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west virginia department of environmental protection

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Division of Air Quality  
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Charleston, WV 25304  
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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.: G35-A057A  
Plant ID No.: 033-00146  
Applicant: Dominion Transmission Inc. (Dominion)  
Facility Name: Chapman Compressor Station  
Location: Harrison County  
NAICS Code: 486210  
Application Type: Modification  
Received Date: March 9, 2015  
Engineer Assigned: John Legg  
Fee Amount: \$3,000  
Date Received: March 13, 2015  
Complete Date: March 26, 2015 (date legal advertisement affidavit was received)  
Due Date: May 12, 2015  
Applicant Ad Date: March 11, 2015  
Newspaper: *The Exponent Telegram*  
UTM's: Easting: 546.93 km    Northing: 4,344.84 km    Zone: 17  
Lat/Long Coordinates:  
Description: Replace the station's existing flare which serves as an air pollution control device for the glycol dehydrator unit's regeneration column still (vent RSV-2).

The increases in VOC (+21.74 tpy) and HAP (+1.86 tpy) emissions resulting from replacing the flare are attributed to an updated analysis of the wet natural gas taken at the site on February 11, 2014.

## DESCRIPTION OF PROCESS

Although the following process description was re-written to make it more understandable, the process description has not changed since last time:

Dominion specializes in gas transmission and storage services.

The Chapman Compressor Station (station) is an existing natural gas compressor station that pumps natural gas from production and gathering lines to a Dominion pipeline.

At the station:

- Wet, low-pressure natural gas is compressed (by compressor engine CE-1).
- After leaving the compressor, a glycol dehydration unit is used to remove water and impurities from the wet, high-pressure (190 psig at 110°F) natural gas stream.
- In the glycol dehydration unit, in the contactor tower, water is removed via physical absorption, i.e., the wet, high-pressure natural gas stream flows up/counter-current through a circulating triethylene glycol (TEG) stream.
- The lean (low water content) TEG stream absorbs water and hydrocarbons as it travels down/counter-current through the wet high-pressure natural gas stream.
- After leaving the dehydration contactor tower the dried, high-pressure natural gas stream enters a transmission pipeline to be further processed downstream of the station.
- After leaving the dehydration contactor tower, the rich (high water and high hydrocarbon content) TEG stream is sent to a flash tank (operating at 60 psig at 150°F) where volatile hydrocarbons in the liquid TEG stream flash off due to the reduction in pressure and the hydrocarbon content of the liquid TEG stream is reduced.
- The volatile hydrocarbon vapors released from the flash tank are primarily vented back to the station's suction line/stream and reclaimed as natural gas.
- The rich TEG stream leaving the flash tank is sent to the TEG reboiler/regenerative still column.
- In the reboiler, the rich TEG stream is heated to liberate the water and the remaining hydrocarbons.

- The regenerator vapors from the reboiler pass through the still column and are vented to the flare where the hydrocarbons are controlled/combusted to reduce emissions and odors.
- The lean (low water content) TEG stream leaves the reboiler/regenerative still column and is sent to the glycol dehydration unit where it is once again used to absorb water (and hydrocarbons) from the wet high-pressure natural gas stream.
- Also, the station has two 192.5 hp emergency generators (EG-1 and EG-2) used to provide electricity in the event of a power failure.

**Proposed Changes (G35-A057A)**

Calculations using the latest wet natural gas analysis for the station results in VOC and HAP emissions increases of +21.74 tpy and +1.86 tpy, respectively. The wet gas sample was collected on 2/11/14.

Dominion is proposing to replace the existing flare (FL-2) that serves as an air pollution control device for the glycol dehydration unit and replace it with a new enclosed flare (FL-3). As part of the control device replacement, a blow-case will be installed between the still column and enclosed flare on the glycol dehydration unit. The installation of the blow-case is considered part of the control device installation, as it serves to enhance the efficiency of the enclosed flare. The installation of the blow-case is not considered a modification of the glycol dehydration unit. The glycol dehydration unit will not be de-bottlenecked as a result of the proposed project.

