west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone (304) 926-0475 • FAX: (304) 926-0479

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-3288
Plant ID No.:	061-00225
Applicant:	Prairie Transportation, Inc.
Facility Name:	Prairie Bulk Terminal
Location:	Maidsville, Monongalia County
NAICS Code:	488210
Application Type:	Construction
Received Date:	December 23, 2015
Engineer Assigned:	Steven R. Pursley, PE
Fee Amount:	$2,000.00
Date Received:	December 29, 2015
Complete Date:	January 6, 2016
Due Date:	April 5, 2016
Applicant Ad Date:	December 29, 2015
Newspaper:	*The Dominion Post*
UTM's:	Easting: 587.44 Northing: 4.392.31 Zone: 17
Description:	After the fact construction of a Rail Bulk Terminal.

DESCRIPTION OF PROCESS

Prairie Transportation, Inc's (Prairie) Prairie Bulk Terminal, located near Maidsville, Monongalia County, is requesting an after the fact permit.

Prairie operates a bulk rail terminal to which a variety of silica sand (sand) used in the oil and gas industry for hydraulic fracturing is delivered in railcars. Railcars are offloaded with diesel fueled portable conveyors into tractor trailers for transport. Prairie has six (6) portable conveyors that are used within the yard. Each has an engine and each transfers sand from the bottom hopper of railcars to the top of the sand trucks. All six mobile conveyors can operate simultaneously. Each mobile conveyor has a transfer capacity of 300 tons per hour.

There is no open stockpiling of sand on the property for sales purposes. Prairie has a small skid steer loader on site for periodic clean up activities. Spilled sand may be cleaned up from around the property and stacked in an area for disposal. There is no intent to open stockpile sand at this operation. Waste sand will be removed as needed. Once the sand is spilled to the ground, it can no longer be utilized for hydraulic fracturing.

SITE INSPECTION

No site inspection was deemed necessary. Below is a google map satellite view of the facility. The facility is located just across State Route 100 from the Monongahela River. To get to the facility take exit 152 of I-79. At the end of the off ramp, turn right on US-19 and then quickly take a left on N. Dents Run Road. Go approximately 1.4 miles and turn left on WV-100. Go approximately 2.7 miles and the site is on the left.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions from the facility result from material handling (transfer points), combustion of fuel (diesel) and from haul roads.

Transfer Points

The facility consists of 6 conveyors. Each conveyor has 2 transfer points (railcar to conveyor and conveyor to truck). Each conveyor can transfer up to 300 tons of sand per hour. However, the applicant limited total capacity from all 6 conveyors combined to 2,000,000 tons per year. Emissions from the transfer points were estimated using equation (1) from AP-42 Chapter 13.2.4. A 50% control efficiency was then taken to account for partial enclosures.

Engine Emissions

Each of the 6 conveyors is powered by a diesel fired engine. Emissions from the combustion of diesel in engines 1 through 5 were based on AP-42 Chapter 3 (VOCs &

SO_2) and their CARB Certificates (NO_x, CO and PM). Emissions of all pollutants from engine 6 were based on AP-42 Chapter 3. Additionally, all HAP emissions (from all 6 engines) were based on AP-42 Chapter 3.

Haul Roads

All Haul roads at the facility are unpaved. Emissions were calculated using equations 1a and 2 from AP-42 Chapter 13.2.2. A control efficiency of 70% was then applied to account for the use of water sprays.

	Transfer Pts		Engines		Haul Roads		Total	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
PM	6.72	1.86	0.15	0.68	26.23	43.72	**33.10**	**46.26**
PM_{10}	3.18	0.88	0.15	0.68	7.74	12.91	**11.07**	**14.47**
$PM_{2.5}$	0.48	0.13	0.15	0.68	0.77	1.29	**1.40**	**2.10**
VOC	--	--	0.78	3.42	--	--	**0.78**	**3.42**
SO_2	--	--	0.64	2.80	--	--	**0.64**	**2.80**
NO_x	--	--	3.25	14.25	--	--	**3.25**	**14.25**
CO	--	--	1.21	5.29	--	--	**1.21**	**5.29**
Benzene	--	--	0.01	0.02	--	--	**0.01**	**0.02**
Formaldehyde	--	--	0.01	0.02	--	--	**0.01**	**0.02**
Total HAPs	--	--	0.02	0.05	--	--	**0.02**	**0.05**

REGULATORY APPLICABILITY

The following state and federal rules apply to the facility:

STATE RULES

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 construction of the Prairie Terminal has a potential to emit a regulated pollutant (PM) in excess of six (6) lbs/hour and ten (10) TPY and, therefore, pursuant to §45-13-2.24, the facility 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, Prairie 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"), Prairie placed

a Class I legal advertisement in a “newspaper of general circulation in the area where the source is . . . located.” The ad ran on December 29, 2015 in the *Dominion Post* and the affidavit of publication for this legal advertisement was submitted on January 6, 2016.

