endloaders, etc.)

s =	silt content of road surface material (%)	4.8
p =	number of days per year with precipitation >0.01 inch	157
M_{dry} =	surface material moisture content (%) - dry conditions	0.2

Item Number	Description	Number of wheels	Mean Vehicle Weight(tons)	Mean Vehicle Speed (mph)	Miles per Trip	Maximum Trips Per Hour	Maximum Trips Per Year	Control Device ID Number	Control Efficiency %
1	Truck Loading (Barge) Truck #1	10	22.5	5	0.5	1.1	12,264	HR-WS	70
2	Truck Loading (Barge) Truck #2	10	22.5	5	0.5	1.1	12,264	HR-WS	70

4. INDUSTRIAL PAVED HAULROADS (including all equipment traffic involved in process, haul trucks, endloaders, etc.)

sL =	road surface silt loading, (g/ft^2)	70
P =	number of days per year with precipitation >0.01 inch	157

Item Number	Description	Mean Vehicle Weight (tons)	Miles per Trip	Maximum Trips Per Hour	Maximum Trips Per Year	Control Device ID Number	Control Efficiency %
1	Truck Loading (Product) Truck #1	20	0.5	0.4	3429	NA	0
2	Truck Loading (Product) Truck #2	20	0.5	0.4	3429	NA	0
3	Truck Loading (Product) Truck #3	20	0.5	0.4	3429	NA	0
4	Truck Loading (Product) Truck #5	20	0.5	0.4	3429	NA	0
5	Truck Loading (Product) Truck #5	20	0.5	0.4	3429	NA	0
6	Truck Loading (Product) Truck #6	20	0.5	0.4	3429	NA	0
7	Truck Loading (Product) Truck #7	20	0.5	0.4	3429	NA	0
8	Front End Loader	10	0.1	0.34	3000	SL-FE	80

FACILITY WIDE - EMISSIONS SUMMARY

Name of applicant: Mississippi Sand, LLC
Name of plant: Benwood Terminal

Particulate Matter (PM)

	Uncontrolled PM		Controlled PM	
	lb/hr	TPY	lb/hr	TPY
FUGITIVE EMISSIONS				
Stockpile Emissions	0.19	0.81	0.04	0.16
Unpaved Haulroad Emissions	7.03	39.18	2.11	11.75
Paved Haulroad Emissions	2.41	10.31	2.39	10.24
Fugitive Emissions Total	**9.62**	**50.30**	**4.53**	**22.16**
POINT SOURCE EMISSIONS				
Transfer Point Emissions	1.85	5.57	1.26	2.99
Point Source Emissions Total	**1.85**	**5.57**	**1.26**	**2.99**
Facility Emissions Total	**11.47**	**55.87**	**5.79**	**25.14**

Particulate Matter (PM-10)

	Uncontrolled PM-10		Controlled PM-10	
	lb/hr	TPY	lb/hr	TPY
FUGITIVE EMISSIONS				
Stockpile Emissions	0.09	0.38	0.02	0.08
Unpaved Haulroad Emissions	1.79	9.98	0.54	3.00
Paved Haulroad Emissions	0.48	2.06	0.48	2.05
Fugitive Emissions Total	**2.36**	**12.43**	**1.03**	**5.12**
POINT SOURCE EMISSIONS				
Transfer Point Emissions	0.81	2.33	0.58	1.39
Point Source Emissions Total	**0.81**	**2.33**	**0.58**	**1.39**
Facility Emissions Total	**3.16**	**14.76**	**1.61**	**6.51**

Particulate Matter (PM-2.5)

	Uncontrolled PM-2.5		Controlled PM-2.5	
	lb/hr	TPY	lb/hr	TPY
FUGITIVE EMISSIONS				
Stockpile Emissions	0.00	0.00	0.00	0.00
Unpaved Haulroad Emissions	0.18	1.00	0.05	0.30
Paved Haulroad Emissions	0.12	0.50	0.12	0.50
Fugitive Emissions Total	**0.30**	**1.50**	**0.17**	**0.80**
POINT SOURCE EMISSIONS				
Transfer Point Emissions	0.33	0.88	0.25	0.59
Point Source Emissions Total	**0.33**	**0.88**	**0.25**	**0.59**
Facility Emissions Total	**0.62**	**2.38**	**0.42**	**1.40**

ENCLOSED BUILDING - EMISSIONS SUMMARY (E01)

