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# ENGINEERING EVALUATION / FACT SHEET

## BACKGROUND INFORMATION

| | |
|---|---|
| Application No.: | R13-3007E |
| Plant ID No.: | 103-00049 |
| Applicant: | Eureka Midstream, LLC (Eureka) |
| Facility Name: | Carbide Site |
| Location: | Hastings, Wetzel County |
| NAICS Code: | 211111 (Natural Gas Extraction) |
| Application Type: | Modification |
| Received Date: | June 23, 2016 |
| Engineer Assigned: | Jerry Williams, P.E. |
| Fee Amount: | $2,000 |
| Date Received: | June 30, 2016 |
| Complete Date: | July 21, 2016 |
| Due Date: | October 19, 2016 |
| Applicant Ad Date | June 29, 2016 |
| Newspaper: | *The Wetzel Chronicle* |
| UTM's: | Easting: 528.737 km Northing: 4,376.709 km Zone: 17 |
| Latitude: | 39.5396 |
| Longitude: | -80.6656 |
| Description: | Modification for replacement of control equipment and installation of smaller condensate tanks. |

## DESCRIPTION OF PROCESS

The following process description was taken from Permit Application R13-3007E:

This natural gas liquids management and gas compression facility currently operates under permit R13-3007D. Raw gas and produced liquids are received at this facility from local production wells via three pipelines entering the station: 8-inch, 12-inch and 20-inch lines. The following presents an overview of the operations at this facility and a description of the proposed changes Eureka is seeking to permit.

High pressure gas is received via the 20-inch line, passed through a slug catcher and then returned to this high pressure gas line for transportation to a regional natural gas processing facility owned and operated by others. This gas is not passed through any other processes at this facility.

Low pressure inlet gas is received via a 12-inch pipeline and passed through an inlet separator, compressed, dehydrated, blended with the high pressure gas and injected into the 20-inch pipeline for transportation to the regional natural gas processing facility. Liquids separated from this gas stream are sent through a line heater and then to a three-way separator where the pressure is reduced, allowing dissolved gases to flash off. This flash gas is compressed and re-blended with the low pressure inlet gas. The remaining liquids are separated into organic (condensate) and water phases.

Produced Liquids are received at the facility via an 8-inch liquids line. These liquids are mostly produced water (brine), but also contain condensate. This liquid is passed through a line heater and a three-way inlet separator where the pressure is reduced, allowing entrained gas to flash off. This flash gas is also routed to the flash gas compressor referenced above and blended with the low pressure inlet gas prior to compression. The three-way separator also separates the water (brine) and organic phases (condensate), routing them to separate accumulation tanks. Brine is accumulated in a single 2 million gallon tank. This brine is re-used by others for development of wells, thereby minimizing the demand for fresh water for that purpose.

Condensate is currently accumulated in a series of ten 630 BBL tanks prior to truck transportation to others for further processing. Emissions from these atmospheric pressure tanks are collected and compressed by a vapor recovery unit (VRU) where the vapors are sufficiently compressed to be introduced into the low pressure inlet gas line and processed with the low pressure inlet gas.

As noted above, condensate is taken from this facility by tanker truck to a nearby processing plant (owned and operated by others) for processing into individual chemical products. Volatile Organic Compound (VOC) emissions generated during the truck loading process is managed by an enclosed combustor.

Eureka is seeking the following three changes to the operations described above:

Truck Loading Combustor Upgrade

Eureka is seeking to modify its permit to reflect the replacement of the existing enclosed combustor with a larger unit. It was determined that while the current unit was adequately sized for daily and annual demands, it was undersized for peak demand during the initial phases of the condensate truck loading process. Upon discovery, it was immediately replaced with a larger unit capable of better handling the peak demand to ensure safe operation during truck loading of condensate. The annual maximum loading to this unit (and subsequent annual emissions) will not change as there is no request to change the annual allowable limit on condensate truck loading or capture and control efficiencies.

