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**west virginia** department of environmental protection

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Earl Ray Tomblin, Governor  
Randy C. Huffman, Cabinet Secretary  
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## **ENGINEERING EVALUATION / FACT SHEET**

### BACKGROUND INFORMATION

Application No.: R13-3007  
Plant ID No.: 103-00049  
Applicant: Eureka Hunter Pipeline, LLC  
Facility Name: Carbide Site  
Location: Wetzel County  
NAICS Code: 211111  
Application Type: Construction  
Received Date: October 23, 2012  
Engineer Assigned: David Keatley  
Fee Amount: \$2,000 total (1,000 for construction and 1,000 for NSPS fee)  
Date Fee Received: October 25, 2012  
Complete Date: January 2, 2012  
Due Date: April 2, 2012  
Applicant Ad Date: September 12, 2012  
Newspaper: *Wetzel Chronicle*  
UTM's: Easting: 528.737 km Northing: 4,376.709 km Zone: 17  
Description: Installation of six (6) new compressor engines, ten (10) condensate tanks, and one (1) lube oil tank.

### DESCRIPTION OF PROCESS

Raw gas and produced liquids will be received from local production wells via three pipelines entering the station. Lower pressure wet inlet gas will be passed through an inlet separator, compressed, dehydrated, and sent to an exiting pipeline. The inlet separator creates a velocity drop in which liquids fall out of the natural gas stream. These liquids flow from the bottom of the inlet separator to a three-way separator. From the three-way separator water is sent to a brine water tank (T05), condensate is sent to ten (10) condensate tanks (T12 - T22), and the vapors from the three-way separator are compressed and sent to the inlet side of the compressor engines. The engine that provides power for the compressor associated with the three-way separator is S5 which is a Caterpillar 3306 NA four-stroke rich-burn 145 bhp natural gas fired compressor engine.

The liquids from the condensate tanks will be trucked off site and the liquids from the brine tank will be used for the development of other wells. The flash vapors from the condensate tanks are compressed and sent to the inlet side of the compressor engines. S6 is a Caterpillar 3304 NA four-stroke rich-burn 95 bhp natural gas fired compressor engine which provides power for the compressor which compresses the flash emissions from the condensate tanks.

The gas streams that come from the inlet separator, compressed condensate flash vapors, and compressed three-way separator vapors are combined and compressed. S1 - S4 and S8 - S13 are Caterpillar 3516B four-stroke lean-burn 1,380 bhp natural gas fired compressor engines which power the associated compressors to compress the combined natural gas stream. The compressor engines are equipped with an EMIT oxidation catalyst which reduces emission of: carbon monoxide, VOCs, and formaldehyde. After compression the natural gas stream is sent to the Valerus dehydration unit. In the contactor the natural gas stream will flow countercurrent to lean TEG. The rich TEG will be sent to the regenerator where the TEG is heated by a 1.5 MMBTU/hr reboiler (S7) to remove the moisture. The maximum dry natural gas flow rate is 80 MMCF/day. The vapors from the regenerator are sent to a condenser. The liquids from the condenser are sent to the condensate tanks. The vapors from the condenser are sent to the reboiler to achieve a 95% combustion efficiency.

#### SITE INSPECTION

Doug Hammell from the DAQ's Compliance and Enforcement Section performed a site visit of this site on September 19, 2012. Nothing within sight of the facility, however Google Earth shows a house approximately 500 feet away.

Directions: From the intersection of SR 2 and SR7. Take SR7 east until you reach SR 20. Take SR 20 east until approximately two miles past Hastings. Turn right onto Union Carbide Road (gravel). Travel on Union Carbide Road for approximately 1 mile and the facility is on the right.

#### ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

The emission factors for the Caterpillar 3516B are from Caterpillar, EMIT, and AP-42. The emission factor from Caterpillar for NO<sub>x</sub> is 0.5 g/bhp-hr. The emission factors from EMIT in g/bhp-hr are: CO, 0.2; VOC, 0.33; and formaldehyde, 0.06. The emission factors from AP-42 in lb/MMBTU are: SO<sub>2</sub>,  $1.1 \times 10^{-3}$ , and PM<sub>10</sub>,  $9.87 \times 10^{-3}$  (which includes filterable and condensable).

The emission factors for the Caterpillar 3306 NA are from Miratech and AP-42. The emission factors from Miratech in g/bhp-hr are: NO<sub>x</sub>, 1.0; CO, 0.32; VOC, 0.5; and formaldehyde, 0.08. The emission factors from AP-42 in lb/MMBTU: SO<sub>2</sub>,  $5.88 \times 10^{-4}$  and PM 0.01941 (which includes filterable and condensable).

The emission factors for the Caterpillar 3306 NA are from Miratech, Caterpillar, and AP-42. The emission factors from Miratech in g/bhp-hr are: NO<sub>x</sub>, 1.0; CO, 1.0; VOC, 0.14; and formaldehyde, 0.03. The emission factor from Caterpillar for VOCs is 0.5 g/bhp-hr. The emission factors from AP-42 in lb/MMBTU are: SO<sub>2</sub>, 5.88 x 10<sup>-4</sup> and PM 0.01941 (which includes filterable and condensable).