Emission Location	PM				PM-10				PM-2.5			
	Uncontrolled		Controlled		Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Transfer Points												
TP02 (1)(b)	0.085	0.185	0.025	0.056	0.040	0.088	0.012	0.026	0.018	0.040	0.006	0.012
TP03 (1)(b)	0.042	0.185	0.008	0.037	0.020	0.088	0.004	0.018	0.009	0.040	0.002	0.008
TP04 (2)(iii)	0.165	0.720	0.050	0.216	0.061	0.264	0.018	0.079	0.017	0.074	0.005	0.022
TP05 (2)(i)	0.165	0.720	0.033	0.144	0.061	0.264	0.012	0.053	0.017	0.074	0.003	0.015
TP06 (2)(i)	0.165	0.720	0.033	0.144	0.061	0.264	0.012	0.053	0.017	0.074	0.003	0.015
TP07 (2)(ii)	0.165	0.720	0.041	0.066	0.061	0.264	0.015	0.066	0.017	0.074	0.004	0.018
Stockpile												
SB01	0.096	0.420	0.019	0.084	0.045	0.198	0.009	0.040				
SB02	0.045	0.196	0.009	0.039	0.021	0.092	0.004	0.018				
SB03	0.045	0.196	0.009	0.039	0.021	0.092	0.004	0.018				
Paved Haul Roads												
Front End Loader	0.020	0.090	0.004	0.018	0.004	0.018	0.001	0.004	0.001	0.004	0.001	0.004
TOTALS	0.993	4.153	0.232	0.843	0.393	1.631	0.092	0.375	0.097	0.382	0.024	0.095

1. Emissions From TRANSFER POINTS

Transfer Point ID No.	PM				PM-10				PM-2.5			
	Uncontrolled		Controlled		Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
TP01 (1)(a)	1.065	2.323	1.065	2.323	0.504	1.099	0.504	1.099	0.230	0.502	0.230	0.502
TP02 (1)(b)	0.085	0.185	0.025	0.056	0.040	0.088	0.012	0.026	0.018	0.040	0.006	0.012
TP03 (1)(b)	0.042	0.185	0.008	0.037	0.020	0.088	0.004	0.018	0.009	0.040	0.002	0.008
TP04 (2)(iii)	0.165	0.720	0.050	0.216	0.061	0.264	0.018	0.079	0.017	0.074	0.005	0.022
TP05 (2)(i)	0.165	0.720	0.033	0.144	0.061	0.264	0.012	0.053	0.017	0.074	0.003	0.015
TP06 (2)(i)	0.165	0.720	0.033	0.144	0.061	0.264	0.012	0.053	0.017	0.074	0.003	0.015
TP07 (2)(ii)	0.165	0.720	0.041	0.066	0.061	0.264	0.015	0.066	0.017	0.074	0.004	0.018
TOTALS	1.852	5.573	1.255	2.985	0.806	2.330	0.577	1.393	0.326	0.880	0.254	0.593

Emission Factors

(1) Emissions From Batch Drop

Source: AP42, Fifth Edition, Revised 11/2006

13.2.4 Aggregate Handling and Storage Piles

E = k*(0.0032) * [(U/5)^1.3]/[(M/2)^1.4] = pounds/ton

Where:		PM	PM-10	PM-2.5
k =	Particle Size Multiplier (dimensionless)	0.74	0.35	0.16
U =	Mean Wind Speed (mph)			
	(a) Outdor = 7 **(b) Indoor = 1**			
M =	Material Moisture Content (%) **1%**			

Assumptions:

k - Particle size multiplier

For PM (< or equal to 30um) k = 0.74

For PM-10 (< or equal to 10um) k = 0.35

For PM-2.5 < or equal to 2.5um) k=0.16

(2) Conveyor Belt Transfer

Source: AP42, 11.19.2 Crushed Stone Processing and Pulverized Mineral Processing

Table 11.19.2-2 Emission Factors for Crushed Stone Processing Operations

Uncontrolled Emission Factor		**(i) Controlled Emission Factor (Fully Enclosed - 80%)**		**(ii) Controlled Emission Factor (Fully Enclosed - 75%)**		**(iii) Controlled Emission Factor (Fully Enclosed - 70%)**	
PM =	0.003 lb/ton	PM =	0.0006 lb/ton	PM =	0.00075 lb/ton	PM =	0.0009 lb/ton
PM-10 =	0.0011 lb/ton	PM-10 =	0.00022 lb/ton	PM-10 =	0.000275 lb/ton	PM-10 =	0.00033 lb/ton
PM-2.5 =	0.00031 lb/ton	PM-2.5 =	0.000062 lb/ton	PM-2.5 =	0.000077 lb/ton	PM-2.5 =	0.000093 lb/ton

2. Emissions From WIND EROSION OF STOCKPILES

Stockpile ID No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
SB01	0.096	0.420	0.019	0.084	0.045	0.198	0.009	0.040
SB02	0.045	0.196	0.009	0.039	0.021	0.092	0.004	0.018
SB03	0.045	0.196	0.009	0.039	0.021	0.092	0.004	0.018
TOTALS	0.186	0.813	0.037	0.163	0.087	0.382	0.017	0.076

Source:
Air Pollution Engineering Manual

Storage Pile Wind Erosion (Active Storage)

E = 1.7*[s/1.5]*[(365-p)/235]*[f/15] = (lb/day/acre)

Where:

s =	silt content of material
p =	number of days with >0.01 inch of precipitation per year
f =	percentage of time that the unobstructed wind speed
	exceeds 12 mph at the mean pile height

3. Emissions From UNPAVED HAULROADS

Item No.	PM				PM-10				PM-2.5			
	Uncontrolled		Controlled		Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
1	3.51	19.59	1.05	5.88	0.90	4.99	0.27	1.50	0.09	0.50	0.03	0.15
2	3.51	19.59	1.05	5.88	0.90	4.99	0.27	1.50	0.09	0.50	0.03	0.15
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	7.03	39.18	2.11	11.75	1.79	9.98	0.54	3.00	0.18	1.00	0.05	0.30