Condensate Tanks Replacement

In 2012, the original general permit registration was replaced with an R13 permit when the current series of ten 630 BBL condensate tanks and associated VRU control were installed. In 2015 an EPA Region III evaluation of the tanks determined that the safety relief vents were undersized and placed Eureka under a Consent Agreement (provided at the end of this Attachment) to upgrade the safety relief vents to properly sized units. Eureka determined that the safest approach was to replace the tanks entirely rather than attempt to modify the existing tanks.

At this time, Eureka is seeking modification of the permit to reflect the replacement the ten existing 630 BBL tanks with eight 500 BBL tanks. Again, Eureka is not seeking to increase condensate throughput as a result of the tank replacement. Hence, in of itself, the tank replacement is not anticipated to impact annual potential emissions. The tank replacement is proceeding in a timeframe to comply with the terms of the Consent Agreement.

Tank VRU Replacement Combustors

Eureka is seeking approval to install enclosed combustors as replacement to the VRU as the volume of gas captured and returned to the process is no longer cost effective. At the time of the original R13 Permit, the Department accepted the VRU as a 100% control for the tanks. Hence, the tanks were not listed as emission sources in the permit. It is understood that this is no longer consistent with permitting policies adopted subsequent to the issuance of this permit. Hence, while in reality, controls on the tank emissions are improved (emissions reduced), the calculations indicate an increase in emissions due to the lower claim of control efficiency (98%).

**No other physical or operational changes are proposed for any other equipment or process.**

This Modification also seeks to change the name of the facility owner on the permit to reflect the change in the corporate name as well as the parent company. Lastly, this Modification seeks to correct the gas consumption and subsequent emissions associated with the pilot flame for the truck loading combustor. It was incorrectly presented at 2.4 MMBTU/Hr rather than 8 MBTU/Hr. This correction results in a decrease of annual combustion by-product emissions for that emission source.

## SITE INSPECTION

A site inspection was conducted on February 3, 2016 by Douglas Hammell of the DAQ Enforcement Section. According to Mr. Hammell, the facility was in compliance at that time.

Directions as given in the permit application are as follows:

*From Hastings, proceed east on Route 20 approximately 2 miles to Union Carbide Road. Turn right on this road and follow the gravel road approximately 1 mile to the facility.*

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions associated with this modification consist of the equipment listed in the following table. The following table indicates which methodology was used in the emissions determination:

| Emission Unit ID# | Process Equipment | Calculation Methodology |
|---|---|---|
| S15-B | 10.0 MMBTU/hr Truck Loading Vapor Combustion Unit | EPA AP-42 Emission Factors |
| S-15C | 8.0 MBTU/hr Truck Loading Vapor Combustion Unit Pilot | EPA AP-42 Emission Factors |
| T33 – T40 | Eight (8) 500 bbl Condensate Tanks | ProMax |
| S21A – S21D | Four (4) 10.0 MMBTU/hr Enclosed Combustors | EPA AP-42 Emission Factors |
| S22A – S22D | Four (4) 8.0 MMBTU/hr Enclosed Combustor Pilots | EPA AP-42 Emission Factors e |

The following table indicates the control device efficiencies that are associated with this modification:

| Emission Unit | Pollutant | Control Device | Control Efficiency |
|---|---|---|---|
| S15-B, S21A – S21D | Volatile Organic Compounds | Enclosed Combustors | 98 % |
| | Hazardous Air Pollutants | | 98 % |

The total facility PTE for the Carbide Site is shown in the following table:

| Pollutant | R13-3007D PTE (tons/year) | R13-3007E PTE (tons/year) | PTE Change (tons/year) |
|---|---|---|---|
| Nitrogen Oxides | 72.73 | 73.31 | 0.58 |
| Carbon Monoxide | 33.55 | 46.84 | 13.29 |
| Volatile Organic Compounds | 49.51 | 89.87 | 40.36 |
| Particulate Matter-10/2.5 | 4.90 | 4.82 | -0.08 |
| Sulfur Dioxide | 0.29 | 0.28 | -0.01 |
| Formaldehyde | 8.35 | 8.06 | -0.29 |
| Total HAPs | 14.77 | 19.21 | 4.44 |
| Carbon Dioxide Equivalent | 70,613 | 73,793 | 3,180 |