**Table 1: Emission Units**

| Emission Unit ID | Emission Point ID | Emission Unit Description   | Year Installed | Design Capacity | Type of Change | Control Device |
|------------------|-------------------|---|----------------|-----------------|----------------|----------------|
| FL-2             | FL-2              | Glycol-Dehydration-Flare  | 2011           | 29.2 scf/m      | Removal        | Not Applicable |
| FL-3             | FL-3              | Glycol Dehydration Enclosed Flare;<br>Questor Q50<br>(95% control Efficiency) | 2015           | 32.2 scf/m      | New            | Not Applicable |

The new flare (FL-3) is manufactured by Questor Technologies Inc. (Questor). It is a model Q50 enclosed flare with a 95% control efficiency. Additional information about the new flare can be found in the permit application, Attachment H, Air Pollution Control Device Sheets, Flare System Control Device Sheets.

## SITE INSPECTION

Karl Dettinger, Enforcement Inspector from DAQ's North Central Regional Office (Fairmont) has been scheduled to conduct the next inspection of the station. That inspection has not taken place yet.

No Change

Since G35-A57A:

On February 15, 2011 Lou Ann Lee from DAQ's North Central Regional Office (Fairmont) Compliance and Enforcement Section conducted a site visit. Lou Ann Lee met a Mr. Taylor at the facility and took pictures. From this site visit she determined that this site meets all siting criteria for the G35-A.

Directions:

From Charleston take I79 N to Clarksburg. At Clarksburg take US50 W until you reach CR 33 (near Wolf Summit) take a left. Take CR 33/2 travel one mile and the natural gas compression station is on the left.

UTM coordinates (per application, page 2 of 5, entry 17A):

Northing 4,344.84 KM  
Easting 546.93 KM  
Zone 17

Dominion's latitude and longitude coordinates (per application, page 2 of 5, entry 19A):

39.2519 degrees North (latitude)  
-80.4559 degrees East (longitude)

## ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

The maximum controlled emissions from Dominion's natural gas compressor station are summarized in the Table 1.

Emissions changes resulting from this modification are shown in red. The source for the new (red) information can be found in the permit application in:

Attachment G - Natural Gas Glycol Dehydration Unit Data Sheet, page 4 of 9.

Attachment H - Compressor Station Emission Summary sheet for Criteria Pollutants, page 8 of 9.

Compressor Station Emission Summary sheet for Hazardous/Toxic Pollutants, page 9 of 9.

Fact Sheet G35-A057A  
Dominion Transmission, Inc.  
Chapman Compressor Station

**Table 1: Maximum Controlled Emissions**

| <b>Emission Unit</b>                              | <b>Pollutant</b>           | <b>Maximum Hourly Emissions (lb/hr)</b> | <b>Maximum Annual Emissions (tpy)</b> | <b>Annual Delta (G35A-57A - G35A-57) (tpy)</b> |
|---|----------------------------|---|---------------------------------------|--|
| <b>CE-1</b><br>Superior 8GTLX<br>1,100 bhp        | Nitrogen Oxides            | 4.85                                    | 21.24                                 | 0.00   |
|   | Carbon Monoxide            | 7.28                                    | 31.87                                 | 0.00   |
|   | Volatile Organic Compounds | 0.92                                    | 4.04                                  | 0.00   |
|   | Sulfur Dioxide             | 0.01                                    | 0.02                                  | 0.00   |
|   | Particulate Matter-10      | 0.01                                    | 0.01                                  | 0.00   |
|   | Formaldehyde               | 0.41                                    | 1.81                                  | 0.00   |
| <b>GE-1</b><br>Cummins<br>GM8.1L<br>192.5 bhp     | Nitrogen Oxides            | 0.03                                    | 0.01                                  | 0.00   |
|   | Carbon Monoxide            | 0.39                                    | 0.1                                   | 0.00   |
|   | Volatile Organic Compounds | 0.19                                    | 0.35                                  | 0.00   |
|   | Sulfur Dioxide             | 0.01                                    | 0.01                                  | 0.00   |
|   | Particulate Matter-10      | 0.02                                    | 0.01                                  | 0.00   |
|   | Formaldehyde               | 0.03                                    | 0.01                                  | 0.00   |
| <b>GE-2</b><br>Cummins<br>GM8.1L<br>192.5 bhp     | Nitrogen Oxides            | 0.03                                    | 0.01                                  | 0.00   |
|   | Carbon Monoxide            | 0.39                                    | 0.1                                   | 0.00   |
|   | Volatile Organic Compounds | 0.19                                    | 0.05                                  | 0.00   |
|   | Sulfur Dioxide             | 0.01                                    | 0.01                                  | 0.00   |
|   | Particulate Matter-10      | 0.02                                    | 0.01                                  | 0.00   |
|   | Formaldehyde               | 0.03                                    | 0.01                                  | 0.00   |
| <b>RBV-2</b><br>0.567 MMBTU/hr<br>(Reboiler Vent) | Nitrogen Oxides            | 0.05                                    | 0.22                                  | 0.00   |
|   | Carbon Monoxide            | 0.04                                    | 0.18                                  | 0.00   |
|   | Volatile Organic Compounds | 0.04                                    | 0.17                                  | 0.00   |
|   | Sulfur Dioxide             | 0.01                                    | 0.01                                  | 0.00   |
|   | Particulate Matter-10      | 0.01                                    | 0.01                                  | 0.00   |

