

# Fact Sheet



## For Final Significant Modification Permitting Action Under 45CSR30 and Title V of the Clean Air Act

This Fact Sheet serves to address the changes specific to this Significant Modification, and shall be considered a supplement to the Fact Sheet corresponding with the Title V operating permit issued on September 15, 2011.

Permit Number: **R30-03300013-2011 (SM01)**

Application Received: **February 2, 2012**

Plant Identification Number: **03-54-033-00013**

Permittee: **Dominion Transmission, Inc.**

Facility Name: **Sardis Station**

Mailing Address: **445 West Main Street, Clarksburg, WV 26301**

Permit Action Number: *SM01*      Revised: *November 14, 2012*

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Physical Location:	Sardis, Harrison County, West Virginia
UTM Coordinates:	552.89 km Easting • 4355.61 km Northing • Zone 17
Directions:	Interstate 79 North to the Clarksburg exit. Turn left off the exit ramp, then go thru Clarksburg on Route 50. Off of Route 50, turn onto Route 9 (Gregory Run Road). Travel for 5 miles, and then turn right at Dominion Transmission, Inc. (DTI) sign. Go approximately 0.5 miles to station.

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### Facility Description

Sardis Compressor Station is a natural gas facility covered by Standard Industrial Classification (SIC) Code 4922 and North American Industry Classification System (NAICS) Code 48612. The Sardis Station currently consists of one (1) 1000 HP natural gas fired reciprocating engine, (1) 800 HP natural gas fired reciprocating engine, two (2) 192.5 HP emergency generators, one (1) glycol dehydrator system, one (1) dehydration unit reboiler, one (1) dehydration unit still flare, two (2) 2,730-gallon aboveground storage tanks, one (1) 2,500-gallon aboveground storage tank, one (1) 230-gallon aboveground storage tank, one (1) 5,000-gallon aboveground storage tank, one (1) 500-gallon aboveground storage tank, and one (1) 520-gallon aboveground storage tank. The station has the potential to operate seven (7) days per week, twenty-four (24) hours per day.

This significant modification involves the changes reflected in Permit R13-2915, which is for the addition of a new natural gas compressor engine and new dehydration unit still, reboiler, and flare to replace the existing dehydration unit still, reboiler, and flare.

The Sardis Station compresses production gas to Hastings Extraction Plant.

### Emissions Summary

Regulated Pollutants	Initial PTE	SM01 PTE	Proposed PTE
	TPY	TPY	TPY
Carbon Monoxide (CO)	72.50	7.50 Increase	80.00
Nitrogen Oxides (NO <sub>x</sub> )	422.32	8.30 Increase	430.62
Particulate Matter (PM <sub>2.5</sub> )	0.01	1.0 Increase	1.01
Particulate Matter (PM <sub>10</sub> )	0.61	1.0 Increase	1.61
Total Particulate Matter (TSP)	0.61	1.0 Increase	1.61
Sulfur Dioxide (SO <sub>2</sub> )	0.04	0.03 Increase	0.07
Volatile Organic Compounds (VOC)	159.78	16.3 Decrease	143.48
<i>PM<sub>10</sub> is a component of TSP.</i>			
Hazardous Air Pollutants	Initial PTE	SM01 PTE	Proposed PTE
	TPY	TPY	TPY
Total HAPs	17.37	6.4 Decrease	10.97
<i>Some of the above HAPs may be counted as PM or VOCs.</i>			

### Title V Program Applicability Basis

With the proposed changes associated with this modification, this facility maintains the potential to emit over 100 tons per year of Nitrogen Oxides (NO<sub>x</sub>) and Volatile Organic Compounds (VOC). Due to this facility's potential to emit over 100 tons per year of criteria pollutant, Dominion Transmission, Inc. is required to have an operating permit pursuant to Title V of the Federal Clean Air Act as amended and 45CSR30.

### Legal and Factual Basis for Permit Conditions

The State and Federally-enforceable conditions of the Title V Operating Permits are based upon the requirements of the State of West Virginia Operating Permit Rule 45CSR30 for the purposes of Title V of the Federal Clean Air Act and the underlying applicable requirements in other state and federal rules.