Source:
AP42, Fifth Edition, Revised 11/2006
13.2.2 Unpaved Roads

Emission Estimate For Unpaved Haulroads at Industrial Sites (equation 1)

E= k*((s/12)^a)*((W/3)^b) =lb/vmt

Where:

		PM	PM-10	PM-2.5
k =	particle size multiplier	4.90	1.50	0.15
a =	empirical constant	0.7	0.9	0.9
b =	empirical constant	0.45	0.45	0.45

Emission Factors

For PM E= (($I$35)*(((Inputs!$I$163)/12)^($I$36))*(((Inputs!H171)/3)^$I$37))

For PM-10 E= (($J$35)*(((Inputs!$I$163)/12)^($J$36))*(((Inputs!H171)/3)^$J$37))

For lb/hr (lb/vmt)*(miles per trip)*(Max trips per hour)

For Ton/yr (lb/vmt)*(miles per trip)*(Max trips per year)*(1/2000)

4. Emissions From INDUSTRIAL PAVED HAULROADS

Item No.	PM				PM-10				PM-2.5			
	Uncontrolled		Controlled		Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
1	0.34	1.46	0.34	1.46	0.07	0.29	0.07	0.29	0.02	0.07	0.02	0.07
2	0.34	1.46	0.34	1.46	0.07	0.29	0.07	0.29	0.02	0.07	0.02	0.07
3	0.34	1.46	0.34	1.46	0.07	0.29	0.07	0.29	0.02	0.07	0.02	0.07
4	0.34	1.46	0.34	1.46	0.07	0.29	0.07	0.29	0.02	0.07	0.02	0.07
5	0.34	1.46	0.34	1.46	0.07	0.29	0.07	0.29	0.02	0.07	0.02	0.07
6	0.34	1.46	0.34	1.46	0.07	0.29	0.07	0.29	0.02	0.07	0.02	0.07
7	0.34	1.46	0.34	1.46	0.07	0.29	0.07	0.29	0.02	0.07	0.02	0.07
8	0.02	0.09	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	2.41	10.31	2.39	10.24	0.48	2.06	0.48	2.05	0.12	0.50	0.12	0.50

Source:
AP42, Fifth Edition, Revised 11/2006
13.2.1 PAVED ROADS
k multiplier = Table 13.2.1-1

Emission Estimate For Paved Haulroads

E = [k * (sL/2)^0.65 * (W/3)^1.5 - C] * (1 - (P/4*N) = lb / Vehicle Mile Traveled (VMT)

Where:

		PM	PM-10	PM-2.5
k =	particle size multiplier	0.011	0.002	0.00054
sL =	road surface silt loading, (g/ft^2)	70		
P =	number of days per year with precipitation >0.01 inch	157		
N =	number of days in averaging period	365		
C=	factor for exhaust, brake wear and tire wear	0.00047	0.00047	

Emission Factors

For PM E= ($I$34*((($I$35)/2)^0.65)*(((Inputs!G190)/3)^1.5)-($I$38))*(1-((Inputs!$I$184)/(4*365)))

For PM-10 E= ($J$34)*((($I$35)/2)^0.65)*(((Inputs!G190)/3)^1.5))-($I$38))*(1-((Inputs!$I$184)/(4*365))

For lb/hr (lb/vmt)*(miles per trip)*(Max trips per hour)

For Ton/yr (lb/vmt)*(miles per trip)*(Max trips per year)*(1/2000)

Attachment O

MONITORING, REPORTING, AND RECORDKEEPING PLAN

Attachment O
Monitoring, Recordkeeping, Reporting, Testing Plans.

Mississippi Sand, LLC will comply with all of the monitoring, recordkeeping, reporting, and testing requirements established in the issued permit for the Benwood Terminal.

Attachment P

PUBLIC NOTICE

Attachment P

AIR QUALITY PERMIT NOTICE
Notice of Application

Notice is given that Mississippi Sand, LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Rule 13 Permit Application for an industrial sand storage and handling facility located on McMechan Street, Benwood, in Marshall County, West Virginia. The latitude and longitude coordinates are: 40.00983, -80.73580.

The applicant estimates the potential to discharge the following regulated air pollutants on a facility-wide basis will be:

Particulate Matter (PM) = 25.14 tpy
Particulate Matter (PM10) = 6.51 tpy
Particulate Matter (PM2.5) = 1.40 tpy

Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1250, during normal business hours.

Dated this the XX day of October, 2015.

By: Mississippi Sand, LLC
Jason Bish
Vice President – Safety and Regulatory Management
1716 Hidden Creek Court, Ste 150
St. Louis, MO 63131

Attachment Q

BUSINESS CONFIDENTIAL CLAIMS

Attachment Q
Business Confidential Claims

There is no confidential information associated with this permit application.

Attachment R

AUTHORITY FORMS

(NOT APPLICABLE)

Attachment S

TITLE V PERMIT

(NOT APPLICABLE)