| Table 1: Maximum Controlled Emissions   |                            |                                  |       |                                |       |   |
|---|----------------------------|----------------------------------|-------|--------------------------------|-------|---|
| Emission Unit   | Pollutant                  | Maximum Hourly Emissions (lb/hr) |       | Maximum Annual Emissions (tpy) |       | Annual Delta (G35A-57A - G35A-57) (tpy) |
| RSV-2<br>6.3 MMSCF/day<br>(Regenerator Still Vent)<br><br>Controlled by Enclosed Flare FL-3   | Volatile Organic Compounds | <del>0.47</del>                  | 5.42  | <del>2.08</del>                | 23.82 | +21.74 <sup>(1)</sup>                   |
|   | Benzene                    | <del>0.02</del>                  | 0.03  | <del>0.07</del>                | 0.12  | +0.05                                   |
|   | Toluene                    | <del>0.02</del>                  | 0.05  | <del>0.08</del>                | 0.21  | +0.13                                   |
|   | Xylenes                    | <del>0.02</del>                  | 0.33  | <del>0.09</del>                | 1.45  | +1.36                                   |
|   | n-Hexane                   | <del>0.01</del>                  | 0.06  | <del>0.05</del>                | 0.27  | +0.22                                   |
|   | Total HAP                  | <del>*0.07</del>                 | 0.49  | <del>*0.29</del>               | 2.15  | +1.86 <sup>(1)</sup>                    |
| FL-3<br>Pilot Flame<br><br>Combustion Emissions   | Nitrogen Oxides            |                                  | 0.52  |                                | 2.30  | +2.08 <sup>(1)</sup>                    |
|   | Carbon Monoxide            |                                  | 0.33  |                                | 1.46  | +0.76 <sup>(1)</sup>                    |
|   | Volatile Organic Compounds |                                  | --    |                                | --    | 0.00                                    |
|   | Sulfur Dioxide             |                                  | <0.01 |                                | 0.01  | +0.01                                   |
|   | Particulate Matter-10      |                                  | 0.05  |                                | 0.20  | +0.20                                   |
| <p>* Total HAP = Benzene + Toluene + Xylenes + n-Hexane</p> <p>(1) Annual Delta taken from Dominion's March 11, 2015 legal advertisement appearing in <i>The Exponent Telegram</i>.</p> |                            |                                  |       |                                |       |   |

## REGULATORY APPLICABILITY

The station is not subject to 45CSR30/Title V. It is a non-major source (as defined under Title V), an area source of HAPs, and is required to have a permit pursuant to WV 45 CSR 13 regulations. Before this modification, the station operated under general permit registration G35-A057, issued on June 28, 2011.

Note that general permit G35-A (Natural Gas Compressor Station) is being revised to change the following:

At the time of its issuance, the WVDEP DAQ did not determine whether the registrant was subject to an area source air toxics standard requiring Generally Achievable Control Technology (GAT) promulgated after January 1, 2007 pursuant to 40 CFR 63, including the area source air toxics provision of 40 CFR 63, Subpart HH and 40 CFR 63, Subpart ZZZ.

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

No Change: The reboiler is not affected by this modification.

The reboiler meets the definition for fuel burning unit (section 2.10). This boiler has a 0.567 MMBTU rating, which is below the 10 MMBTU threshold and is exempt from sections 4, 5, 6, 8 and 9. This source shall not cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any fuel burning unit 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

No Change: The facility is subject to the requirements of 45CSR4 and shall not allow the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.

