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# ENGINEERING EVALUATION / FACT SHEET

## BACKGROUND INFORMATION

| | |
|---|---|
| Application No.: | R13-3097 |
| Plant ID No.: | 017-00059 |
| Applicant: | Crestwood Appalachia Pipeline LLC (Crestwood) |
| Facility Name: | Victoria Compressor Station |
| Location: | Salem, Doddridge County |
| NAICS Code: | 221210 (Natural Gas Distribution) |
| Application Type: | Construction |
| Received Date: | June 24, 2013, August 30, 2013 (Application Resubmittal) |
| Engineer Assigned: | Jerry Williams, P.E. |
| Fee Amount: | $4,500.00 |
| Date Received: | June 24, 2013 ($2000.00), August 14, 2013 ($2,500.00) |
| Complete Date: | September 12, 2013 |
| Due Date: | December 11, 2013 |
| Applicant Ad Date | August 30, 2013 |
| Newspaper: | *The Exponent Telegram* |
| UTM's: | Easting: 528.784 km Northing: 4,355.724 km Zone: 17 |
| Description: | Installation and operation of a natural gas compressor station. |

## DESCRIPTION OF PROCESS

The following process description was taken from Permit Application R13-3097:

The Victoria Compressor Station will provide the removal of entrained water from the natural gas pipeline stream and provide compression of the natural gas stream. Liquids rich gas flow into the site from nearby natural gas well heads and small compressor stations. Free water will be removed via an in-line separator. Additional water will be removed via a tri-ethylene glycol (TEG) dehydration system.

The purpose of this permit application is to permit two (2) natural gas dehydration units/reboilers (RSV1/RBV1 and RSV2/RBV2), eleven compressor engines (CE-1 – CE-11), one (1) primary generator engine (GEN-1), one (1) backup generator engines (GEN-2), one (1) truck loading rack (LR-1) for off-site shipment of pipeline liquids, five (5) above ground storage tanks

(T-1 – T-5) containing condensate/produced water, and five (5) small above ground storage tanks (T-6 – T-10) containing miscellaneous liquids required for station operation (dehydrator glycol, bulk oil, waste oil, etc.).

The five (5) storage tanks containing condensate/produced water (T-1 – T-5) will have their volatile organic compounds (VOC) emissions controlled by electric vapor recovery unit control devices (VRU-1 is the primary control device and VRU-2 is the backup control device), which is a closed loop vapor return system. The truck loading rack (LR-1) will have uncontrolled fugitive VOC emissions and the trucks will be loaded by submerged fill.

The two (2) dehydration units (RSV-1 and RSV-2) will have VOC emission controls via condensers and combustion recycle to reboiler systems. All eleven (11) compressor engines will be rich burn and have non-selective catalytic reduction (NSCR) control systems. The miscellaneous liquids storage tanks (T-6 – T-10) will have negligible emissions of regulated air pollutants due to the extremely low vapor pressures and insignificant annual material throughputs.

Two (2) natural gas fired generators supply power to the facility, with one (1) as the primary generator (GEN-1) and the other as the backup generator (GEN-2). The backup generator will only operate if the primary generator goes down for service or for its own maintenance time.

Fugitive emissions from component leaks and emissions from venting or blowdown events will also occur.

