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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-2251E
Plant ID No.:	099-00014
Applicant:	Columbia Gas Transmission, LLC (Columbia)
Facility Name:	Kenova Compressor Station
Location:	Kenova, Wayne County
NAICS Code:	486210 (Pipeline Transportation of Natural Gas)
Application Type:	Modification
Received Date:	June 30, 2015
Engineer Assigned:	Jerry Williams, P.E.
Fee Amount:	$3,500.00
Date Received:	$1,000 (June 30, 2015), $2500 (August 19, 2015)
Complete Date:	August 19, 2015
Due Date:	November 17, 2015
Applicant Ad Date	July 3, 2015
Newspaper:	*The Herald Dispatch*
UTM's:	Easting: 360.9 km Northing: 4,248.2km Zone: 17
Lat/Long:	38.371184, -82.592343
Description:	This permit action includes the previously installed non selective catalytic reduction (NSCR) control devices on engines E05 – E08 and recognition that this facility is not a major source of HAPs in regards to 40CFR63 Subpart DDDDD due to the separate surface site exclusion. Therefore, all 40CFR63 Subpart DDDDD requirements have been removed from the permit. Additionally, the emergency generator (G3) is subject to 40CFR63 Subpart ZZZZ requirements and these have been added.

ID # 099-00014
Reg R13-2251E
Company COLUMBIA GAS
Facility KENOVA Initials JW

NON-CONFIDENTIAL

DESCRIPTION OF PROCESS

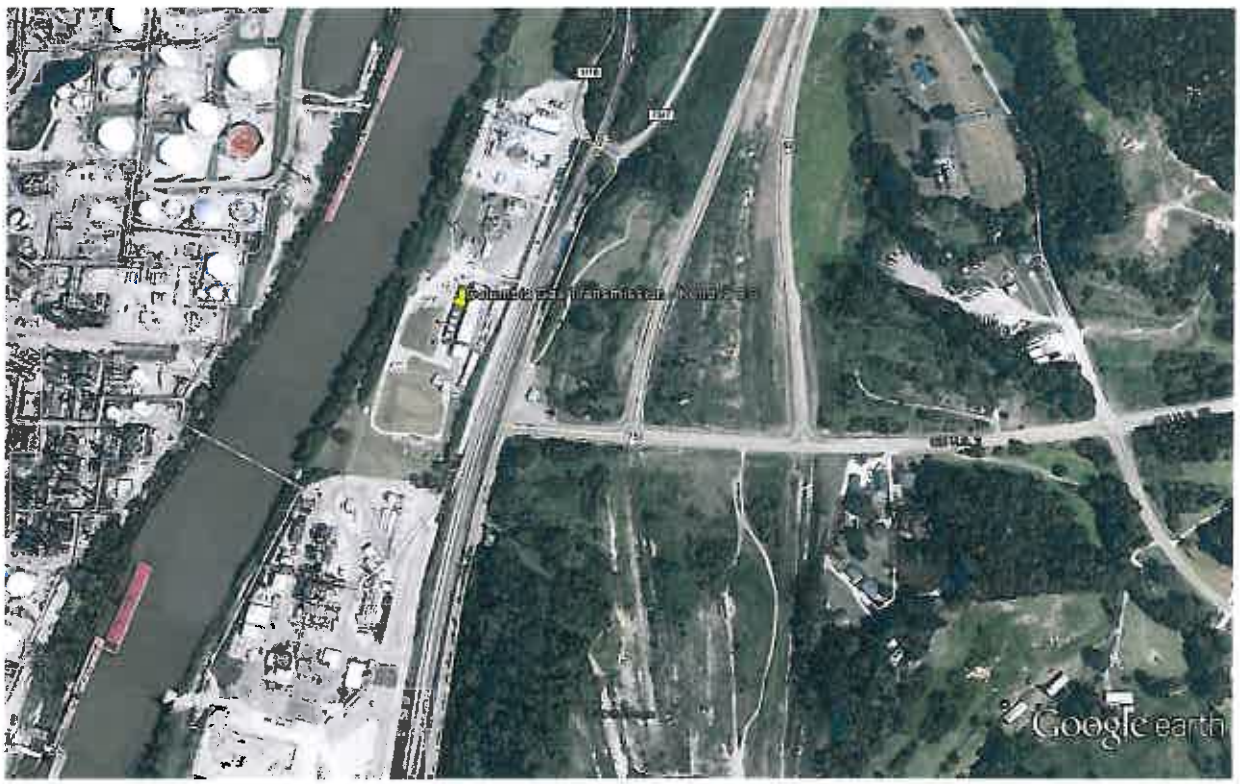
The following process description was taken from Permit Application R13-2251E:

Pipeline transmission of natural gas requires that the gas be compressed. At the Kenova Compressor Station, eight (8) reciprocating internal combustion engines (RICEs) are used to compress natural gas. Natural gas is received on the suction side of the engines E01 – E04. The engines compress the gas prior to delivery to the adjacent MarkWest natural gas liquids (NGL) facility. At this point, a transfer of custody takes place as the gas enters the processing plant.