**45CSR6** To Prevent and Control Air Pollution from Combustion of Refuse

This rule establishes emission standards for PM and requirements for activities involving incineration of refuse which are not subject to, or are exempted from regulation under a federal counterpart for specific combustion sources.

The enclosed flare meets the definition of an "incinerator" in 45 CSR§6-2, and therefore is subject to the monitoring, testing, record-keeping and reporting requirements of this rule.

Base on 45 CSR§6-4, the allowable PM emissions for the flare are calculated using the following formula:

$$PM_{\text{allowable}} \text{ (lb/hr)} = \text{Incinerator Capacity (tons/hr)} \times F$$

Where: F = Factor for determining maximum allowable particulate emissions. For incinerators with a capacity less than 15,000 lb/hr: F=5.43.

Incinerator Capacity = Design capacity of the flare (estimated total flow rate to the flare, including materials to be burned, carrier gases, auxiliary fuel, etc.).

Fact Sheet G35-A057A  
Dominion Transmission, Inc.  
Chapman Compressor Station

The allowable PM limit calculation is:

$$PM_{\text{allowable}} = 130 \text{ lb/hr} \times 5.43 \times 1\text{ton}/2000\text{lb} = 0.35 \text{ lb/hr}$$

Based on AP-42, the enclosed flare will comply with the allowable PM emission limit determined in accordance with 45 CSR§6-4.

**45CSR10** To Prevent and Control Air Pollution from the Emission of Sulfur Oxides (SOx)

The provisions of this rule regulate emissions of SOx. The flare is subject to the applicable emission limits specified in 45 CSR§10.51 Combustion of Refinery or Process Gas Streams. The existing source-specific emission limits will not change as a result of this modification. The new enclosed flare is exempt from the testing, monitoring, record-keeping, and reporting requirements of 45 CSR§10-8 because it combusts natural gas (CSR§10-10.3).

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

Dominion's Chapman Station is a stationary source under Rule 13, Section 2.24.a. Before this modification, the facility operated under general permit registration G35-A057.

The proposed change in the station's wet natural gas analysis causes potential VOC emissions before controls to increase (6) pounds per hour and ten (10) tons per year or more, and aggregated HAP emissions before controls to increase 2 pounds per hour or 5 tons per year.

Dominion submitted a complete permit application, published a Class I legal advertisement to notify the public, and paid the appropriate application fee: \$500.00 for Rule 13 review (Class II General Permits), \$1,000.00 for NSPS review, and \$1,500.00 for NESHAPS/Toxic Air Pollutants.

**45CSR16** Standards of Performance for New Stationary Sources

This rule establishes and adopts standards of performance for new stationary sources promulgated by the United States Environmental Protection Agency pursuant to section 111(b) of the federal Clean Air Act, as amended. This rule codifies general procedures and criteria to implement the standards of performance for new stationary sources set forth in 40 CFR Part 60. The Secretary hereby adopts these standards by reference. The Secretary also adopts associated reference methods, performance

Fact Sheet G35-A057A  
Dominion Transmission, Inc.  
Chapman Compressor Station

specifications and other test methods which are appended to these standards.

NSPS applies to new, modified or reconstructed stationary sources meeting the criteria established in 40 CFR Part 60.

Neither the enclosed flare nor the glycol dehydration unit is subject to an NSPS regulation.

This modification will not impact the applicability of existing NSPS, and/or the Station's ability to comply with the applicable requirements.

#### **40CSR60**

##### **Subpart JJJJ Standards of Performance for Stationary Spark Ignition Internal Combustion Engines**

No Change: Chapman Station has two engines (EG-1 and EG-2) that exceeds 25 hp and was manufactured in 2010, which is after January 1, 2009 and these engines are therefore subject to Subpart JJJJ.

These engines will not change because of this modification.

The emission standards for GE-1 and GE-2 in g/hp-hr are the following: NO<sub>x</sub> – 2.0 ; CO – 4.0; and VOC – 1.0. This regulation requires installation of a non-resettable hour meter and keep record of the hours of operation.

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

The source is subject to 45CSR13 and is not subject to 45CSR30, i.e., the source is subject to 45CSR22.