The modification to this facility has been found to be subject to the following applicable rules:

Federal and State:	45CSR2	To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchanger
	45CSR6	To Prevent and Control Particulate Air Pollution from the Combustion of Refuse
	45CSR10	To Prevent and Control Air Pollution from the Emissions of Sulfur Dioxides

	45CSR13	Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits, and Procedures for Evaluation
	45CSR16	Standards of Performance for New Stationary Sources Pursuant to 40 C.F.R. Part 60
	45CSR30	Operating permit requirement
	40 C.F.R. Part 60 Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines
	40 C.F.R. Part 63 Subpart HH	National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities
	40 C.F.R. Part 64	Compliance Assurance Monitoring
State Only:	45CSR4	To Prevent and Control the Discharge of Air Pollutants into the Open Air which Causes or Contributes to an Objectionable Odor or Odors.

Each State and Federally-enforceable condition of the draft Title V Operating Permit references the specific relevant requirements of 45CSR30 or the applicable requirement upon which it is based. Any condition of the draft Title V permit that is enforceable by the State but is not Federally-enforceable is identified in the draft Title V permit as such.

The Secretary's authority to require standards under 40 C.F.R. Part 60 (NSPS), 40 C.F.R. Part 61 (NESHAPs), and 40 C.F.R. Part 63 (NESHAPs MACT) is provided in West Virginia Code §§ 22-5-1 *et seq.*, 45CSR16, 45CSR34 and 45CSR30.

**Active Permits/Consent Orders**

Permit or Consent Order Number	Date of Issuance	Permit Determinations or Amendments That Affect the Permit ( <i>if any</i> )
R13-2915	April 30, 2012	
G60-C026	January 4, 2011	

Conditions from this facility's Rule 13 permit(s) governing construction-related specifications and timing requirements will not be included in the Title V Operating Permit but will remain independently enforceable under the applicable Rule 13 permit(s). All other conditions from this facility's Rule 13 permit(s) governing the source's operation and compliance have been incorporated into this Title V permit in accordance with the "General Requirement Comparison Table B," which may be downloaded from DAQ's website.

**Determinations and Justifications**

The Title V Significant Modification incorporates the following changes from R13-2915, issued on April 30, 2012.

- a. The installation of a 750 HP (EN03) Ajax reciprocating internal combustion engine (Model - DPC-2804LE) for compression. EN03 has an oxidation catalyst and is fired with natural gas. EN03 is subject to 40 C.F.R. Part 60 Subpart JJJJ. EN03 is a two-stroke lean burn (2SLB) engine and is not certified.

- b. The replacement of the current NATCO glycol dehydration unit (DEHY01) with a new Cameron glycol dehydration unit (DEHY02) which is rated at 22 million standard cubic feet per day (mmscfd). DEHY02 emissions will be routed to a flare (FL02), rated at 4 MMBTU/hr, for volatile organic compound, hazardous air pollutant, and odor control. The new natural gas fired reboiler (RBR02) associated with DEHY02 will be rated at 1.437 MMBTU/hr. The existing dehydration unit (DEHY01), reboiler (RBR01), and flare (DEHY) will be taken out of service.

The following changes were made to the Title V permit as a result of the changes made under R13-2915:

1. Sections 1.1 and 1.2 of Section 1.0 for Emission Units and Active R13, R14, and R19 Permits were updated to the current equipment and current NSR permit number.

a. Emission Units Table

1. The following was added for the new compressor engine.

- 1.1. The "Emission Unit ID" and "Emission Point ID" were included as "EN03."
- 1.2. The "Emission Unit Description" is "Reciprocating Engine/Integral Compressor; Ajax DPC-2804LE."
- 1.3. The "Year Installed" is 2012.
- 1.4. The "Design Capacity" is 750 HP.
- 1.5. The "Control Device" is an oxidation catalyst (CC01)

2. The following are the revisions for the Glycol Dehydration Unit Still.

- 2.1. The "Emission Unit ID" and "Emission Point ID" were revised from "DEHY01" to "DEHY02."
- 2.2. The manufacturer was changed to "Cameron" from "NATCO" in the "Emission Unit Description."
- 2.3. The "Year Installed" is 2012.
- 2.4. The "Design Capacity" was changed from "18 mmscf / hr" "to 22 mmscf / day."
- 2.5. The "Control Device" was changed from "Flare" to "FL02."

3. The following are the revisions for Glycol Dehydration Reboiler.

- 3.1. The "Emission Unit ID" and "Emission Point ID" were revised from "RBR01" to "RBR02."
- 3.2. The manufacturer was changed to "Cameron" from "NATCO" in the "Emission Unit Description."
- 3.3. The "Year Installed" is 2012.