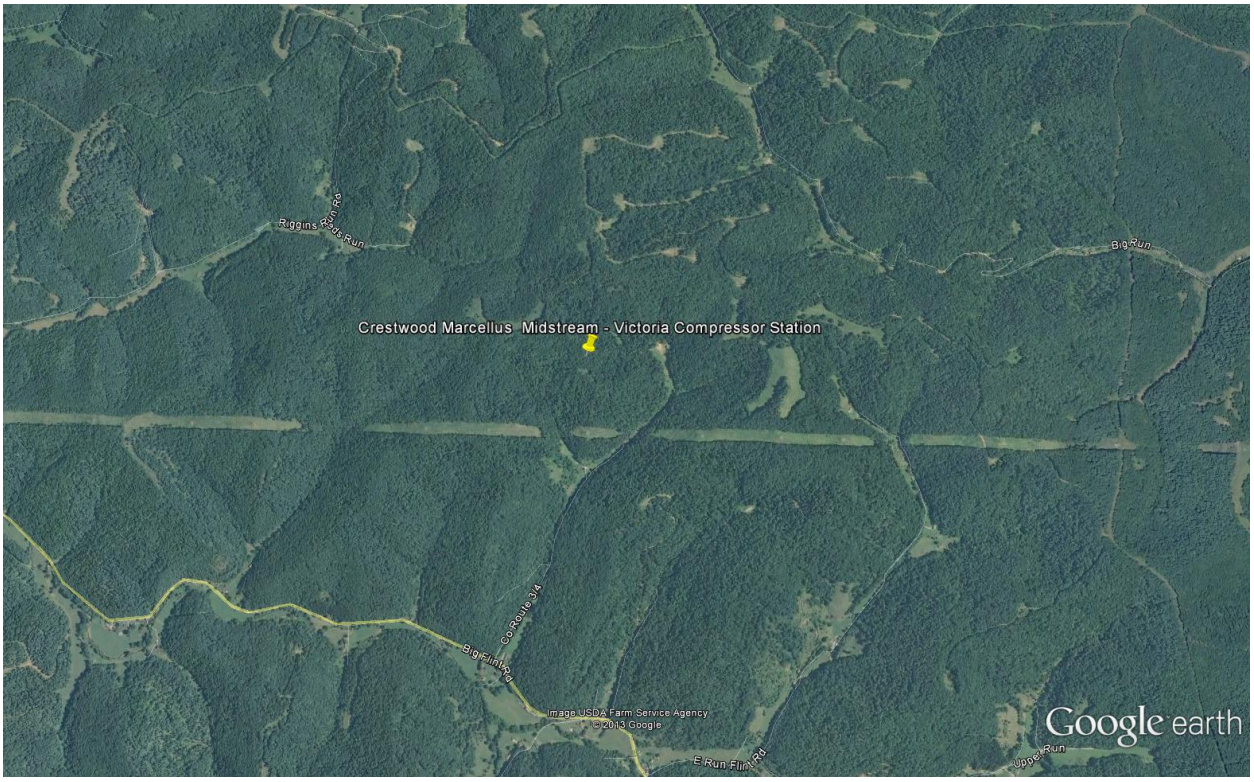
SITE INSPECTION

A site inspection was conducted on July 11, 2013 by Doug Hammell of the DAQ Enforcement Section. According to Mr. Hammell, the site location is appropriate for the proposed facility. The closest residence is approximately 465 feet away.

Latitude: 39.350481
Longitude: -80.665933

Directions as given in the permit application are as follows:

*From Victoria: Travel east on US Route 50 for about 9.5 miles. Turn left onto County Route 9 (Tarklin Run Road), then take an immediate left on County Route 50/27 and travel 0.2 miles. Turn right onto County Route 3 (Big Flint Road) and travel 4.7 miles, then turn right onto County Route ¾ (Boggs Run Road) and proceed 0.7 miles to the access road to the site.*




ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions associated with this construction application consist of the combustion emissions from eleven (11) natural gas fired compressor engines (CE-1 – CE-11), two (2) natural gas fired generators (GEN-1, GEN-2), two (2) TEG dehydrator still vents (RSV-1, RSV-2), two (2) TEG dehydrator reboilers (RBV-1, RBV-2), five (5) 400 bbl tanks (settling, condensate, produced water) (T-1 – T-5), five (5) miscellaneous storage tanks (waste oil, bulk glycol, LP Drain, coolant, bulk oil) (T-6, T-10), one (1) product loadout rack (LR-1), two (2) vapor recovery units (VRU-1, VRU-2) and fugitive emissions. Fugitive emissions for the facility are based on calculation methodologies presented in EPA Protocol for Equipment Leak Emission Estimates. The following table indicates which methodology was used in the emissions determination:

| Emission Point ID# | Process Equipment | Calculation Methodology |
|---|---|---|
| CE-1E – CE-11E | 1,627 hp Waukesha 7044 GSI Reciprocating Internal Combustion Engine (RICE) w/ NSCR | Manufacturer's Data, EPA AP-42 Emission Factors |
| GEN-1E, GEN-2E | 402 HP Natural Gas Fired Generators (Primary and Backup) | Manufacturer's Data, EPA AP-42 Emission Factors |
| RSV-1E, RSV-2E | 60 mmscfd TEG Dehydrator Still Vent w/ Condenser/Recycle | GRI-GlyCalc 4.0 |
| RBV-1E, RBV-2E | 1.5 MMBtu/hr TEG Dehydrator Reboiler | EPA AP-42 Emission Factors |
| T-1 | 400 bbl (16,800 gal) Produced Water/Condensate | EPA Tanks 4.09d and E&P |

| | | |
|---|---|---|
| | Settling Tank | Tanks 2.0 (Flashing) |
| T-2 | 400 bbl (16,800 gal) Produced Water Storage Tank | EPA Tanks 4.09d and E&P Tanks 2.0 (Flashing) |
| T-3 | 400 bbl (16,800 gal) Produced Water Storage Tank | EPA Tanks 4.09d and E&P Tanks 2.0 (Flashing) |
| T-4 | 400 bbl (16,800 gal) Condensate Storage Tank | EPA Tanks 4.09d and E&P Tanks 2.0 (Flashing) |
| T-5 | 400 bbl (16,800 gal) Condensate Storage Tank | EPA Tanks 4.09d and E&P Tanks 2.0 (Flashing) |
| T-6 | 1,000 gal Waste Oil Storage Tank | Negligible |
| T-7 | 1,000 gal Bulk Glycol Storage Tank | Negligible |
| T-8 | 500 gal LP Drain Storage Tank | Negligible |
| T-9 | 1,500 gal Coolant Storage Tank | Negligible |
| T-10 | 1,500 gal Bulk Oil Storage Tank | Negligible |
| 16E | 350 bbl (14,700 gal) / month Product Loadout Rack | EPA AP-42 Emission Factors |
| VRU-1 | Vapor Recovery Unit #1 (50,000 cf/day) | EPA AP-42 Emission Factors |
| VRU-2 | Vapor Recovery Unit #2 (50,000 cf/day) | EPA AP-42 Emission Factors |

The two (2) natural gas fired generators (6E-7E) are USEPA certified stationary spark ignition engines according to 40CFR60 Subpart JJJJ. Crestwood provided the USEPA Certificate of Conformity with this permit application.

The following table indicates the control device efficiencies that are required for this facility:

| Emission Unit | Pollutant | Control Device | Control Efficiency |
|---|---|---|---|
| 1,627 hp Waukesha 7044 GSI RICE w/ NSCR (CE-1 – CE-11) | Nitrogen Oxides | NSCR | 99 % |
| | Carbon Monoxide | | 98 % |
| | Volatile Organic Compounds | | 50 % |
| | Formaldehyde | | 76 % |
| 60 mmscfd TEG Dehydrator Still Vents (RSV-1, RSV-2) | Volatile Organic Compounds | Condenser and Combustion Recycle | 98 % |
| | Hazardous Air Pollutants | | 98 % |

The total facility PTE for the Victoria Compressor Station is shown in the following table:

| Pollutant | Facility Wide PTE (tons/year) |
|---|---|
| Nitrogen Oxides | 31.34 |
| Carbon Monoxide | 61.03 |
| Volatile Organic Compounds | 74.92 |
| Particulate Matter | 13.07 |
| Sulfur Dioxide | 0.40 |
| Formaldehyde | 2.42 |
| Total HAPs | 13.09 |
| Carbon Dioxide Equivalent | 99,413 |

Maximum detailed controlled point source emissions were calculated by Crestwood and checked for accuracy by the writer and are summarized in the table on the next page.