No Change: The facility is still subject to Rule 45CSR22.

#### **45 CSR 30 Requirements for Operating Permits**

This source is not subject to 45CSR30.

The major source thresholds for the WV Title V operating permit program regulations are 10 tons per year (tpy) of a single hazardous air pollutant

Fact Sheet G35-A057A  
Dominion Transmission, Inc.  
Chapman Compressor Station

(HAP), 25 tpy of any combination of HAP, or 100 tpy of any other regulated pollutants.

The station does not have the potential to emit (after controls) over 100 tpy of any pollutant, nor does the station emit any individual HAP or any combination of HAPs above the 10 tpy and 25 tpy thresholds, respectively. Therefore, the station is classified as a nonmajor source for Title V purposes and is classified as an area source of HAPs.

Because the station is not a major source, it is not required to have an operating permit pursuant to Title V of the Federal Clean Air Act (CAA) as amended, and WV 45 CSR 30 regulations.

**45 CSR 34** Emission Standards for Hazardous Air Pollutants for Source Categories Pursuant to 40 CFR, Part 63

This rule establishes and adopts a program of national emission standards for hazardous air pollutants (NESHAPS) and other regulatory requirements promulgated by the United States Environmental Protection Agency pursuant to 40 CFR Parts 61, 63 and section 112 of the federal Clean Air Act, as amended (CAA). This rule codifies general procedures and criteria to implement emission standards for stationary sources that emit (or have the potential to emit) one or more of the eight substances listed as hazardous air pollutants in 40 CFR §61.01(a), or one or more of the substances listed as hazardous air pollutants in section 112(b) of the CAA. The Secretary hereby adopts these standards by reference. The Secretary also adopts associated reference methods, performance specifications and other test methods which are appended to these standards.

The modification does not affect the applicability of 45CSR34. The standards set forth by 40 CFR Part 63, Subpart HH will continue to apply.

**40 CFR 63,  
Subpart A**

**General Provisions**

The station is an area source of HAPs as defined in §63.2. As an area source of HAPs, the glycol dehydration unit at the station is potentially subject to MACT standards codified at 40 CFR Part 63. Note that the replacement enclosed flare serves as a control device for the glycol dehydration unit, and is subject to the control device and work practice requirements specified in Condition No. 10.1.4 of General Permit 35-A057, which are based on provisions in 40 CFR §63.11 (Subpart A).

Fact Sheet G35-A057A  
Dominion Transmission, Inc.  
Chapman Compressor Station

**NESHAP for Oil and Natural Gas Production Facilities**

**No Change:** The station is subject to this subpart because it transports natural gas to a natural gas processing plant.

The station is subject to the area source requirements, and the only affected source is the glycol dehydration unit which meets the definition of a large glycol dehydration unit because its actual annual gas flow rate is greater than 85 thousand standard cubic meters per day (Mm<sup>3</sup>/day), and its uncontrolled benzene emissions are greater than 0.90 megagrams per year (Mg/yr), or 1 tpy. The station is not located within an urbanized area plus offset (UA plus offset) and urban cluster (UC) boundary.

The glycol dehydration unit actual average benzene emissions (i.e., controlled emissions) are less than 0.90 Mg/yr (1 tpy), as determined in accordance with §63.772(b)(2)(i). Therefore, the glycol dehydration unit meets the exemption criteria as specified by §63.764(e)(ii).

Potential actual average benzene emissions following the replacement of the control device will remain less than 0.90 Mg/yr (1 tpy), due to the emissions reductions associated with the federally enforceable controls (i.e., replacement enclosed flare) in place per §63.772 (b)(2).

Because the control device replacement ensures that the potential annual benzene emissions will remain less than 0.90 Mg/yr (1 tpy), the dehydration unit will remain exempt from the requirements of §63.764(d)(1)(i) through (iii). Records associated with this determination will be maintained in accordance with §63.774(d)(1).

Although the dehydration unit is not subject to control device requirements of 40 CFR 63 Subpart HH or Subpart A, the dehydration unit's control device (replacement enclosed flare) is subject to the control device and work practice requirement

specified in §63.11 (Subpart A), as required per Condition No. 10.1.4 of General Permit 35-A057.