- 3.4. The “Design Capacity” was changed from “1.437 MMBtu/hr” to “0.3 MMBtu/hr.”
4. The following are the revisions for Dehydration Unit Still Flare.
  - 4.1. The “Emission Unit ID” and “Emission Point ID” were revised from “DEHY” to “FL02.”
  - 4.2. The manufacturer was added as “Cameron” in the “Emission Unit Description.”
  - 4.3. The “Year Installed” is 2012.
  - 4.4. The “Design Capacity” was changed from “31.5 foot<sup>3</sup> / min” to “4.0 MMBtu / hr.”
5. The following is for the addition of the oxidation catalyst control device.
  - 5.1. The “Emission Unit ID” and “Emission Point ID” is “CC01.”
  - 5.2. The “Year Installed” is 2012.
  - 5.3. The “Design Capacity” is N/A.
  - 5.4. The “Control Device” is N/A.
- b. Active R13, R14, and R19 Permits
  1. The “Permit Number” R13-2915 was included in the table.
  2. The “Date of Issuance” is April 30, 2012.
2. Title V boiler plate language for 45CSR42 - Greenhouse Gas Emissions Inventory Program in Sections 3.1.10 and 3.5.10 was removed.
3. Section 3.1.10 was added and states that the Secretary has the authority to suspend or revoke an approved R13 permit if the construction and operation are not in accordance with the plans and specifications, filed in the application upon which the approval was based.
4. Condition 4.1.2 of R13-2915 was added as Section 3.1.11 in the Title V permit. This section is for “Operation and Maintenance of Air Pollution Control Equipment” for Flare (FL02) and Oxidation Catalyst (CC01).
5. Condition 4.1.3 of R13-2915 was added as Section 3.4.4 in the Title V permit. This section is for “Record of Malfunctions of Air Pollution Control Equipment” for Flare (FL02) and Oxidation Catalyst (CC01).
6. Section 3.4.1 citation was updated to incorporate Condition 4.1.1 of R13-2915 since the contents of Condition 4.1.1 concurs with the contents of Section 3.4.1 of the Title V permit.
7. In Section 3.5.3, the US EPA Region 3’s address was revised. This is a general change to the boiler plate language.
8. The table in Section 3.7.2 for non-applicable requirements was updated for the proposed construction as follows:

<b>40 C.F.R § 60.18</b>	The previous flare (DEHY), which was used only for odor control, was replaced with Flare (FL02) that has requirements from R13-2915 similar to 40 C.F.R § 60.18.
<b>40 C.F.R. Part 60 Subpart III</b>	Included EN03 since it is a spark-ignition engine and not a compression ignition internal combustion engine.
<b>40 C.F.R. Part 64</b>	The new replacement Flare (FL02) is subject to Compliance Assurance Monitoring (CAM). Thus, CAM was removed from the non-applicable requirements table.

9. The requirements for the “Dehydration Reboiler (RBR02)” are highlighted in Sections 4.1.2 – 4.1.5, 4.2.1, and 4.4.1.
  - a. In Section 4.1.2, the facility shall show compliance for opacity by using a continuous opacity monitoring system or observe the opacity using 40 C.F.R. Part 60 Appendix A, Method 9 for 45CSR§2-3.1, Section 4.1.1.
  - b. Section 4.1.3 provides the maximum design heat input for the glycol dehydration unit reboiler (RBR02).
  - c. Section 4.1.4 specifies the amount of natural gas that the glycol dehydration unit reboiler (RBR02) can consume on an hourly and annual basis to demonstrate compliance with the maximum emission limits as shown in Section 4.1.5.
  - d. Section 4.1.5 shows the maximum emission limits for the glycol dehydration unit reboiler (RBR02).
  - e. Section 4.2.1 requires the facility to show compliance with 45CSR§2-3.1(Section 4.1.1) by monitoring the opacity per 45CSR§2-3.2 (Section 4.1.2.), see Item 9.a.
  - f. Section 4.4.1 compels the facility to show compliance with the natural gas consumption limits in Section 4.1.4 and the emission limits in Section 4.1.5 by maintaining monthly records of the amount of natural gas consumed and the hours of operation of the reboiler.
10. The 45CSR§6-4.1 limit in Section 5.1.1 was updated for the new flare (FL02).
11. The equipment cited in Sections 5.1.1 - 5.1.7, and 5.2.2 - 5.2.4 were revised for new flare (FL02) and the dehydration unit still (DEHY02).
12. Section 5.5.1 was removed since it is similar to Section 5.5.4, which is identical to Condition 7.5.2 of R13-2915. The remaining sections were renumbered accordingly.
13. Section 5.5.1, formerly 5.5.2, was revised to incorporate that the facility is to submit a copy of the most recent emission summary report for the dehydration unit with the Title V renewal application.
14. The requirements from R13-2915 for the new Dehydration Unit Still (DEHY02) and Flare (FL02) were added as Sections 5.1.9 through 5.1.13, 5.2.5, 5.2.6, 5.3.2 - 5.3.4, 5.4.4 through 5.4.11, 5.5.3 through 5.5.5.
15. CAM requirements for the “Flare (FL02)” are itemized in Sections 5.2.5, 5.2.7 - 5.2.12, 5.4.2, 5.4.3, and 5.5.2.
16. The R13-2915 requirements for the 750 HP “Reciprocating Internal Combusting Engine (EN03)” are incorporated in Sections 7.1.7 - 7.1.20, 7.2.2, 7.3.4, 7.4.5, and 7.4.6.

