



west virginia department of environmental protection

Division of Air Quality
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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: G35-A117
Plant ID No.: 085-00015
Applicant: Dominion Transmission Inc
Facility Name: South Oxford Station
Location: Ritchie County
NAICS Code: 211111
Application Type: Modification
Received Date: November 7, 2014
Engineer Assigned: David Keatley
Fee Amount: \$4,000
Date Received: December 31, 2014
Complete Date: January 23, 2015
Due Date: March 9, 2015
Applicant Ad Date: November 26, 2015
Newspaper: *Ritchie Gazette and the Cairo Standard*
UTM's: Easting: 510.833 km Northing: 4,338.691 km Zone: 17
Description: Permit G35-A117 will supersede and replace G30-A010. Installation of a 50.8 bhp emergency generator and updating of the dehydration unit emissions.

DESCRIPTION OF PROCESS

Natural gas will enter the facility via pipeline. The natural gas stream will be compressed to a higher pressure by a compressor powered by an existing 633-bhp four-stroke lean-burn Caterpillar G3508 TA LE. After compression the natural gas will be sent to a 4.0 mmscf/day NATCO dehydration unit with associated 0.25 mmBtu/hr reboiler. The compressed natural gas stream will flow countercurrent to TEG in a contactor. After the natural gas has been dehydrated the natural gas will exit the facility via pipeline. The rich TEG from the contactor will go to a regenerator. The regenerator is heated by the reboiler to evaporate the water. A 50.8 bhp four-stroke rich-burn Baldor natural gas fired emergency generator engine will be onsite in case electrical power to the facility is lost.

SITE INSPECTION

Douglas Hammell of DAQ's Compliance and Enforcement Section performed a site visit on May 16, 2014. The facility was deemed in compliance.

From Clarksburg travel on US 50 west to Sunny Side exit. On old Rt. 50 (CR 50/3) travel approximately 1.9 miles. Turn left onto CR 21 (Oxford Rd.) and travel for approximately 6.5 miles the facility is on the left.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emergency generator engine EG01 emissions are estimated with AP-42 and manufacturers' data. Emissions from the TEG dehydration unit RSV-1 was estimated with GRI-GLYCalc 4.0 with a 20% increase to help account for gas variation.

Table 1: Maximum Estimated Controlled Point Source Air Emissions

Source ID	Emission Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tpy)
RSV-1	TEG Dehydration NATCO 5GR-250-KR-100155C Still Vent 4 mmscf/day (modified)	Volatile Organic Compounds	4.05	17.75
		Benzene	0.08	0.37
		Ethylbenzene	0.15	0.64
		Toluene	0.16	0.70
		Xylenes	0.20	0.88
		n-Hexane	0.14	0.60
EG-01	Emergency Generator Engine Baldor - PSI IGLC35-2G 50.8 bhp	Nitrogen Oxides	0.89	0.22
		Carbon Monoxide	34.33	8.58
		Volatile Organic Compounds	0.89	0.22

Table 2: Maximum Estimated Controlled Facility Wide Air Emissions

Pollutant	Maximum Annual Facility Wide Emissions (tons/year)
Nitrogen Oxides	14.05
Carbon Monoxide	18.40
Volatile Organic Compounds	19.86
Particulate Matter	0.01
Sulfur Dioxide	0.01
Benzene	0.37
Ethylbenzene	0.64
Toluene	0.70
Xylenes	0.88
n-Hexane	0.60
Formaldehyde	1.65
Total HAPs	4.84

REGULATORY APPLICABILITY

Due to this modification this facility is subject to the following rules and regulations:

45CSR2 - To Prevent and Control Particulate Air Pollution From Combustion of Fuel in Indirect Heat Exchangers

The Reboilers (RBV-1) at this facility meets the definition for fuel burning unit (section 2.10). The Reboilers all have capacities below the 10 MMBTU/hr threshold and are exempt from the following sections: 4,5,6,8, and 9.

RBV-1 shall not cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air which is greater than ten (10) percent opacity based on a six minute block average.

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.