**40 CFR 63,  
Subpart HHH**

**NESHAP for Natural Gas Transmission and Storage Facilities**

No Change: The provisions of 40 CFR Part 63, Subpart HHH apply to glycol dehydration units located at natural gas transmission and storage facilities that transport or store natural gas prior to entering the pipeline to a local distribution company or to a final end user. Because the station is associated with a natural gas production facility, HHH does not apply.

**40CFR63,  
Subpart ZZZZ**

**National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combust Engines**

No Change: Subpart ZZZZ establishes national emission limitations and operating limitations for HAPs emitted from stationary RICE located at major and area sources of HAP emissions. The subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

The modification does not affect the applicability of 45CSR34/40 CFR 63, Subpart ZZZZ.

**TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS**

Benzene, Toluene, Xylenes, and n-Hexane are HAPs that occur in natural gas. Information about these HAPs is available on the internet.

Formaldehyde emissions result when natural gas is combusted in a compressor or emergency generator engine. Information on Formaldehyde is given below. Additional information can be found on the internet. This modification did not change formaldehyde emissions.

**Formaldehyde**

Formaldehyde, a colorless, pungent-smelling gas, can cause watery eyes, burning sensations in the eyes and throat, nausea, and difficulty in breathing in some humans

Fact Sheet G35-A057A  
Dominion Transmission, Inc.  
Chapman Compressor Station

exposed at elevated levels (above 0.1 parts per million). High concentrations may trigger attacks in people with asthma. There is evidence that some people can develop a sensitivity to formaldehyde. It has also been shown to cause cancer in animals and may cause cancer in humans. Health effects include eye, nose, and throat irritation; wheezing and coughing; fatigue; skin rash; severe allergic reactions. May cause cancer. May also cause other effects listed under "organic gases."

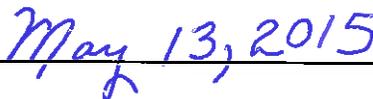
CHANGES TO PERMITS G35-A057

See Attachment 1 to this evaluation for a file comparison of G35-A057A to G35-A057.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that compliance with all applicable state rules and federal regulations will be achieved. Therefore, I recommend that general permit registration G35-A057A be issued to Dominion for the modification to their Chapman Compressor Station located near Wolf Summit, Harrison County, WV.

  
\_\_\_\_\_  
John Legg  
Permit Writer

  
\_\_\_\_\_  
Date

ATTACHMENT 1

FILE COMPARISON

West Virginia Department of Environmental Protection  
Earl Ray Tomblin Governor

Division of Air Quality

Randy C. Huffman  
Cabinet Secretary

Class II General Permit  
G35-A Registration to ~~Construct~~Modify



for the Prevention and Control of Air Pollution in regard to the  
Construction, Modification, Relocation, Administrative Update and  
Operation of Natural Gas Compressor Stations  
With Glycol Dehydration Units, Flares, or Other Specified Control Devices Herein

*The permittee identified at the facility listed below is authorized to  
construct the stationary sources of air pollutants identified herein in accordance  
with all terms and conditions of General Permit G35-A.*

**G35-~~A057~~A057A**

Issued to:  
**Dominion Transmission, Inc.**  
Chapman Compressor Station  
033-00146

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***John A. Benedict***  
***William F. Durham***  
Director

Issued: ~~June 28, 2011~~ • Effective: ~~June 28, 2011~~

G35-A057A to G35-A057

May 13, 2015

Facility Location: Wolf Summit, Harrison County, West Virginia  
Mailing Address: 445 West Main Street  
Clarksburg, WV 26301  
Facility Description: Natural Gas Compressor Station  
SIC Codes: 4922 – Transmission Facility  
UTM Coordinates: 553.21 km Easting • 4,330.71 km Northing • Zone 17  
Lat/Long. Coordinates: 39.2519 Degrees North Latitude; -80.4559 Degrees East Longitude  
Registration Type: Modification  
Description of Change:

G35-A057A - Replace the station's existing flare with a new flare (FL-3) which will serve as an air pollution control device for the TEG dehydrator unit's regeneration column still (vent RSV-2).

The increases in VOC (+21.74 tpy) and HAP (+1.86 tpy) emissions from replacing the flare are attributed to an updated analysis of the wet natural gas taken at the site on February 11, 2014.