45CSR17 To Prevent and Control Particulate Matter Air Pollution From Materials Handling, Preparation, Storage and Other Sources of Fugitive Particulate Matter.

The main requirement of 45CSR17 is the prohibition of fugitive particulate matter which causes or contributes to statutory air pollution. A water truck will be maintained on site to control emissions from haul roads.

45CSR22 Air Quality Management Fee Program

The facility is defined as a minor source under 45CSR30. Additionally, the facility is not subject to any NSPS or NESHAP that requires it to obtain either a permit or deferral from Title V. Therefore the facility is not subject to 45CSR30 and will pay its annual fees through the Rule 22 program.

Nonapplicability Determinations

45CSR7 To Prevent and Control Particulate Matter Air Pollution From Manufacturing Processes and Associated Operations

Since this is not a manufacturing source (sand is simply unloaded and shipped) it is not subject to 45CSR7.

FEDERAL RULES

40 CFR 60, Subpart IIII: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

Subpart IIII of 40 CFR 60 is the NSPS for stationary compression ignition internal combustion engines (diesel fired engines). Section §60.4200 states that "provisions of [Subpart IIII] are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE)." Specifically, §60.4200(a)(2) states that Subpart IIII applies to "[o]wners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are:

(i) Manufactured after April 1, 2006, and are not fire pump engines...

Prairie has indicated in it's permit application that all 6 engines were manufactured in 2012. Therefore they are subject to Subpart IIII. Based on the standards for owner/operators of a CI ICE under §60.4205, the following table details the emission standards for the engine:

Duty	Size (kw)	Displace-ment (L/cyl)	Source	Emission Standards (g/kw-hr)				
				NMHC + NO_x	NMHC	NO_x	CO	PM
Non Emergency Engines 1-3	36.69	<10	§1039.102 Table 2	7.5	--	--	5.5	0.3
Non Emergency Engines 4&5	51.98	<10	§1039.102 Table 3	4.7	--	--	5.0	0.3
Non Emergency Engine 6	19.8	<10	§1039.102 Table 2	7.5	--	--	5.5	0.3

Prairie has indicated in its permit application that all engines are certified to meet these requirements.

40CFR63 Subpart ZZZZ: National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines

Subpart ZZZZ establishes national emission limitations and operating limitations for HAPs emitted from stationary RICE located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations. Because the engines were constructed after June 6, 2006 they are new engines under Subpart ZZZZ. Therefore, to comply with ZZZZ the engines need only comply with 40 CFR 60 Subpart IIII.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

Section 112(b) of the Clean Air Act (CAA) identifies 188 compounds as pollutants or groups of pollutants that EPA knows or suspects may cause cancer or other serious human health effects. Some ingredients used by the facility contain HAPs. However, the potential HAP emissions from the facility are below the levels that define a major HAP source. Therefore, the facility is considered a minor (or area) HAP source, and no source-specific major source NESHAP or MACT standards apply.

The following Hazardous Air Pollutants will be emitted from the facility in amounts of at least 0.01 pounds per hour (all information comes directly from EPA's Air Toxics Website):

Formaldehyde

Formaldehyde is used mainly to produce resins used in particleboard products and as an intermediate in the synthesis of other chemicals. Exposure to formaldehyde may occur by breathing contaminated indoor air, tobacco smoke, or ambient urban air. Acute (short-term) and chronic (long-term) inhalation exposure to formaldehyde in humans can result in respiratory symptoms, and eye, nose, and throat irritation. Limited human studies have reported an association between formaldehyde exposure and lung and nasopharyngeal cancer. Animal inhalation studies have reported an increased incidence of nasal squamous cell cancer. EPA considers formaldehyde a probable human carcinogen (Group B1).

Benzene

Benzene is found in the air from emissions from burning coal and oil, gasoline service stations, and motor vehicle exhaust. Acute (short-term) inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic (long-term) inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anemia, in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on the developing fetus have been observed in animal tests. Increased incidence of leukemia (cancer of the tissues that form white blood cells) have been observed in humans occupationally exposed to benzene. EPA has classified benzene as known human carcinogen for all routes of exposure.

AIR QUALITY IMPACT ANALYSIS

Since this application involves the construction of a source that is not major, as defined in 45CSR14, no modeling was performed.

MONITORING OF OPERATIONS

The permit will require the permittee to monitor and record the total amount of sand transferred by the facility.

RECOMMENDATION TO DIRECTOR

Information supplied in the application indicates that compliance with all applicable regulations will be achieved. Therefore it is the recommendation of the writer that permit R13-3288 for the construction of a bulk sand transfer facility near Maidsville, Monongalia County, be granted to Prairie Transportation, Inc.

Steven R. Pursley, PE
Engineer

May 9, 2016