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**west virginia department of environmental protection**

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Division of Air Quality  
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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.: G30-D193  
Plant ID No.: 059-00115  
Applicant: Chesapeake Appalachia LLC  
Facility Name: B-410/B-411  
Location: near Nolan, Mingo County  
NAICS Code: 211111  
Application Type: Construction  
Received Date: October 16, 2014  
Engineer Assigned: David Keatley  
Fee Amount: \$1,500  
Date Fee Received: October 17, 2014  
Complete Date: February 24, 2015  
Due Date: March 10, 2015  
Applicant Ad Date: October 16, 2014  
Newspaper: *The Williamson Daily News*  
UTM's: Easting: 384.873 km Northing: 4,179.001 km Zone: 17  
Description: Installation of a 70 bhp compressor engine controlled with an EMIT catalyst.

**DESCRIPTION OF PROCESS**

Natural gas enters the facility via pipeline. The pressure of the natural gas is increased by the compressor. The compressor is powered by a 70 bhp four-stroke rich-burn General Motors 262 (4.3 L) natural gas fired engine. The compressed natural gas exits the facility via pipeline.

## SITE INSPECTION

John Moneyppenny from DAQ's Compliance and Enforcement section performed a site visit on February 25, 2015. No private residences were within 300' of the facility and the site seems suitable for a G30-D.

From the intersection of US 119 and US 52. Travel north on US 52 for approximately 200 feet. Turn right onto Coal Mine Road. Travel past the guard shack approximately 0.9 miles, the facility will be approximately 50 feet past the bridge on the right.

## ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

The engines emissions are estimated with emissions factors from the catalyst manufacturer for NOx and CO the rest of the emissions were estimated with AP-42 emission factors.

Table 1: Estimated Maximum Controlled Air Emissions

Source ID	Emission Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tpy)
ENG-1	General Motors 262 (4.3 L) 70 bhp	Nitrogen Oxides	0.43	1.89
		Carbon Monoxide	0.74	3.24
		Volatile Organic Compounds	0.23	1.01
		PM <sub>10</sub>	0.01	0.06
		Formaldehyde	0.01	0.06

Table 2: Estimated Maximum Controlled Total Facility Emissions

Pollutant	Maximum Annual Facility Wide Emissions (tons/year)
Nitrogen Oxides	1.89
Carbon Monoxide	3.24
Volatile Organic Compounds	1.01
Total Particulate Matter	0.06
PM <sub>10</sub>	0.06
Formaldehyde	0.06
Total HAPs	0.11
Carbon Dioxide Equivalent	341.62

## REGULATORY APPLICABILITY

### **45CSR4 - *To Prevent and Control the Discharge of Air Pollutants into the Open Air which Causes or Contributes to an Objectionable Odor or Odors***

This facility shall not cause the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public. 45CSR4 states that an objectionable odor is an odor that is deemed objectionable when in the opinion of a duly authorized representative of the Air Pollution Control Commission (Division of Air Quality), based upon their investigations and complaints, such odor is objectionable.

### **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***

Chesapeake has voluntarily decided to obtain a permit for this facility. (45CSR13-2.24.e.)

### **45CSR22 - *Air Quality Management Fee Program***

As can be seen from Table 2 this facility is minor source of air pollution subject to the requirements of 45CSR22. This source has total engine capacity less than 1,000 hp (70 hp) and is a 9M source and shall pay an annual fee of \$200. Chesapeake Appalachia LLC is required to keep their Certificate to Operate current.

### **40CFR60 Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (SI ICE)**

ENG-1 was manufactured on June 27, 2008 which is before the effective date of July 1, 2008 for an engine with a maximum power of less than 500 horsepower (§60.4230(a)(4)(iii)). CE-2 is not subject to this regulation, however Chesapeake has proposed complying with the emissions limitations and testing requirements of this regulation.

### **40CFR63 Subpart ZZZZ (National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines)**

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (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.

The facility is a minor source of hazardous air pollutants (HAPS < 10 tpy of an individual HAP and < 25 tpy of aggregate HAPs) as can be seen in Table 2. The facility is therefore considered an area source (§63.6585(c)). The engine is considered new stationary RICE

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(§63.6590(a)(2)(iii)) due to the installation date of the engine (ENG001) being after June 12, 2006.

Stationary RICE subject to Regulations under 40 CFR Part 60 must meet the requirements of those subparts that apply (40 CFR 60 Subpart JJJJ, for spark ignition engines) if the engine is a new stationary RICE located at an area source (§63.6590(c)(1)). No additional requirements apply for this engine under this subpart.

#### TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

The following information was obtained from USEPA's Air Toxic 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).

#### RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that compliance with all state and federal air quality requirements will be achieved. Therefore, I recommend to the Director of Air Quality the issuance of Permit Number G30-D193 to Chesapeake Appalachia LLC for B-410/B-411 Compressor Station which is located near Nolan, Mingo County, WV.



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David Keatley  
Permit Writer - NSR Permitting

February 25, 2015

Date

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