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

# Eureka Midstream, LLC – Carbide Site (R13-3007E)

| Emission | Source | $NO_x$ | | CO | | VOC | | PM-10 | | $SO_2$ | | 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 | ton/year |
| E1 | CAT 3516B Compressor Engine | 1.52 | 6.66 | 0.61 | 2.67 | 1.00 | 4.40 | 0.10 | 0.45 | 0.01 | 0.03 | 0.18 | 0.80 | 0.30 | 1.30 | 6655 |
| E2 | CAT 3516B Compressor Engine | 1.52 | 6.66 | 0.61 | 2.67 | 1.00 | 4.40 | 0.10 | 0.45 | 0.01 | 0.03 | 0.18 | 0.80 | 0.30 | 1.30 | 6655 |
| E3 | CAT 3516B Compressor Engine | 1.52 | 6.66 | 0.61 | 2.67 | 1.00 | 4.40 | 0.10 | 0.45 | 0.01 | 0.03 | 0.18 | 0.80 | 0.30 | 1.30 | 6655 |
| E4 | CAT 3516B Compressor Engine | 1.52 | 6.66 | 0.61 | 2.67 | 1.00 | 4.40 | 0.10 | 0.45 | 0.01 | 0.03 | 0.18 | 0.80 | 0.30 | 1.30 | 6655 |
| E5A | CAT 3406NA Compressor Engine | 0.46 | 2.02 | 0.46 | 2.02 | 0.06 | 0.28 | 0.02 | 0.08 | 0.00 | 0.00 | 0.07 | 0.29 | 0.09 | 0.38 | 1230 |
| E7 | Dehy Unit (Reboiler and Still Vent) | 0.15 | 0.67 | 0.13 | 0.56 | 0.23 | 1.01 | 0.01 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.14 | 804 |
| E8 | CAT 3516B Compressor Engine | 1.52 | 6.66 | 0.61 | 2.67 | 1.00 | 4.40 | 0.10 | 0.45 | 0.01 | 0.03 | 0.18 | 0.80 | 0.30 | 1.30 | 6655 |
| E9 | CAT 3516B Compressor Engine | 1.52 | 6.66 | 0.61 | 2.67 | 1.00 | 4.40 | 0.10 | 0.45 | 0.01 | 0.03 | 0.18 | 0.80 | 0.30 | 1.30 | 6649 |
| E10 | CAT 3516B Compressor Engine | 1.52 | 6.66 | 0.61 | 2.67 | 1.00 | 4.40 | 0.10 | 0.45 | 0.01 | 0.03 | 0.18 | 0.80 | 0.30 | 1.30 | 6649 |
| E11 | CAT 3516B Compressor Engine | 1.52 | 6.66 | 0.61 | 2.67 | 1.00 | 4.40 | 0.10 | 0.45 | 0.01 | 0.03 | 0.18 | 0.80 | 0.30 | 1.30 | 6649 |
| E16 | Truck Loading | 0.00 | 0.00 | 0.00 | 0.00 | 0.49 | 0.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0 |
| E16-A | Truck Loading VCU | 0.21 | 0.06 | 1.13 | 0.31 | 3.00 | 0.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 98 |
| E16-B | TL VCU Pilot | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2 |
| E17 | 0.75 MMBTU/hr Line Heater | 0.08 | 0.33 | 0.06 | 0.28 | 0.00 | 0.02 | 0.01 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 397 |
| E17-A | 4.0 MMBTU/hr Line Heater | 0.40 | 1.75 | 0.34 | 1.47 | 0.02 | 0.10 | 0.03 | 0.13 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.03 | 2116 |
| E17-B | 2.0 MMBTU/hr Line Heater | 0.20 | 0.88 | 0.17 | 0.74 | 0.01 | 0.05 | 0.02 | 0.07 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.02 | 1058 |
| E20 | CAT 3608B Compressor Engine | 2.61 | 11.44 | 1.04 | 4.58 | 1.72 | 7.55 | 0.16 | 0.71 | 0.01 | 0.04 | 0.31 | 1.37 | 0.49 | 2.16 | 10101 |
| E21 | VCUs (8 Condensate Tanks) | 1.96 | 2.87 | 10.66 | 15.57 | 27.57 | 40.23 | 0.02 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 4.17 | 6.08 | 4947 |
| **Total Point Source** | | **18.24** | **73.31** | **18.86** | **46.84** | **41.11** | **85.79** | **1.08** | **4.82** | **0.07** | **0.28** | **1.84** | **8.06** | **7.17** | **19.21** | **73973** |
| Fugitive | Component Leaks | 0.00 | 0.00 | 0.00 | 0.00 | 0.54 | 2.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0 |
| Fugitive | Pigging & Blowdowns | 0.00 | 0.00 | 0.00 | 0.00 | NA | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0 |
| **Total Fugitive** | | **0.00** | **0.00** | **0.00** | **0.00** | **0.54** | **4.08** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0** |
| **Total Sitewide** | | **18.24** | **73.31** | **18.86** | **46.84** | **41.65** | **89.87** | **1.08** | **4.82** | **0.07** | **0.28** | **1.84** | **8.06** | **7.17** | **19.21** | **73973** |