17. Since the permit is not due for renewal until September 2016, a reopening of the permit to incorporate revised RICE MACT requirements would be required in accordance with 45CSR§30-6.6.a.1. To avoid the reopening, this significant modification includes revised RICE MACT requirements. The applicable revised or added requirements are Sections 7.1.2, 7.1.4, 7.1.6, 7.2.1, 7.3.1, 7.3.3, 7.4.3, and 7.5.7 - 7.5.9.
18. Dominion Transmission, Inc. Sardis Compressor Station is a “major stationary source” subject to Prevention of Significant Deterioration (PSD) review under 45CSR14 since the potential NO<sub>x</sub> emissions are greater than 250 tons per year. A review was conducted under R13-2915 to determine if the addition of the new equipment was subject to PSD requirements under 45CSR14. It was determined in the engineering evaluation for R13-2915 that the addition of the engine (EN03); the replacement of the glycol dehydration unit still (DEHY02), glycol reboiler (RBR02), and Flare (FL02); and the addition of the emergency generators (EG01 and EG02) permitted under G60-C026, did not constitute a “major modification” as defined under 45CSR§14-2.40. The PSD review included greenhouse gas (GHG) emissions and determined that the increase in GHG emissions was well below 75,000 tons per year of CO<sub>2</sub>e which triggers PSD permitting under the PSD and Title V GHG Tailoring Rule.

#### **40 C.F.R. Part 64 - Compliance Assurance Monitoring (CAM)**

With the replacement of the existing dehydration unit (DEHY01) with a new dehydration unit (DEHY02), the emission unit DEHY02 is a pollutant-specific emissions unit (PSEU) for the pollutant VOC. The PSEU meets all of the applicability criteria in 40 C.F.R. §§ 64.2 (a) (1) - (3). That is, the PSEU is subject to an emission limit for VOC (R13-2915, 7.1.2.); uses a control device (Flare FL02) to achieve compliance with the VOC emission limit; and has potential pre-control device emissions of VOC greater than 100 TPY. Furthermore, the PSEU does not meet any of the exemptions given under 40 C.F.R. § 64.2 (b) for VOC.

Condition 7.1.4.c of permit R13-2915 requires operation of the Flare (FL02) with a flame present at all times whenever emissions may be vented to the flare. In order to demonstrate compliance with this requirement, the R13-2915 Condition 7.2.1 requires monitoring of the presence or absence of a flare pilot flame using a thermocouple or other equivalent device. Therefore, continuous monitoring of the detector signal that indicates the presence of the pilot flame will provide reasonable assurance of ongoing compliance with the VOC limit. Sections 5.2.5, 5.2.7 through 5.2.12, 5.4.2, 5.4.3, and 5.5.2 contain the CAM requirements.

**Flare (FL02) CAM Plan**

Monitoring per the CAM Plan for flare emissions will be as follows:

	<b>Indicator No. 1</b>
<b>I. Indicator</b>	Flare (FL02) operation
Measurement Approach	Continuous monitoring of the flame using a computerized data acquisition, feedback, and control system to ensure the flare operates at all times the dehydration unit still is in operation. (Section 5.2.5.)
<b>II. Indicator Range</b>	Indicator provides data regarding presence or absence of flame.  The indicator is used to determine the presence of flare flame and pilot flame. If the detector indicates the absence of a flame, the unit is shutdown eliminating the possibility of excess emissions. The monitoring device returns a value of either "ON" (flame present) or "OFF" (flame absent); this attribute data is the Indicator Range of the monitoring methodology.
<b>III. Performance Criteria</b>	
<b>A. Data Representativeness</b>	The detector was installed, as specified by the manufacturer, to sight the most stable part of the flare flame at all firing rates. The installation was performed by a trained, experienced representative of the manufacturer.
<b>B. Verification of Operational Status</b>	All manufacturer's recommendations regarding periodic testing/checks for the proper installation and operations of the flame detecting device will be followed.
<b>C. QA/QC Practices and Criteria</b>	For the device that detects the presence of a flame; calibration, maintenance, and operation will be conducted in accordance with manufacturer's specifications.
<b>D. Monitoring Frequency</b>	Continuous
<b>Data Collection Procedure</b>	Continuous, alarmed signal is sent to the control panel and recorded in <i>Mhealth</i> , Dominion's computerized data acquisition, monitoring, and statistical analysis system. (Section 5.4.4.)
<b>Averaging Period</b>	Not applicable

