west virginia department of environmental protection

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ENGINEERING EVALUATION/ FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-3311
Plant ID No.:	041-00079
Applicant:	X-Chem, LLC
Facility Name:	Weston Facility
Location:	Weston, Lewis County
NAICS Code:	325998
Application Type:	Construction
Received Date:	April 22, 2016
Engineer Assigned:	Jerry Williams, P.E.
Fee Amount:	$1,000.00
Date Received:	April 22, 2016
Complete Date:	May 13, 2016
Due Date:	August 11, 2016
Applicant Ad Date:	May 4, 2016
Newspaper:	*The Weston Democrat*
UTM's:	Easting: 547.318 km Northing: 4,321.063 km Zone: 17
Latitude/Longitude:	39.037347/ -80.453263
Description:	This permitting action is for the installation and operation of methanol and polyacrylamide storage tanks.

DESCRIPTION OF PROCESS

The following process description was taken from Permit Application R13-3311:

The facility receives methanol from suppliers via tanker trucks. These are unloaded and stored in two (2) - 8,000 gallon storage tanks. Methanol is then transferred from the storage tanks to 330 gallon totes for delivery to customers. The facility also receives anionic and cationic polyacrylamides via tanker trucks. These are transferred into 6,340 gallon isotanks for delivery to customers.

The air contaminants from the facility are the volatile organic compound (VOC) emissions resulting from unloading of methanol from the tanker trucks to the two (2) storage tanks, working and breathing losses from the tanks, transfer of methanol from the storage tanks to the

totes, transfer of polyacrylamides from tanker trucks to the isotanks, and the particulate matter (traffic) emissions from paved roads when tankers and delivery trucks visit the site.

SITE INSPECTION

A site inspection was conducted by Douglas Hammell of the DAQ Enforcement Section on May 24, 2016. According to Mr. Hammell, the storage tanks are on site, and in-place where they will be used, but no premature construction has been done. The two (2) horizontal tanks are skid-bottomed, were cleaned before being shipped from New Jersey a couple of years ago and have remained empty and out-of-service since being unloaded at Weston facility. There is no piping, no access stairs/ladders, no pump, no dike, just the tanks sitting unused on the ground.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions associated with this construction application consist of the emissions from working and breathing losses of the methanol tanks, tanker truck loading to the methanol tanks, methanol tanks to totes loading, polyacrylamide loading, equipment leaks and haulroads. Each piece of equipment onsite are fitted with components to ensure a safe and efficient production process. These components are designed to have a small amount of gas vent to the atmosphere.

The following table indicates which methodology was used in the emissions determination:

Emission Point ID#	**Process Equipment**	**Calculation Methodology**
EP-TANK01-02	2 - 8,000 gallon Methanol Tanks	Pro-Max (Working and Breathing Losses)
EP-L01	4,500 gal/hr Methanol Tank Loading	EPA AP-42 Emission Factors
EP-L02	50 gal/min Methanol Tote Loading	EPA AP-42 Emission Factors
EP-L03	3,600 gal/hr Anionic Polyacrylamide Loading	EPA AP-42 Emission Factors
EP-L04	3,600 gal/hr Cationic Polyacrylamide Loading	EPA AP-42 Emission Factors
EP-HR01-02	Haulroads	EPA AP-42 Emission Factors
EP-F001	Equipment Leaks	EPA Protocol for Equipment Leak Emission Estimates

X-Chem, LLC – Weston Facility (R13-3311)

Emission	Source	VOC		PM-10		Total HAPs	
Point ID#		lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year
EP-TANK01-02	2 Methanol Storage Tanks	0.06	0.27	0.00	0.00	0.06	0.27
EP-L01	Methanol Tank Loading	7.16	0.29	0.00	0.00	7.16	0.29
EP-L02	Methanol Tote Loading	4.77	0.29	0.00	0.00	4.77	0.29
EP-L03	Anionic Polyacrylamide Loading	1.01	0.18	0.00	0.00	1.01	0.18
EP-L04	Cationic Polyacrylamide Loading	1.01	0.18	0.00	0.00	1.01	0.18
Total Point Source		**14.01**	**1.22**	**0.00**	**0.00**	**14.01**	**1.22**
Fugitive	Equipment Leaks	0.01	0.05	0.00	0.00	0.01	0.05
Fugitive	Haulroads	0.00	0.00	0.43	0.04	0.00	0.00
Total Fugitive		**0.01**	**0.05**	**0.43**	**0.04**	**0.01**	**0.05**
Total Site Wide		**14.02**	**1.27**	**0.43**	**0.04**	**14.02**	**1.27**

REGULATORY APPLICABILITY

The following rules apply to the facility:

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)

45CSR13 applies to this source due to the fact that X-Chem is defined as a "stationary source" under 45CSR13 Section 2.24.b, which states that an owner or operator discharges or has the potential to discharge more than two (2) pounds per hour or five (5) tons per year of aggregate hazardous air pollutants. X-Chem exceeds this threshold. X-Chem has published the required Class I legal advertisement notifying the public of their permit application, and paid the appropriate application fee (construction).

45CSR22 (Air Quality Management Fee Program)

This facility is a minor source and not subject to 45CSR30. X-Chem is required to keep their Certificate to Operate current.

The following rules do not apply to the facility:

40CFR60 Subpart Kb (Standards of Performance for VOC Liquid Storage Vessels)

40CFR60 Subpart Kb does not apply to storage vessels with a capacity less than 75 cubic meters. The largest tanks that X-Chem has proposed to install are 30.28 cubic meters each. Therefore, X-Chem would not be subject to this rule.