G35-A057 - Combining permits G30-A042 and G60-C028, replacing an existing TEG dehydration unit with a new TEG dehydration unit, and adding a new flare.

Subject to 40CFR60 Subpart IIII? No

Subject to 40CFR60 Subpart JJJJ? Yes

*Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit or registration issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§ 22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §22-5-14.*

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*The source is not subject to 45CSR30.*

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*Unless otherwise stated WVDEP DAQ did not determine whether the registrant is subject to an area source air toxics standard requiring Generally Achievable Control Technology (GACT) promulgated after January 1, 2007 pursuant to 40 CFR 63, including the area source air toxics provisions of 40 CFR 63, Subpart HH and 40 CFR 63, Subpart ZZZZ.*

**All registered facilities under Class II General Permit G35-A are subject to Sections 1.0, 1.1, 2.0, 3.0, and 4.0.**

The following sections of Class II General Permit G35-A apply to the registrant:

|            |   |                                     |
|------------|---|-------------------------------------|
| Section 5  | Reciprocating Internal Combustion Engines (R.I.C.E.)  | <input checked="" type="checkbox"/> |
| Section 6  | Boilers, Reboilers, and Line Heaters  | <input checked="" type="checkbox"/> |
| Section 7  | Tanks   | <input type="checkbox"/>            |
| Section 8  | Emergency Generators  | <input checked="" type="checkbox"/> |
| Section 9  | Dehydration Units Not Subject to MACT Standards   | <input type="checkbox"/>            |
| Section 10 | Dehydration Units Not Subject to MACT Standards and being controlled by a flare control device  | <input checked="" type="checkbox"/> |
| Section 11 | Dehydration Units Not Subject to MACT Standards being controlled by recycling the dehydration unit back to the flame zone of the reboiler | <input type="checkbox"/>            |
| Section 12 | Dehydration Units Not Subject to MACT Standards and being controlled by a thermal oxidizer  | <input type="checkbox"/>            |
| Section 13 | Permit Exemption (Less than 1 ton/year of benzene exemption)  | <input checked="" type="checkbox"/> |
| Section 14 | Permit Exemption (40CFR63 Subpart HH – Annual average flow of gas exemption (3 mmscf/day))  | <input type="checkbox"/>            |
| Section 15 | Permit Exemption (40CFR63 Subpart HHH – Annual average flow of gas exemption (10 mmscf/day))  | <input type="checkbox"/>            |
| Section 16 | Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (40CFR60 Subpart JJJJ)                                 | <input checked="" type="checkbox"/> |

**Emission Units**

| Emission Unit ID | Emission Unit Description (Make, Model, Serial No.)  | Year Installed | Design Capacity      |
|------------------|--|----------------|----------------------|
| CE-1             | Superior 8GTLX – <u>Compressor Engine</u>  | 2002           | 1100/900 bhp/rpm     |
| GE-1             | Cummins GM8.1L – <u>Generator Engine</u>   | 2011           | 192.5/1,800 bhp/rpm  |
| GE-2             | Cummins GM8.1L – <u>Generator Engine</u>   | 2011           | 192.5/1,800 bhp/rpm  |
| RBV-2            | RBV-2 ( <u>Reboiler Vent</u> )   | 2011           | 0.567 MMBTU/hr       |
| RSV-2            | <u>RSV-2RSV-2 (Glycol Dehydator - Regeneration Still Vent)</u>                                     | 2011           | 6.3 MMSCF/day        |
|                  | <u>Controlled by Questor Q50 – Enclosed Flare (FL-3) rated at a 95% VOC/HAP Control Efficiency</u> | <u>2015</u>    | <u>46.3 Mscf/day</u> |
| T01              | Horizontal Lube Oil Tank   | Existing       | 1,000 gallons        |
| T02              | Horizontal Lube Oil Tank   | Existing       | 1,000 gallons        |
| T03              | Horizontal Pipeline Fluids Tank  | Existing       | 3,000 gallons        |
| T04              | Horizontal Ethylene Glycol Tank  | Existing       | 1,000 gallons        |
| T05              | Horizontal Triethylene Glycol Tank   | Existing       | 550 gallons          |

