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**west virginia department of environmental protection**

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Earl Ray Tomblin, Governor  
Randy C. Huffman, Cabinet Secretary  
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**ENGINEERING EVALUATION / FACT SHEET**

**BACKGROUND INFORMATION**

Application No.: R13-3038  
Plant ID No.: 095-00025  
Applicant: Steve Simpson & Associates, Inc.  
Facility Name: Bens Run Facility  
Location: Near Bens Run, Tyler County  
NAICS Code: 325998  
Application Type: Construction  
Received Date: January 22, 2013  
Engineer Assigned: Joe Kessler  
Fee Amount: \$1,000  
Date Received: January 25, 2013  
Complete Date: February 20, 2013  
Due Date: May 21, 2013  
Applicant's Ad Date: January 30, 2013  
Newspaper: *Tyler Star News*  
UTM's: Easting: 491.561 km Northing: 4,369.371 km Zone: 17  
Description: Construction of a 4,866,667 gallons per year synthetic drilling-mud mixing facility.

**DESCRIPTION OF PROCESS**

On January 22, 2013, Steve Simpson & Associates, Inc. (SSA) submitted a permit for the construction and operation of a synthetic drilling mud mixing system to be located in the Bens Run Industrial Park near Bens Run, Tyler County, WV. Synthetic drilling mud is used in the process of natural gas drilling to protect and isolate wells from water penetration and decay.

At the Bens Run Facility, SSA is proposing to install three (3) mud mixing tanks (1S through 3S) to produce three (3) different mud mixtures. All three mixing systems will be located inside a building that will have large doors on either end for deliveries and product loading. The mixing process will be done by manually adding dry material from bags (cut open and poured in by plant personnel) into a hopper where it is transferred to the appropriate mixer and then combining the dry

additives with liquid material pumped into the mixers from totes. As such, the only emission points from the process will be the transfer point where the dry bagged material is added to a hopper and the truck/forklift activity unpaved road/work areas emissions. No VOC-containing liquids will be used in the mixing process. The maximum aggregate production rate of the facility is estimated to be 4,866,667 gallons per year. Finished mud will be loaded into totes and trucked from the facility. The proposed facility will no emergency generators or other combustion sources.

**SITE INSPECTION**

On February 27, 2013 the writer conducted an inspection of the proposed location of the Bens Run Facility. At the time of the inspection, site preparation activities were underway that included making repairs to an existing building on the site and setting up of an office trailer. Other observations from the inspection include:

- The state of WV is preparing to create a new access road to the proposed facility off of WV State Route 2;
- The proposed facility will be located in the Bens Run Industrial Park adjacent to an existing Aleris recycling facility.
- The proposed location is in an industrial location with no occupied residences visible from the site. The nearest occupied residences are located approximately 0.65 miles south of the proposed facility in Bens Run.

*Directions:* [Latitude: 39.47445, Longitude: -81.09804] The proposed facility will be located approximately 1.0 mile north of Bens Run, WV in the Bens Run Industrial Park off of WV State Route 2.

**AIR EMISSIONS AND CALCULATION METHODOLOGIES**

Particulate matter emissions from material handling and haulroad/mobile work areas were based on the following AP-42 Sections:

**Table 1: Sources of Emission Factors for Particulate Matter**

<b>Emission Source</b>	<b>Emission Factor(s)</b>	<b>Emission Factor Source</b>	<b>Comments</b>
Dry Additive Loading	0.24 lb-PM/ton-additive, 0.12 lb-PM <sub>10</sub> /ton-additive, 0.02 lb- PM <sub>2.5</sub> /ton-additive	AP-42 Section 12.3 (7/93)	Uncontrolled. Maximum annual throughput based on total weight of produced mud conservatively estimated to be composed of only dry material.
Unpaved Haulroads & Mobile Work Areas	Various	AP-42 Section 13.2.2 (11/06)	Uncontrolled. Based on mean vehicle weights (various), percent silt in road surface (10%), and number of precipitation days (157).

Emissions from the material handling sources were calculated using the above emission factors and maximum hourly (2.5 tons/hour) and annual throughputs (21,900 tons/year). The facility-wide potential-to-emit (PTE) is given in the following table:

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**Table 2: Facility-Wide PTE**

Section	Potential-To-Emit					
	PM <sub>2.5</sub>		PM <sub>10</sub>		PM	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Transfer Points	0.04	0.19	0.29	1.26	0.61	2.66
Unpaved Haulroads & Mobile Work Areas	0.49	0.51	4.88	5.04	16.55	17.07
<b>Total Facility-Wide</b>	<b>0.53</b>	<b>0.70</b>	<b>5.17</b>	<b>6.30</b>	<b>17.16</b>	<b>19.73</b>

## **REGULATORY APPLICABILITY**

The proposed Bens Run Facility is subject to the following substantive state air quality rules and regulations: 45CSR7 and 45CSR13. Each applicable rule (and those that have questionable non-applicability), and SSA's compliance therewith, will be discussed in detail below.

### ***45CSR7: To Prevent and Control Particulate Air Pollution from Manufacturing Process Operations***

45CSR7 has three substantive requirements potentially applicable to the particulate matter-generating operations at the synthetic mud mixing facility. These are the opacity requirements under Section 3, the mass emission standards under Section 4, and the fugitive emission standards under Section 5. Each of these sections will be discussed below.

#### **45CSR7 Opacity Standards - Section 3**

Section 3.1 sets an opacity limit of 20% on the dry additive transfer point. The dry additive transfer point shall be inside a building and required to be done in such a manner so as to minimize any fugitive escape of particulate matter. This should mitigate any opacity problems from this source.