**40 C.F.R. Part 60 Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines**

Sardis Station's Ajax DPC-2804LE Reciprocating Engine/Integral Compressor (EN03) shall comply with 40 C.F.R. Part 60 Subpart JJJJ. EN03 is a 2-stroke lean burn (2SLB) engine rated at 750 HP that combusts natural gas. Applicable emissions limitations are found in Table 1 of 40 C.F.R. Part 60 Subpart JJJJ as specified in 40 C.F.R. § 60.4233.

Comparing the applicable emissions limitations from Table 1 of 40 C.F.R. Part 60 Subpart JJJJ for a non-emergency SI lean burn natural gas engine with a maximum engine power between 500 to 1350 HP, with the emission limits in Section 7.1.8 of the Title V Permit shows that the maximum emissions from Sardis' natural gas fired engine (EN03) shall not exceed the requirements in 40 C.F.R. § 60.4233 and Table 1.

Pollutant	Table 1	Horsepower			Section 7.1.8.
	g/hp-hr	HP	LB/g	LB/hr <sup>1</sup>	LB/hr
VOC	1.0	750	0.0022046	1.65345	0.5
NOx	2.0	750	0.0022046	3.3069	1.66
CO	4.0	750	0.0022046	6.6138	1.24

<sup>1</sup> Calculation for LB/hr = g/hp-hr \* HP \* LB/g

The emission limits in Table 1 of 40 C.F.R. Part 60 Subpart JJJJ are less stringent than the emission limits established in R13-2915 (Title V Section 7.1.8.). Therefore, compliance with the Table 1 limits will be streamlined with Title V Section 7.1.8.

**40 C.F.R. Part 63 Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines**

The Dominion Transmission, Inc. Sardis Station's new 750 HP Reciprocating Engine Integral Compressor (EN03) is subject to the area source provisions of 40 C.F.R. Part 63 Subpart ZZZZ. EN03 is a spark-ignition (SI) two-stroke lean burn (2SLB) reciprocating engine/integral compressor that combusts pipeline quality natural gas. The engine will be considered a new source since the construction date of the engine is after June 12, 2006. This new stationary source must meet the requirements of 40 C.F.R. Part 63 Subpart ZZZZ by meeting the requirements of 40 C.F.R. Part 60 Subpart JJJJ, per 40 C.F.R. § 63.6590 (c) (1). No further requirements apply to EN03 under 40 C.F.R. Part 63 Subpart ZZZZ.

**Non-Applicability Determinations**

The following requirements have been determined not to be applicable to the subject facility due to the following:

<b>40 C.F.R. Part 60 Subpart IIII</b>	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. The 750 HP reciprocating engine with integral compressor (EN03) is not a compression ignition engine as defined in 40 C.F.R. § 60.4219. EN03 is not subject to 40 C.F.R. Part 60 Subpart IIII since it is a spark-ignition engine.
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**Request for Variances or Alternatives**

None

**Insignificant Activities**

Insignificant emission unit(s) and activities are identified in the Title V application.

**Comment Period**

Beginning Date: September 26, 2012  
Ending Date: October 26, 2012

All written comments should be addressed to the following individual and office:

Wayne Green  
Title V Permit Writer  
West Virginia Department of Environmental Protection  
Division of Air Quality  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304

### **Procedure for Requesting Public Hearing**

During the public comment period, any interested person may submit written comments on the draft permit and may request a public hearing, if no public hearing has already been scheduled. A request for public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. The Secretary shall grant such a request for a hearing if he/she concludes that a public hearing is appropriate. Any public hearing shall be held in the general area in which the facility is located.

### **Point of Contact**

Wayne Green  
West Virginia Department of Environmental Protection  
Division of Air Quality  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304  
Phone: 304/926-0499 ext. 1258 • Fax: 304/926-0478

### **Response to Comments (Statement of Basis)**

Not applicable.