The MarkWest facility extracts propane and heavy hydrocarbons from the incoming natural gas. When MarkWest has finished the NGL extraction process, the custody of natural gas is then transferred back to the Kenova Compressor Station for additional compression using engines E05 – E08 for gas transmission.

SITE INSPECTION

A site inspection was conducted on January 21, 2014 by Todd Shrewsbury of the WVDEP DAQ Enforcement Section. The facility was found to be operating in compliance at that time.



ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emission reductions associated with this modification application are the result of the previously installed NSCR control devices on engines E05 – E08.

The following table indicates the existing potential to emit (PTE) from the natural gas transmission facility, emissions decrease to account for the NSCR control devices installed on engines E05 – E08, and the new facility PTE in tons/year (tpy):

Pollutant	**Current Transmission Facility PTE (tpy)**	**Emissions Decrease from NSCR (tpy)**	**New Facility PTE (tpy)**
Carbon Monoxide	802.35	569.95	232.40
Nitrogen Oxides	1,341.62	0	1,341.62
Particulate Matter-10	18.45	0	18.45
Sulfur Dioxide	0.38	0	0.38
Volatile Organic Compounds	41.76	1.82	39.94
Greenhouse Gas (CO_2e)	62,527	0	62,527
Formaldehyde	9.46	0	9.46
Total HAPs	19.14	0	19.14

REGULATORY APPLICABILITY

The following rules apply to this modification:

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 Columbia is subject to a substantive requirement of an emission control rule promulgated by the Secretary (40CFR63 Subpart ZZZZ).

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

45CSR30 (Requirements for Operating Permits)

Columbia is subject to 45CSR30. The Kenova Compressor Station has the potential to emit over 100 tons per year of criteria pollutant, Columbia is required to have an operating permit pursuant to Title V of the Federal Clean Air Act as amended and 45CSR30.

Columbia is required to pay the appropriate annual fees and submit an annual Certified Emissions Statement.

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 (E05 – E08, G3) at the Kenova Compressor Station are subject to the area source requirements for non-emergency spark ignition engines.

E05-E08 are subject to 40CFR63 Subpart ZZZZ standards for existing spark ignition (SI) engines greater than 500 HP located at an area source (40CFR63 Subpart ZZZZ) of HAPS, constructed before June 12, 2006. These engines (E05-E08) are required to install NSCR; 270 ppm CO limit or 75% CO reduction, or 30% THC (total hydrocarbons) reduction. They are also required to conduct an initial performance test and conduct annual compliance determinations. Furthermore, they are required to minimize idle time during startup (startup not to exceed 30 minutes) and automatic engine shut down at 1,350 °F; or the catalyst inlet temperature must be between 450 °F and 1,350 °F and be continuously monitored and conduct an annual system audit.

Emergency generator (G3) is required to meet the applicable work practice standards in Table 2d of 40CFR63 Subpart ZZZZ. This includes changing the oil and filter every 500 hours of operation or annually, inspecting the spark plugs every 1,000 hours of operation or annually, and inspecting all hoses and belts every 500 hours or annually.

The following rules do not apply to this modification:

40CFR63, Subpart DDDDD (National Emission Standard for Hazardous Air Pollutants (NESHAP) for Major Sources: Industrial Commercial, and Institutional Boilers and Process Heaters)

§63.7485 Am I subject to this subpart?
You are subject to this subpart if you own or operate an industrial, commercial, or institutional boiler or process heater as defined in §63.7575 that is located at, or is part of, a major source of HAP, except as specified in §63.7491. For purposes of this subpart, a major source of HAP is as defined in §63.2, except that for oil and natural gas production facilities, a major source of HAP is as defined in §63.7575.

§63.7575 What definitions apply to this subpart?
Major source for oil and natural gas production facilities, as used in this subpart, shall have the same meaning as in §63.2, except that:

(1) Emissions from any oil or gas exploration or production well (with its associated equipment, as defined in this section), and emissions from any pipeline compressor station or pump station shall not be aggregated with emissions from other similar units to determine whether such emission points or stations are

major sources, even when emission points are in a contiguous area or under common control;

(2) Emissions from processes, operations, or equipment that are not part of the same facility, as defined in this section, shall not be aggregated; and

(3) For facilities that are production field facilities, only HAP emissions from glycol dehydration units and storage vessels with the potential for flash emissions shall be aggregated for a major source determination. For facilities that are not production field facilities, HAP emissions from all HAP emission units shall be aggregated for a major source determination.

The Kenova Compressor Station is not a major source of HAPs in regards to 40CFR63 Subpart DDDD therefore this rule does not apply.

This facility has been incorrectly designated as a major source of HAP emissions in recent permitting actions issued by the DAQ (including their most recent Title V permit). As a result, these boiler requirements were listed in the March 25, 2014 permitting action (R13-2251D). Columbia has submitted the proper documentation which shows that this facility is not a major source of HAP emissions (specifically formaldehyde). Therefore, this language will be removed from the permit.