# Crestwood Appalachia Pipeline LLC – Victoria Compressor Station (R13-3097)

| Emission | Source | $NO_x$ | | CO | | VOC | | PM-10/2.5 | | $SO_2$ | | Formaldehyde | | Total HAPs | | $CO_2e$ | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Point ID# | | lb/hr | ton/year | lb/hr | ton/year | lb/hr | ton/year | lb/hr | ton/year | lb/hr | ton/year | lb/hr | ton/year | lb/hr | ton/year | lb/hr | ton/year |
| CE-1E | Compressor Engine #1 | 0.54 | 2.36 | 1.08 | 4.71 | 1.09 | 4.79 | 0.26 | 1.15 | <0.01 | 0.035 | 0.04 | 0.19 | 0.2 | 0.89 | 1965 | 8607 |
| CE-2E | Compressor Engine #2 | 0.54 | 2.36 | 1.08 | 4.71 | 1.09 | 4.79 | 0.26 | 1.15 | <0.01 | 0.035 | 0.04 | 0.19 | 0.2 | 0.89 | 1965 | 8607 |
| CE-3E | Compressor Engine #3 | 0.54 | 2.36 | 1.08 | 4.71 | 1.09 | 4.79 | 0.26 | 1.15 | <0.01 | 0.035 | 0.04 | 0.19 | 0.2 | 0.89 | 1965 | 8607 |
| CE-4E | Compressor Engine #4 | 0.54 | 2.36 | 1.08 | 4.71 | 1.09 | 4.79 | 0.26 | 1.15 | <0.01 | 0.035 | 0.04 | 0.19 | 0.2 | 0.89 | 1965 | 8607 |
| CE-5E | Compressor Engine #5 | 0.54 | 2.36 | 1.08 | 4.71 | 1.09 | 4.79 | 0.26 | 1.15 | <0.01 | 0.035 | 0.04 | 0.19 | 0.2 | 0.89 | 1965 | 8607 |
| CE-6E | Compressor Engine #6 | 0.54 | 2.36 | 1.08 | 4.71 | 1.09 | 4.79 | 0.26 | 1.15 | <0.01 | 0.035 | 0.04 | 0.19 | 0.2 | 0.89 | 1965 | 8607 |
| CE-7E | Compressor Engine #7 | 0.54 | 2.36 | 1.08 | 4.71 | 1.09 | 4.79 | 0.26 | 1.15 | <0.01 | 0.035 | 0.04 | 0.19 | 0.2 | 0.89 | 1965 | 8607 |
| CE-8E | Compressor Engine #8 | 0.54 | 2.36 | 1.08 | 4.71 | 1.09 | 4.79 | 0.26 | 1.15 | <0.01 | 0.035 | 0.04 | 0.19 | 0.2 | 0.89 | 1965 | 8607 |
| CE-9E | Compressor Engine #9 | 0.54 | 2.36 | 1.08 | 4.71 | 1.09 | 4.79 | 0.26 | 1.15 | <0.01 | 0.035 | 0.04 | 0.19 | 0.2 | 0.89 | 1965 | 8607 |
| CE-10E | Compressor Engine #10 | 0.54 | 2.36 | 1.08 | 4.71 | 1.09 | 4.79 | 0.26 | 1.15 | <0.01 | 0.035 | 0.04 | 0.19 | 0.2 | 0.89 | 1965 | 8607 |
| CE-11E | Compressor Engine #11 | 0.54 | 2.36 | 1.08 | 4.71 | 1.09 | 4.79 | 0.26 | 1.15 | <0.01 | 0.035 | 0.04 | 0.19 | 0.2 | 0.89 | 1965 | 8607 |
| GEN-1E | Generator Engine | 0.89 | 3.88 | 1.77 | 7.76 | 0.62 | 2.72 | 0.07 | 0.3 | <0.01 | 0.009 | 0.07 | 0.31 | 0.12 | 0.49 | 408 | 1784 |
| GEN-2E | Generator Engine | 0.89 | 0.22 | 1.77 | 0.44 | 0.62 | 0.16 | 0.07 | 0.02 | <0.01 | 0.001 | 0.07 | 0.02 | 0.11 | 0.03 | 408 | 102 |
| RSV-1E | Dehydrator Still Vent | 0 | 0 | 0 | 0 | 0.62 | 2.72 | 0 | 0 | 0 | 0 | 0 | 0 | 0.21 | 0.92 | 22 | 95 |
| RBV-1E | Dehydrator Reboiler | 0.15 | 0.64 | 0.12 | 0.51 | 0.01 | 0.03 | 0.01 | 0.05 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 168 | 734 |
| RSV-2E | Dehydrator Still Vent | 0 | 0 | 0 | 0 | 0.62 | 2.72 | 0 | 0 | 0 | 0 | 0 | 0 | 0.21 | 0.92 | 22 | 95 |
| RBV-2E | Dehydrator Reboiler | 0.15 | 0.64 | 0.12 | 0.51 | 0.01 | 0.03 | 0.01 | 0.05 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 168 | 734 |
| VRU-1/2 | Vapor Recovery Unit for | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LR-1 | Loadout Rack | 0 | 0 | 0 | 0 | 0.81 | 1.06 | 0 | 0 | 0 | 0 | 0 | 0 | 0.01 | 0.01 | 0 | 0 |
| Fugitive | Component Leaks | 0 | 0 | 0 | 0 | NA | 8.37 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 0.84 | NA | 505 |
| Fugitive | Venting | 0 | 0 | 0 | 0 | NA | 4.42 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 0.09 | NA | 692 |
| | | | | | | | | | | | | | | | | | |
| **Total** | **Total Facility PTE** | **8.02** | **31.34** | **15.66** | **61.03** | **15.30** | **74.92** | **3.02** | **13.07** | **0.10** | **0.40** | **0.58** | **2.42** | **2.86** | **13.09** | **22808** | **99413** |