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)

A 45CSR13 modification permit applies to this source due to the fact that Eureka exceeds the regulatory emission threshold for uncontrolled criteria pollutants increase of 6 lb/hr and 10 ton/year of volatile organic compounds.

Eureka paid the appropriate application fee and published the required legal advertisement for a modification 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, Subpart OOOOa. These requirements are discussed under that rule below.

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

The source is subject to 45CSR30. The Title V (45CSR30) application will be due within twelve (12) months after the date of the commencement of the operation or activity (activities) authorized by this permit, unless granted a deferral or exemption by the Director from such filing deadline pursuant to a request from the permittee.

Eureka was subject to these requirements due to the storage tanks being subject to 40CFR60 Subpart Kb, but they were not included in the previous permit.

Eureka is required to pay the appropriate annual fees and file an annual Certified Emissions Statement.

**40CFR60 Subpart Kb** (Standards of Performance for VOC Liquid Storage Vessels)

The affected facility to which this subpart applies is each storage vessel with a capacity greater than or equal to 75 cubic meters ($m^3$) (19,813 gallons) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984. This subpart does not apply to storage vessels with a capacity greater than or equal to 151 $m^3$ storing a liquid with a maximum true vapor pressure less than 3.5 kilopascals (kPa) or with a capacity greater than or equal to 75 $m^3$ but less than 151 $m^3$ storing a liquid with a maximum true vapor pressure less than 15.0 kPa. This subpart also does not apply to pressure vessels designed to operate in excess of 204.9 kPa and without emissions to the atmosphere. The only tanks that Eureka has proposed to install that exceed this size are 21,000 gallon (79.49 cubic meter) condensate tanks. Therefore, Eureka would be subject to this rule. These tanks will have a closed vent system and vapors will be sent to the enclosed combustor.

**40CFR60 Subpart OOOOa** (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced after September 18, 2015)

EPA published its New Source Performance Standards (NSPS) and air toxics rules for the oil and gas sector on August 16, 2012. EPA published amendments to the Subpart on September 23, 2013 and June 3, 2016. 40CFR60 Subpart OOOOa establishes emission standards and compliance schedules for the control of the pollutant greenhouse gases (GHG). The greenhouse gas standard in this subpart is in the form of a limitation on emissions of methane from affected facilities in the crude oil and natural gas source category that commence construction, modification or reconstruction after September 18, 2015. This subpart also 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 September 18, 2015. The effective date of this rule is August 2, 2016.

This subpart does include requirements for storage tanks that have a VOC potential of 6 tpy or greater that are located at natural gas production facilities. 40 CFR §60.5365(e) states that the potential must be calculated using a generally accepted model or calculation methodology, based on the maximum average daily throughput determined for a 30-day period of production prior to the applicable emission determination deadline. For the new installation of the condensate storage tanks, this time period would be the first 30 days the vessel was placed into service. Therefore, the permit will require the applicant to record the daily production of pipeline fluids from the station being stored in the new vessel for the first 30 days of being in service and determine if the potential VOC emissions from the vessel, which includes the flash, working, and breathing loses, are at or greater than 6 tpy. If the VOC emissions is at or greater than 6 tpy, the vessel is an affected Group 2 source under this rule and the permittee will be required to reduce the VOC emissions from the storage vessel by 95%.