On July 8, 2005 Columbia submitted a permit determination detailing the MACT applicability (40CFR63 Subpart ZZZZ) surrounding this facility. A complete technical background of this determination can be found in Permit Determination PD05-097, in which the DAQ agreed with this HAP non-major determination in regards to 40FR63 Subpart ZZZZ.

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:

a. 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.

b. 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.

The Kenova Compressor Station is not located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. Therefore, all requirements regarding centrifugal compressors under 40 CFR 60 Subpart OOOO would not apply.

c. 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.

The Kenova Compressor Station is not located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. Therefore, all requirements regarding reciprocating compressors under 40 CFR 60 Subpart OOOO would not apply.

d. 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.

The Kenova Compressor Station is not located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. Therefore, all requirements regarding pneumatic controllers under 40 CFR 60 Subpart OOOO would not apply.

e. 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 nonearthen 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 Kenova Compressor Station commenced construction, modification, or reconstruction before August 23, 2011. Therefore, Columbia is not required by this section to reduce VOC emissions by 95%.

f. 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 Kenova 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.

g. 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 Kenova Compressor Station. Therefore, all requirements regarding sweetening units under 40 CFR 60 Subpart OOOO would not apply.

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)

According to 45CSR14 Section 2.43.e, fugitive emissions are not included in the major source determination because it is not listed as one of the source categories in Table 1. Therefore, the fugitive emissions are not included in the PTE below.

The Kenova Compressor Station is an existing Major Stationary Source with respect to PSD because they have actual emissions of nitrogen oxides in excess of 250 tons per year and formaldehyde emissions greater than 10 tons per year. The Kenova Compressor

Station is not one of the listed 28 major stationary sources whose emissions threshold is 100 tpy as defined in 40CFR52.21(b)(1)(i) and 45CSR14 Section 2.43. In order for a project to become subject to PSD review, the major stationary source must have a significant emissions increase from the project **and** a significant net emissions increase as calculated over the 5 year contemporaneous period. The first step is to determine if the proposed project results in a significant emissions increase utilizing the calculation procedures in 45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources for the Prevention of Significant Deterioration of Air Quality) Section 3.4. The procedure for calculating whether a significant emissions increase will occur depends on the type of emissions units being modified. The procedure for calculating whether a significant net emissions increase will occur at the major stationary source, which is the second step in the process, is contained in 45CSR14 Section 2.46. Regardless of any such preconstruction projections, a major modification results if the project causes a significant emissions increase and a significant net emissions increase.

In determining whether a significant emissions increase occurs, 45CSR14 provides two (2) ways to make that determination. These calculations are based on whether or not it is an existing emissions unit or a new emissions unit.

45CSR14 Section 2.27 defines an 'emissions unit' as any part of a stationary source that emits or would have the potential to emit any regulated NSR pollutant and includes an electric utility steam generating unit as defined in subsection 2.25. For the purposes of this rule, there are two types of emissions units as described in subdivisions 2.27.a and 2.27.b.

2.27.a. A new emissions unit is any emissions unit that is (or will be) newly constructed and that has existed for less than 2 years from the date such emissions unit first operated.

2.27.b. An existing emissions unit is any emissions unit that does not meet the requirements in subdivision 2.27.a. A replacement unit, as defined in subsection 2.68, is an existing emissions unit.

The first step is to determine whether or not the proposed project results in a significant emissions increase utilizing the Actual-to-Potential test. There are no emissions increases associated with this permitting action.

Final Conclusion

Because there was not an emissions increase above the PSD SER, PSD review is not required.

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) or 45CSR19 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contribute to Nonattainment) as seen in the table listed in the Regulatory Discussion section under 45CSR14/45CSR19.

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 Kenova Compressor Station is located in Wayne County and will be operated by Columbia and located adjacent to a MarkWest natural gas processing facility.

1. The Kenova Compressor Station will operate under SIC code 4922 (Pipeline Transportation of Natural Gas). There are other compressor stations operated by Columbia that share the same two-digit major SIC code of 49 for natural gas transmission. Therefore, the Kenova Compressor Station does share the same SIC code as other Columbia 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 Columbia properties in question that are considered to be on contiguous or adjacent property with the Kenova Compressor Station.

3. The proposed Kenova Compressor Station is not under common control with any facilities in question.

Because of the reasons above, the emissions from the Kenova Compressor Station should not be aggregated with other facilities in determining major source or PSD status.

MONITORING OF OPERATIONS FOR PROPOSED MODIFICATION

Columbia will be required to perform the following monitoring and recordkeeping associated with this application:

1. Monitor and record quantity of natural gas consumed for engines E05 – E08 and emergency generator G3.
2. Monitor all applicable requirements of 40CFR63 Subpart ZZZZ.
3. Maintain records of testing conducted in accordance with the permit.
4. Maintain the corresponding records specified by the on-going monitoring requirements of and testing requirements of the permit.
5. 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.
6. Maintain records of all applicable requirements of 40CFR63 Subpart ZZZZ.
7. The records shall be maintained on site or in a readily available off-site location maintained by Columbia for a period of five (5) years.

RECOMMENDATION TO DIRECTOR

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

Jerry Williams, P.E.
Engineer

AUG 21, 2015
Date