REGULATORY APPLICABILITY

The following rules apply to the facility:

**45CSR2** (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers)

The purpose of 45CSR2 is to establish emission limitations for smoke and particulate matter which are discharged from fuel burning units. 45CSR2 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 4 (weight emission standard), 5 (control of fugitive particulate matter), 6 (registration), 8 (testing, monitoring, recordkeeping, reporting) and 9 (startups, shutdowns, malfunctions). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of the proposed reboilers (RBV-1, RBV-2) are below 10 MMBTU/hr. Therefore, these units are exempt from the aforementioned sections of 45CSR2.

Crestwood would also be subject to the opacity requirements in 45CSR2, which is 10% opacity based on a six minute block average.

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

The purpose of 45CSR10 is to establish emission limitations for sulfur dioxide which are discharged from fuel burning units. 45CSR10 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 3 (weight emission standard), 6 (registration), 7 (permits), and 8 (testing, monitoring, recordkeeping, reporting). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of the proposed reboilers (RBV-1, RBV-2) are below 10 MMBTU/hr. Therefore, these units are exempt from the aforementioned sections of 45CSR10.

**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 Crestwood exceeds the regulatory emission threshold for criteria pollutants of 6 lb/hr and 10 ton/year, and they are also subject to a substantive requirement of an emission control rule promulgated by the Secretary (40CFR60 Subparts JJJJ and OOOO).

In addition, because a limitation was placed on GEN-2E (hourly restriction) to remain below major source thresholds for $CO_2e$, Crestwood is subject to Notice Level C (45CSR13 Section 8.5) and will be required to publish a commercial display ad (45CSR13 Section 8.4.a) and post a visible sign at their facility (45CSR13 Section 8.5.a).