40CFR60 Subpart OOOO (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution)

EPA published in the Federal Register new source performance standards (NSPS) and air toxics rules for the oil and gas sector on August 16, 2012. 40CFR60 Subpart OOOO establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO_2) emissions from affected facilities that commence construction, modification or reconstruction after August 23, 2011. The following affected sources which commence construction, modification or reconstruction after August 23, 2011 were reviewed to the applicable provisions of this subpart:

Each storage vessel affected facility, which is a single storage vessel, located in the oil and natural gas production segment, natural gas processing segment or natural gas transmission and storage segment.

40CFR60 Subpart OOOO defines a storage vessel as a unit that is constructed primarily of nonearthen materials (such as wood, concrete, steel, fiberglass, or plastic) which provides structural support and is designed to contain an accumulation of liquids or other materials. The following are not considered storage vessels:

- Vessels that are skid-mounted or permanently attached to something that is mobile (such as trucks, railcars, barges or ships), and are intended to be located at a site for less than 180 consecutive days. If the source does not keep or are not able to produce records, as required by §60.5420(c)(5)(iv), showing that the vessel has been located at a site for less than 180 consecutive days, the vessel described herein is considered to be a storage vessel since the original vessel was first located at the site.

- Process vessels such as surge control vessels, bottoms receivers or knockout vessels.

- Pressure vessels designed to operate in excess of 204.9 kilopascals and without emissions to the atmosphere.

This rule requires that the permittee determine the VOC emission rate for each storage vessel affected facility utilizing a generally accepted model or calculation methodology within 30 days of startup, and minimize emissions to the extent practicable during the 30 day period using good engineering practices. For each storage vessel affected facility that emits more than 6 tpy of VOC, the permittee must reduce VOC emissions by 95% or greater within 60 days of startup. The compliance date for applicable storage vessels is October 15, 2013.
The storage vessels located at this facility do not have emissions greater than 6 tons per year. Therefore, there are no applicable requirements regarding storage vessels under 40CFR60 Subpart OOOO that would apply.

45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants)

45CSR19 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contribute to Nonattainment)

The Weston Facility is located in Lewis County which is an unclassified county for all criteria pollutants, therefore the Weston Facility is not applicable to 45CSR19.

As shown in the following table, X-Chem is not a major source subject to 45CSR14 or 45CSR19 review. According to 45CSR14 Section 2.43.e, fugitive emissions are not included in the major source determination because it is not listed as one of the source categories in Table 1. Therefore, the fugitive emissions are not included in the PTE on the following page.

Pollutant	**PSD (45CSR14) Threshold (tpy)**	**NANSR (45CSR19) Threshold (tpy)**	**Facility PTE (tpy)**	**45CSR14 or 45CSR19 Review Required?**
Carbon Monoxide	250	NA	0	No
Nitrogen Oxides	250	NA	0	No
Sulfur Dioxide	250	NA	0	No
Particulate Matter 2.5	250	NA	0.04	No
Ozone (VOC)	250	NA	1.27	No

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

The HAPs associated with this facility are emitted at minor source levels. The majority of non-criteria regulated pollutants fall under the definition of HAPs which, with some revision since, were 188 compounds identified under Section 112(b) of the Clean Air Act (CAA) as pollutants or groups of pollutants that EPA knows or suspects may cause cancer or other serious human health effects.

All HAPs have other non-carcinogenic chronic and acute effects. These adverse health effects may be associated with a wide range of ambient concentrations and exposure times and are influenced by source-specific characteristics such as emission rates and local meteorological conditions. Health impacts are also dependent on multiple factors that affect variability in humans such as genetics, age, health status (e.g., the presence of pre-existing disease) and lifestyle. As stated previously, *there are no federal or state ambient air quality standards for these specific chemicals*. For a complete discussion of the known health effects of methanol refer to the IRIS database located at *www.epa.gov/iris*.

AIR QUALITY IMPACT ANALYSIS

Modeling was not required of this source due to the fact that the facility is not subject to 45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants) as seen in the table listed in the Regulatory Discussion Section.

SOURCE AGGREGATION

"Building, structure, facility, or installation" is defined as all the pollutant emitting activities which belong to the same industrial grouping, are located on one or more contiguous and adjacent properties, and are under the control of the same person.

The Weston Facility is located in Lewis County and will be operated by X-Chem.

"Contiguous or Adjacent" determinations are made on a case by case basis. These determinations are proximity based, and it is important to focus on this and whether or not it meets the common sense notion of a plant. The terms "contiguous" or "adjacent" are not defined by USEPA. Contiguous has a dictionary definition of being in actual contact; touching along a boundary or at a point. Adjacent has a dictionary definition of not distant; nearby; having a common endpoint or border. There are no X-Chem properties in question that are considered to be on contiguous or adjacent property with the Weston Facility.

Because there are no facilities that are considered to be on contiguous or adjacent properties, the emissions from the Weston Facility should not be aggregated with other facilities in determining major source or PSD status.

MONITORING OF OPERATIONS

X-Chem will be required to perform the following monitoring and recordkeeping associated with this permit application:

- Monitor the storage tanks to ensure they are operated per manufacturer's specifications
- Monitor and record the throughput for the loadouts
- Maintain records of testing conducted in accordance with the permit
- Maintain a record of all potential to emit (PTE) HAP calculations for the entire facility. These records shall include the natural gas compressor engines and ancillary equipment.
- Monitor the methanol and polyacrylamide truck loading
- The records shall be maintained on site or in a readily available off-site location maintained by X-Chem for a period of five (5) years.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates X-Chem's Weston Facility meets all the requirements of applicable regulations. Therefore, impact on the surrounding area should be minimized and it is recommended that the Lewis County location should be granted a construction permit under 45CSR13.

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Jerry Williams, P.E.
Engineer

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Date