#### **45CSR7 Weight Emission Standards - Section 4**

Section 4.1 of 45CSR7 requires that each manufacturing process source operation or duplicate source operation meet a particulate matter limit based on the weight of material processed through the source operation. The mixing operations are defined as a type 'a' source type operation under §45-7-2.38. The aggregate maximum amount of material charged through all the mixing operations is 5,000 pounds per hour (lb/hr). Based on Table 45-7A, the aggregate particulate matter limit for all woodworking lines would be 5.0 lb/hr. The maximum aggregate particulate matter emission rate from the dry additive transfer point is 0.61 lbs/hr, or 12.2% of the 45CSR7 limit.

## 45CSR7 Fugitive Emissions - Section 5

Sections 5.1 and 5.2 of Rule 7 states that each manufacturing process or storage structure must include a system to minimize the emissions of fugitive particulate matter. The potential fugitive particulate emissions from the facility are the storage and use of the dry additives and the haulroads/plant mobile work areas. The draft permit requires the following under 4.1.3. and 4.1.4.:

- 4.1.3. Fugitive escape of particulate matter from use of dry additives shall be mitigated by the following:
- a. All addition of dry additive to the mixers shall be done inside a building and in such a manner so as to minimize any fugitive escape of particulate matter;
  - b. The building and plant grounds shall be regularly cleaned of any spilled dry additives; and
  - c. Dry additives shall be delivered to the facility in bags and stored while bagged until they are used in the mixing process.
- 4.1.4. The permittee shall maintain all paved and unpaved areas on plant grounds, including shoulder areas, where truck traffic or forklift activity may occur.

These methods of control are determined to be sufficient to meet Section 5 of 45CSR7.

### ***45CSR13: Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation***

The proposed construction of the Bens Run Facility has a potential to emit in excess of six (6) lbs/hour and ten (10) tons/year (TPY) of a regulated pollutant (PM) and, therefore, pursuant to §45-13-2.24, the construction is defined as a “stationary source” under 45CSR13. Pursuant to §45-13-5.1, “[n]o person shall cause, suffer, allow or permit the construction . . . and operation of any stationary source to be commenced without . . . obtaining a permit to construct.” Therefore, SSA is required to obtain a permit under 45CSR13 for the construction and operation of the facility.

As required under §45-13-8.3 (“Notice Level A”), SSA placed a Class I legal advertisement in a “newspaper of general circulation in the area where the source is . . . located.” The ad ran on January 30, 2013 in the *Tyler Star News* and the affidavit of publication for this legal advertisement was submitted on February 4, 2013.

### ***45CSR30: Requirements for Operating Permits - (NON APPLICABILITY)***

45CSR30 provides for the establishment of a comprehensive air quality permitting system consistent with the requirements of Title V of the Clean Air Act. The proposed Bens Run Facility does not meet the definition of a “major source under §112 of the Clean Air Act” as outlined under §45-30-2.26 and clarified (fugitive policy) under 45CSR30b. The proposed facility-wide PTE of any regulated pollutant does not exceed 100 TPY (and, in the case of CO<sub>2</sub>e, does not exceed 100,000 TPY), 10 TPY of any individual HAP, or 25 TPY of aggregate HAPs. Further, no equipment or processes at the proposed facility are subject to a federal standard under 40 CFR 60, 61, or 63. Therefore, Title V will not apply to the proposed facility.

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## **TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS**

This section provides an analysis for those regulated pollutants that may be emitted from a proposed facility and that are not classified as “criteria pollutants.” Criteria pollutants are defined as Carbon Monoxide (CO), Lead (Pb), Oxides of Nitrogen (NO<sub>x</sub>), Ozone, Particulate Matter (PM), Particulate Matter less than 10 microns (PM<sub>10</sub>), Particulate Matter less than 2.5 microns (PM<sub>2.5</sub>), and Sulfur Dioxide (SO<sub>2</sub>). SSA has not identified any potential emission sources of non-criteria regulated pollutants.

## **AIR QUALITY IMPACT ANALYSIS**

The estimated maximum emissions of the proposed facility are less than applicability thresholds that would define the proposed facility as “major” under 45CSR14 and, therefore, no air quality impacts modeling analysis was required. Additionally, based on the nature and location of the proposed source, an air quality impacts modeling analysis was not required under 45CSR13, Section 7.

## **MONITORING, COMPLIANCE DEMONSTRATIONS, REPORTING, AND RECORDING OF OPERATIONS**

The following substantive monitoring, compliance demonstration, and record-keeping requirements (MRR) shall be required:

- For the purposes of demonstrating continuous compliance with the material usage limitation set forth in 4.1.2. of the draft permit, SSA shall be required to monitor and record the monthly and rolling twelve month usage of dry additive used in all mixing operations.

## **PERFORMANCE TESTING OF OPERATIONS**

The following substantive performance testing requirements shall be required:

- At such reasonable time(s) as the Secretary may designate, in accordance with the provisions of 3.3 of the draft permit, SSA shall be required to conduct or have conducted test(s) to determine compliance with the emission limitations established in this permit and/or applicable regulations.

## **RECOMMENDATION TO DIRECTOR**

The information provided in the permit application indicates that compliance with all applicable state and federal air quality regulations will be achieved. Therefore, I recommend to the

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Director the issuance of a Permit Number R13-3038 to Steve Simpson & Associates, Inc. for the proposed construction and operation of the Bens Run Facility located near Bens Run, Tyler County, WV.

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Joe Kessler, PE  
Engineer

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Date

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