Crestwood paid the appropriate application fee and published the required legal advertisement for a construction permit application.

**45CSR16** (Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60)

45CSR16 applies to this source by reference of 40CFR60, Subparts JJJJ and OOOO. These requirements are discussed under that rule below.

**45CSR22** (Air Quality Management Fee Program)

Crestwood is not subject to 45CSR30. The Victoria Compressor Station is subject to 40CFR60 Subparts JJJJ and OOOO, however they are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided they are not required to obtain a permit for a reason other than their status as an area source.

Crestwood is required to pay the appropriate annual fees and keep their Certificate to Operate current.

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

40CFR60 Subpart JJJJ establishes emission standards for applicable SI ICE.

The 1,627 hp Waukesha 7044 GSI RICE (CE-1 – CE-11) were manufactured after the July 1, 2010 date for engines with a maximum rated power capacity greater than or equal to 500 hp.

The proposed 1,627 hp Waukesha 7044 GSI RICE (CE-1 – CE-11) will be subject to the following emission limits: NOx – 1.0 g/hp-hr (3.59 lb/hr); CO – 2.0 g/hp-hr (7.18 lb/hr); and VOC – 0.7 g/hp-hr (2.51 lb/hr). Based on the manufacturer's specifications for these engines, the emission standards will be met.

The proposed 1,627 hp Waukesha 7044 GSI RICE (CE-1 – CE-11) are not certified by the manufacturer to meet the emission standards listed in 40CFR60 Subpart JJJJ. Therefore, Crestwood will be required to conduct an initial performance test and conduct subsequent performance testing every 8,760 hours or three (3) years, whichever comes first, to demonstrate compliance.

**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 are subject to the applicable provisions of this subpart:

Each gas well affected facility, which is a single natural gas well.

*There are no gas wells at this facility. Therefore, all requirements regarding gas well affected facilities under 40 CFR 60 Subpart OOOO would not apply.*

a. Each centrifugal compressor affected facility, which is a single centrifugal compressor using wet seals that is located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. For the purposes of this subpart, your centrifugal compressor is considered to have commenced construction on the date the compressor is installed (excluding relocation) at the facility. A centrifugal compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

*There are no centrifugal compressors at the Victoria Compressor Station. Therefore, all requirements regarding centrifugal compressors under 40 CFR 60 Subpart OOOO would not apply.*

b. Each reciprocating compressor affected facility, which is a single reciprocating compressor located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. For the purposes of this subpart, your reciprocating compressor is considered to have commenced construction on the date the compressor is installed (excluding relocation) at the facility. A reciprocating compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

*There are reciprocating internal combustion engines located at the Victoria Compressor Station that were constructed after August 23, 2011. Therefore, the requirements regarding reciprocating compressors under 40 CFR 60 Subpart OOOO would apply. Crestwood would be required to perform the following:*

- Replace the reciprocating compressor rod packing at least every 26,000 hours of operation or 36 months.
- Demonstrate initial compliance by continuously monitoring the number of hours of operation or track the number of months since the last rod packing replacement.
- Submit the appropriate start up notifications.
- Submit the initial annual report for the reciprocating compressors.
- Maintain records of hours of operation since last rod packing replacement, records of the date and time of each rod packing replacement, and records of deviations in cases where the reciprocating compressor was not operated in compliance.

c. Pneumatic Controllers

- Each pneumatic controller affected facility, which is a single continuous bleed natural gas-driven pneumatic controller operating at a natural gas bleed rate greater than 6 scfh which commenced construction after August 23, 2011, and is located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment and not located at a natural gas processing plant.

- Each pneumatic controller affected facility, which is a single continuous bleed natural gas-driven pneumatic controller which commenced construction after August 23, 2011, and is located at a natural gas processing plant.