## Reciprocating Internal Combustion Engines (R.I.C.E.) Information

| Emission Unit ID | Subject to 40CFR60 Subpart III? | Subject to 40CFR60 Subpart JJJJ? | Subject to Sections 5.1.4/5.2.1 (Catalytic Reduction Device) |
|------------------|---------------------------------|----------------------------------|--|
| CE-1             | No                              | No                               | No   |
| GE-1             | No                              | Yes                              | Yes  |
| GE-2             | No                              | Yes                              | Yes  |

### Emission Limitations

| Emission Unit  | Pollutant                         | Maximum Emissions            |                            |
|--|-----------------------------------|------------------------------|----------------------------|
|  |                                   | Hourly (lb/hr)               | Annual (tpy)               |
| CE-1<br>Superior 8GTLX<br>1,100 bhp<br><u>(Compressor Engine)</u>  | Nitrogen Oxides                   | 4.85                         | 21.24                      |
|  | Carbon Monoxide                   | 7.28                         | 31.87                      |
|  | Volatile Organic Compounds        | 0.92                         | 4.04                       |
|  | Sulfur Dioxide                    | 0.01                         | 0.02                       |
|  | Particulate Matter-10-            | 0.01                         | 0.01                       |
|  | Formaldehyde                      | 0.41                         | 1.81                       |
| EGGE-1<br>Cummins GM8.1L<br>192.5 bhp<br><u>(Generator Engine)</u>   | Nitrogen Oxides                   | 0.03                         | 0.01                       |
|  | Carbon Monoxide                   | 0.39                         | 0.1                        |
|  | Volatile Organic Compounds        | 0.19                         | 0.35                       |
|  | Sulfur Dioxide                    | 0.01                         | 0.01                       |
|  | Particulate Matter-10-            | 0.02                         | 0.01                       |
|  | Formaldehyde                      | 0.03                         | 0.01                       |
| EGGE-2<br>Cummins GM8.1L<br>192.5 bhp<br><u>(Generator Engine)</u>   | Nitrogen Oxides                   | 0.03                         | 0.01                       |
|  | Carbon Monoxide                   | 0.39                         | 0.1                        |
|  | Volatile Organic Compounds        | 0.19                         | 0.05                       |
|  | Sulfur Dioxide                    | 0.01                         | 0.01                       |
|  | Particulate Matter-10-            | 0.02                         | 0.01                       |
|  | Formaldehyde                      | 0.03                         | 0.01                       |
| RBV-2<br>0.567 MMBTU/hr<br><u>(Reboiler Vent)</u>  | Nitrogen Oxides                   | 0.05                         | 0.22                       |
|  | Carbon Monoxide                   | 0.04                         | 0.18                       |
|  | Volatile Organic Compounds        | 0.04                         | 0.17                       |
|  | Sulfur Dioxide                    | 0.01                         | 0.01                       |
|  | Particulate Matter-10-            | 0.01                         | 0.01                       |
| RSV-2<br>6.3 MMSCF/day<br><u>(Glycol Dehydrator -<br/>Regeneration Still Vent)</u><br><br><u>Controlled by Enclosed<br/>Flare FL-3</u> | Volatile Organic Compounds        | <del>0.475</del> <u>0.42</u> | <del>2.08</del> <u>2.3</u> |
|  | Benzene                           | <del>0.0203</del>            | <del>0.0712</del>          |
|  | Toluene                           | <del>0.0205</del>            | <del>0.0821</del>          |
|  | Xylenes                           | <del>0.0233</del>            | <del>0.09145</del>         |
|  | n-Hexane                          | <del>0.0106</del>            | <del>0.0527</del>          |
|  | <u>Total HAP</u>                  | <u>0.49</u>                  | <u>2.15</u>                |
| FL-3<br>Pilot Flame  | <u>Nitrogen Oxides</u>            | <u>0.52</u>                  | <u>2.30</u>                |
|  | <u>Carbon Monoxide</u>            | <u>0.33</u>                  | <u>1.46</u>                |
|  | <u>Volatile Organic Compounds</u> | <u>==</u>                    | <u>==</u>                  |

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|  |                              |                 |             |
|--|------------------------------|-----------------|-------------|
|  | <u>Sulfur Dioxide</u>        | <u>&lt;0.01</u> | <u>0.01</u> |
|  | <u>Particulate Matter-10</u> | <u>0.05</u>     | <u>0.20</u> |