Additionally, in regards to fugitive emissions for each affected facility under §60.5365a(j), Eureka must reduce GHG (in the form of a limitation on emissions of methane) and VOC emissions by complying with the requirements of paragraphs (a) through (j) of §60.5397a. These requirements are independent of the closed vent system and cover requirements in §60.5411a. These leak surveys must be conducted four (4) times per year.

The following rules do not apply to this modification:

**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 Carbide Site is located in Wetzel County, which is an unclassified county for all criteria pollutants, therefore the Carbide Site is not applicable to 45CSR19.

As shown in the following table, Eureka is not a major source subject to 45CSR14 or 45CSR19 review. 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.

| Pollutant | PSD (45CSR14) Threshold (tpy) | NANSR (45CSR19) Threshold (tpy) | Carbide Site PTE (tpy) | 45CSR14 or 45CSR19 Review Required? |
|---|---|---|---|---|
| Carbon Monoxide | 250 | NA | 46.84 | No |
| Nitrogen Oxides | 250 | NA | 73.31 | No |
| Sulfur Dioxide | 250 | NA | 0.28 | No |
| Particulate Matter 2.5 | 250 | NA | 4.82 | No |
| Ozone (VOC) | 250 | NA | 85.79 | No |

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

The majority of non-criteria regulated pollutants fall under the definition of HAPs which, with some revision since, were 188 compounds identified under Section 112(b) of the Clean Air Act (CAA) as pollutants or groups of pollutants that EPA knows or suspects may cause cancer or other serious human health effects. Small amounts of non-criteria regulated hazardous air pollutants such as BTEX and formaldehyde may be emitted when natural gas is combusted in reciprocating engines, combusted in the fuel burning units, or combusted in one of the combustion type air pollution control devices.

**BTEX**
BTEX is the term used for benzene, toluene, ethylbenzene, and xylene. Each of these possible hazardous air pollutants are identified in this section.

**Benzene**
Benzene is found in the air from emissions from burning coal and oil, gasoline service stations, and motor vehicle exhaust. Acute (short-term) inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic (long-term) inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anemia, in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on the developing fetus have been observed in animal tests. Increased incidence of leukemia (cancer of the tissues that form white blood cells) have been observed in humans occupationally exposed to benzene. EPA has classified benzene as a Group A, human carcinogen.

**Toluene**
The acute toxicity of toluene is low. Toluene may cause eye, skin, and respiratory tract irritation. Short-term exposure to high concentrations of toluene (e.g., 600 ppm) may produce fatigue, dizziness, headaches, loss of coordination, nausea, and stupor; 10,000 ppm may cause death from respiratory failure. Ingestion of toluene may cause nausea and vomiting and central nervous

system depression. `Contact of liquid toluene with the eyes causes temporary irritation. Toluene is a skin irritant and may cause redness and pain when trapped beneath clothing or shoes; prolonged or repeated contact with toluene may result in dry and cracked skin. Because of its odor and irritant effects, toluene is regarded as having good warning properties. The chronic effects of exposure to toluene are much less severe than those of benzene. No carcinogenic effects were reported in animal studies. Equivocal results were obtained in studies to determine developmental effects in animals. Toluene was not observed to be mutagenic in standard studies.

**Ethylbenzene**
Ethyl benzene is mainly used in the manufacturing of styrene. Acute (short-term) exposure to ethyl benzene in humans results in respiratory effects, such as throat irritation and chest constriction, irritation of the eyes, and neurological effects, such as dizziness. Chronic (long-term) exposure to ethyl benzene by inhalation in humans has shown conflicting results regarding its effects on the blood. Animal studies have reported effects on the blood, liver, and kidneys from chronic inhalation exposure to ethyl benzene. Limited information is available on the carcinogenic effects of ethyl benzene in humans. In a study by the National Toxicology Program (NTP), exposure to ethyl benzene by inhalation resulted in an increased incidence of kidney and testicular tumors in rats, and lung and liver tumors in mice. EPA has classified ethyl benzene as a Group D, not classifiable as to human carcinogenicity.