*There are no applicable pneumatic controllers which commenced construction after August 23, 2011. Therefore, all requirements regarding pneumatic controllers under 40 CFR 60 Subpart OOOO would not apply.*

d. 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 non-earthen 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 the Victoria Compressor Station will be controlled by a VRU which will reduce the potential to emit to less than 6 tpy of VOC. Therefore, Crestwood is not required by this section to reduce VOC emissions by 95%.*

e. The group of all equipment, except compressors, within a process unit is an affected facility.

- Addition or replacement of equipment for the purpose of process improvement that is accomplished without a capital expenditure shall not by itself be considered a modification under this subpart.

- Equipment associated with a compressor station, dehydration unit, sweetening unit, underground storage vessel, field gas gathering system, or liquefied natural gas unit is covered by §§60.5400, 60.5401, 60.5402, 60.5421 and 60.5422 of this subpart if it is located at an onshore natural gas processing plant. Equipment not located at the onshore natural gas processing plant site is exempt from the provisions of §§60.5400, 60.5401, 60.5402, 60.5421 and 60.5422 of this subpart.

- The equipment within a process unit of an affected facility located at onshore natural gas processing plants and described in paragraph (f) of this section are exempt from this subpart if they are subject to and controlled according to subparts VVa, GGG or GGGa of this part.

*The Victoria Compressor Station is not a natural gas processing plant. Therefore, Leak Detection and Repair (LDAR) requirements for onshore natural gas processing plants would not apply.*

f. Sweetening units located at onshore natural gas processing plants that process natural gas produced from either onshore or offshore wells.

- Each sweetening unit that processes natural gas is an affected facility; and

- Each sweetening unit that processes natural gas followed by a sulfur recovery unit is an affected facility.

- Facilities that have a design capacity less than 2 long tons per day (LT/D) of hydrogen sulfide ($H_2S$) in the acid gas (expressed as sulfur) are required to comply with recordkeeping and reporting requirements specified in §60.5423(c) but are not required to comply with §§60.5405 through 60.5407 and paragraphs 60.5410(g) and 60.5415(g) of this subpart.

- Sweetening facilities producing acid gas that is completely reinjected into oil-or-gas-bearing geologic strata or that is otherwise not released to the

atmosphere are not subject to §§60.5405 through 60.5407, 60.5410(g), 60.5415(g), and 60.5423 of this subpart.

*There are no sweetening units at the Victoria Compressor Station. Therefore, all requirements regarding sweetening units under 40 CFR 60 Subpart OOOO would not apply.*

**40CFR63 Subpart HH** (National Emission Standards for Hazardous Air Pollutants for Oil and Natural Gas Production Facilities)

Subpart HH establishes national emission limitations and operating limitations for HAPs emitted from oil and natural gas production facilities located at major and area sources of HAP emissions. The glycol dehydration unit at the Victoria Compressor Station is subject to the area source requirements for glycol dehydration units. However, because the facility is an area source of HAP emissions and the actual average benzene emissions from the glycol dehydration unit is below 0.90 megagram per year (1.0 tons/year) it is exempt from all requirements of Subpart HH except to maintain records of actual average flowrate of natural gas to demonstrate a continuous exemption status.

**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. The engines (CE-1 – CE-11) at the Victoria Compressor Station are subject to the area source requirements for non-emergency spark ignition engines.

The applicability requirements for new stationary RICEs located at an area source of HAPs, is the requirement to meet the standards of 40CFR60 Subpart JJJJ. These requirements were outlined above. The proposed engine meets these standards.

Because these engines will not be certified by the manufacturer, Crestwood will be required to perform an initial performance test within 180 days from startup, and subsequent testing every 8,760 hours or 3 years, whichever comes first.

The following rules do not apply to the facility:

**45CSR30** (Requirements for Operating Permits)

Crestwood is not subject to 45CSR30. The Victoria Compressor Station is subject to 40CFR60 Subparts JJJJ and OOOO, however they are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided they are not required to obtain a permit for a reason other than their status as an area source.