45CSR10 - To Prevent and Control Air Pollution From the Emissions of Sulfur Oxides

The Reboilers (RBV-1) at this facility meets the definition for fuel burning unit (section 2.8). RBV-1 are Type 'b' fuel burning unit, which are below the 10 MMBTU threshold and are therefore exempt from sections 3, 6, 7, and 8 (Section 10.1). The reboiler are not consider a manufacturing process, refinery, or process gas stream.

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

This facility is subject to 40CFR63 subpart HH which is considered a substantive requirement and this permit action will be considered a modification.

45CSR22 - Air Quality Management Fee Program

As can be seen from Table 2 this facility is a minor source of air pollution. The facility is subject to the requirements of 45CSR22. This source has a total reciprocating engine capacity of 683.8 hp which is less than 1,000 hp and is therefore a 9M source and shall pay an annual fee of \$200. Dominion Transmission Inc is required to keep their Certificate to Operate current.

40 CFR 63 Subpart HH - National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities

On June 1, 2013 the DAQ took delegation of the area source provisions of 40 CFR 63, Subpart HH. This facility is a natural gas production facility that processes, upgrades, or stores natural gas prior to transmission. This facility is an area source of HAPs refer to the previous facility wide emissions table.

Pursuant to §63.760(b)(2), each glycol dehydration unit (GDU) located at an area source that meets the requirements under §63.760(a)(3) is defined as an affected facility under Subpart HH. The requirements for affected sources at area sources are given under §63.764(d). However, for a GDU, exemptions to these requirements are given under §63.764(e)(2) "actual average emissions of benzene from the glycol dehydration unit process vent to the atmosphere are less than 0.90 megagram [1 TPY] per year."

As can be seen above in Table 1, the maximum PTE of benzene emissions from the GDU process vent from either TEG dehydration unit is 0.37 TPY. Therefore, the GDU is exempt from the Subpart HH requirements given under §63.764(d).

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. This facility is subject to the area source requirements for non-emergency spark ignition engines.

Engines CE-1 is an "Existing Stationary RICE" sources at an area source of HAPs and is an affected source because construction commenced before June 12, 2006 [63.6590(a)(1)(iii)] due to the installation date of the engine (2000).

Engines CE-1 due to the installation date of the engines must comply with the applicable emission limitations, operating limitations, and other requirements no later than October 19, 2013. Engines CE-1 is a non-emergency, non-black start four-stroke lean-burn stationary RICE >500 HP that are remote (Table 2d.8). Engines CE-1 have oil, oil filter, spark plug, hose, and belt maintenance requirements.

Engine EG01 is a "New Stationary RICE" sources at an area source of HAPs and is an affected source because construction commenced after June 12, 2006 [63.6590(a)(2)(iii)] due to the installation dates of the engines being after June 12, 2006. Engine EG01 must meet the requirements of 40CFR60 subpart JJJJ and has no additional requirements due to this regulation.

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

40CFR60.4230 states that a source that commenced construction after June 12, 2006 whose Emergency SI ICE was less than 100 hp but more than or equal to 25 hp and was manufactured on or after January 1, 2009 is subject to this regulation. EG01 based on type, size (50.8 hp), and engine manufacture date (2011) is subject to this regulation.

The emission standards for EG01 in g/hp-hr are the following: NO_x – 10 and CO – 387. This regulation requires installation of a non-resettable hour meter and keep record of the hours of operation.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

There will be small amounts of various regulated hazardous air pollutants emitted from the operation of this facility as seen in Table 1. The facility is a minor source of HAPs as can be seen in Table 2. If you want to obtain additional information about certain hazardous air pollutants feel free to visit [<http://www.epa.gov/ttn/atw/hlthef/hapindex.html>].

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RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates compliance with all state and federal air quality requirements will be satisfied and this facility is expected to meet the requirements of General Permit G35-A. Therefore Dominion Transmission, Inc.'s request to modify and operate its natural gas compression/dehydration facility is recommended to the Director of Air Quality.



David Keatley
Permit Writer - NSR Permitting

February 4, 2015

Date

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