**Xylenes**
Commercial or mixed xylene usually contains about 40-65% m-xylene and up to 20% each of o-xylene and p-xylene and ethyl benzene. Xylenes are released into the atmosphere as fugitive emissions from industrial sources, from auto exhaust, and through volatilization from their use as solvents. Acute (short-term) inhalation exposure to mixed xylenes in humans results in irritation of the eyes, nose, and throat, gastrointestinal effects, eye irritation, and neurological effects. Chronic (long-term) inhalation exposure of humans to mixed xylenes results primarily in central nervous system (CNS) effects, such as headache, dizziness, fatigue, tremors, and incoordination; respiratory, cardiovascular, and kidney effects have also been reported. EPA has classified mixed xylenes as a Group D, not classifiable as to human carcinogenicity. Mixed xylenes are used in the production of ethylbenzene, as solvents in products such as paints and coatings, and are blended into gasoline.

**Formaldehyde**
Formaldehyde is used mainly to produce resins used in particle board products and as an intermediate in the synthesis of other chemicals. Exposure to formaldehyde may occur by breathing contaminated indoor air, tobacco smoke, or ambient urban air. Acute (short-term) and chronic (long-term) inhalation exposure to formaldehyde in humans can result in respiratory symptoms, and eye, nose, and throat irritation. Limited human studies have reported an association between formaldehyde exposure and lung and nasopharyngeal cancer. Animal inhalation studies have reported an increased incidence of nasal squamous cell cancer. EPA considers formaldehyde a probable human carcinogen (Group B1).

All HAPs have other non-carcinogenic chronic and acute effects. These adverse health effects may be associated with a wide range of ambient concentrations and exposure times and are influenced by source-specific characteristics such as emission rates and local meteorological conditions. Health impacts are also dependent on multiple factors that affect variability in humans such as genetics, age, health status (e.g., the presence of pre-existing disease) and

lifestyle. As stated previously, *there are no federal or state ambient air quality standards for these specific chemicals*. For a complete discussion of the known health effects of each compound refer to the IRIS database located at *www.epa.gov/iris*.

## 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 Source Determination Rule for the oil and gas industry was published in the Federal Register on June 3, 2016 and will become effective on August 2, 2016. EPA defined the term "adjacent" and stated that equipment and activities in the oil and gas sector that are under common control will be considered part of the same source if they are located on the same site or on sites that share equipment and are within ¼ mile of each other.

The Carbide Site will operate under SIC code 1311 (Natural Gas Extraction). There are other compressor stations operated by Eureka that share the same two-digit major SIC code of 13 for natural gas extraction. Therefore, the Carbide Site does share the same SIC code as other Eureka compressor stations.

"Contiguous or Adjacent" determinations are made on a case by case basis. There are no other equipment and activities in the oil and gas sector that are under common control of Eureka that are located on the same site or on sites that share equipment and are within ¼ mile of each other.

Because the Carbide Site is not located on contiguous or adjacent properties with other facilities under common control, the emissions from this facility shall not be aggregated with other facilities for the purposes of making Title V and PSD determinations.

## MONITORING OF OPERATIONS

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

- Monitor and record quantity of natural gas consumed for all combustion sources.
- Monitor visible emission opacity tests conducted per the permit.
- Monitor and record quantity of gas throughput to the glycol dehydration unit.
- Monitor the tanks to ensure that all vapors from the produced fluids tanks and the truck loading operation are sent to the vapor combustion unit.

- Monitor the condensate truck loading to ensure that vapor return/combustion is used.
- 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 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.
- The records shall be maintained on site or in a readily available off-site location maintained by Eureka for a period of five (5) years.

## CHANGES TO PERMIT R13-3007D

- List new equipment and control devices in the Emission Units Table.
- Restructure permit to include all applicable emission units and regulations.
- Inclusion of 40CFR60 Subpart OOOOa LDAR as permit condition 4.1.5.
- Removal of engines S6A, S12 and S13.
- Addition of 40CFR60 Subpart Kb requirements which were applicable to storage tanks but not included in the previous permit.

## RECOMMENDATION TO DIRECTOR

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

Jerry Williams, P.E.
Engineer

9/27/2016
Date