**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 Crestwood has proposed to install are 63.60 cubic meters each. Therefore, Crestwood would not be subject to this rule.

**40CFR60 Subpart KKK** (Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants)

40CFR60 Subpart KKK applies to onshore natural gas processing plants that commenced construction after January 20, 1984, and on or Before August 23, 2011. The Victoria Compressor Station is not a natural gas processing facility, therefore, Crestwood is not subject to this rule.

**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 Victoria Compressor Station is located in Doddridge County, which is an attainment county for all criteria pollutants, therefore the Victoria Compressor Station is not applicable to 45CSR19.

As shown in the table below, Crestwood is not subject to 45CSR14 or 45CSR19 review.

| **Pollutant** | **PSD (45CSR14) Threshold (tpy)** | **NANSR (45CSR19) Threshold (tpy)** | **Victoria PTE (tpy)** | **45CSR14 or 45CSR19 Review Required?** |
|---|---|---|---|---|
| Carbon Monoxide | 250 | NA | 61.03 | No |
| Nitrogen Oxides | 250 | NA | 31.34 | No |
| Sulfur Dioxide | 250 | NA | 0.40 | No |
| Particulate Matter 2.5 | 250 | NA | 13.07 | No |
| Ozone (VOC) | 250 | NA | 74.92 | No |
| Greenhouse Gas ($CO_2e$) | 100,000 | NA | 99,413 | No |

## TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

There will be small amounts of various non-criteria regulated pollutants emitted from the combustion of natural gas. However, due to the concentrations emitted, detailed toxicological information is not included in this evaluation.

## 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 Victoria Compressor Station is located in Doddridge County and will be operated by Crestwood.

1. The Victoria Compressor Station will operate under SIC code 4932 (Natural Gas Distribution). There are other compressor stations operated by Crestwood that share the same two-digit major SIC code of 49 for natural gas transmission. Therefore, the Victoria Compressor Station does share the same SIC code as other Crestwood compressor stations.

2. "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 Crestwood properties in question that are considered to be on contiguous or adjacent property with the Victoria Compressor Station. The closest Crestwood well site is more than one (1) mile from this site. The land between these sites is not owned or managed by Crestwood. Operations separated by these distances do not meet the common sense notion of a plant. Therefore, the properties in question are not considered to be on contiguous or adjacent property.

3. Common control. The natural gas well sites that supply the incoming natural gas streams to the Victoria Compressor Station are not under common control, and are owned and operated by Crestwood Resources.

Because the facilities are not considered to be on contiguous or adjacent properties and are not under common control, the emissions from the Victoria Compressor Station should not be aggregated with other facilities in determining major source or PSD status.

MONITORING OF OPERATIONS

Crestwood will be required to perform the following monitoring:

- Monitor and record quantity of natural gas consumed for all engines and combustion sources.
- Monitor all applicable requirements of 40CFR60 Subparts JJJJ and OOOO.

Crestwood will be required to perform the following recordkeeping:

- Maintain records of the amount of natural gas consumed and hours of operation for all engines and combustion sources.
- Maintain records of testing conducted in accordance with the permit. Said records shall be maintained on-site or in a readily accessible off-site location
- Maintain the corresponding records specified by the on-going monitoring requirements of and testing requirements of the permit.
- Maintain records of the visible emission opacity tests conducted per 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.
- Maintain records of all applicable requirements of 40CFR60 Subparts JJJJ and OOOO.
- The records shall be maintained on site or in a readily available off-site location maintained by Crestwood for a period of five (5) years.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that Crestwood meets all the requirements of applicable regulations. Therefore, impact on the surrounding area should be minimized and it is recommended that the Victoria Compressor Station should be granted a 45CSR13 construction permit for their facility.

Jerry Williams, P.E.
Engineer

Date