Emissions for S7 were estimated using GRI-GLYCalc for the stream coming from the regenerator and AP-42 for the reboiler. The flow from the regenerator is 80 MMCF/day. The emission factors from AP-42 in lb/MMSCF are: NO<sub>x</sub>, 100; CO, 84; VOC, 5.5; SO<sub>2</sub>, 0.6, and PM<sub>10</sub>, 7.6.

The truck loading of the condensate will be controlled by vapor balance and will reduce emissions by 98%. Truck loading of the condensate will be limited to 12 hours/day.

Source ID	Emission Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tpy)
S1	Caterpillar G3516B 1,380 bhp	Nitrogen Oxides	1.52	6.66
		Carbon Monoxide	0.61	2.67
		Volatile Organic Compounds	1.00	4.40
		Sulfur Dioxide	0.01	0.03
		PM <sub>10</sub>	0.11	0.45
		Total Particulate Matter	0.11	0.45
		Formaldehyde	0.18	0.80
		Carbon Dioxide Equivalents	1,519	6,655
S2	Caterpillar G3516B 1,380 bhp	Nitrogen Oxides	1.52	6.66
		Carbon Monoxide	0.61	2.67
		Volatile Organic Compounds	1.00	4.40
		Sulfur Dioxide	0.01	0.03
		PM <sub>10</sub>	0.11	0.45
		Total Particulate Matter	0.11	0.45
		Formaldehyde	0.18	0.80
		Carbon Dioxide Equivalents	1,519	6,655
S3	Caterpillar G3516B 1,380 bhp	Nitrogen Oxides	1.52	6.66
		Carbon Monoxide	0.61	2.67
		Volatile Organic Compounds	1.00	4.40
		Sulfur Dioxide	0.01	0.03
		PM <sub>10</sub>	0.11	0.45
		Total Particulate Matter	0.11	0.45
		Formaldehyde	0.18	0.80
		Carbon Dioxide Equivalents	1,519	6,655
S4	Caterpillar G3516B 1,380 bhp	Nitrogen Oxides	1.52	6.66
		Carbon Monoxide	0.61	2.67
		Volatile Organic Compounds	1.00	4.40
		Sulfur Dioxide	0.01	0.03
		PM <sub>10</sub>	0.11	0.45

		Total Particulate Matter	0.11	0.45
		Formaldehyde	0.18	0.80
		Carbon Dioxide Equivalents	1,519	6,655
S5	Caterpillar 3306 NA 145 bhp	Nitrogen Oxides	0.32	1.40
		Carbon Monoxide	0.32	1.40
		Volatile Organic Compounds	0.16	0.70
		PM <sub>10</sub>	0.03	0.10
		Total Particulate Matter	0.03	0.10
		Formaldehyde	0.03	0.11
		Carbon Dioxide Equivalents	160	699
S6	Caterpillar 3304 NA 95 bhp	Nitrogen Oxides	0.21	0.92
		Carbon Monoxide	0.21	0.92
		Volatile Organic Compounds	0.10	0.46
		PM <sub>10</sub>	0.02	0.06
		Total Particulate Matter	0.02	0.06
		Formaldehyde	0.02	0.07
		Carbon Dioxide Equivalents	102	455
S7	Reboiler Vent 80MMSCF 1.5 MMBTU/hr	Nitrogen Oxides	0.16	0.67
		Carbon Monoxide	0.13	0.56
		Volatile Organic Compounds	0.24	1.11
		PM <sub>10</sub>	0.02	0.06
		Total Particulate Matter	0.02	0.06
		Benzene	0.01	0.03
		Ethylbenzene	0.01	0.02
		Toluene	0.01	0.03
		Xylenes	0.01	0.03
		n-Hexane	0.02	0.06
		Carbon Dioxide Equivalents	184	804
S8	Caterpillar G3516B 1,380 bhp	Nitrogen Oxides	1.52	6.66
		Carbon Monoxide	0.61	2.67
		Volatile Organic Compounds	1.00	4.40
		Sulfur Dioxide	0.01	0.03
		PM <sub>10</sub>	0.11	0.45
		Total Particulate Matter	0.11	0.45
		Formaldehyde	0.18	0.80
		Carbon Dioxide Equivalents	1,519	6,655
S9	Caterpillar G3516B 1,380 bhp	Nitrogen Oxides	1.52	6.66
		Carbon Monoxide	0.61	2.67
		Volatile Organic Compounds	1.00	4.40
		Sulfur Dioxide	0.01	0.03
		PM <sub>10</sub>	0.11	0.45
		Total Particulate Matter	0.11	0.45
		Formaldehyde	0.18	0.80

S10	Caterpillar G3516B 1,380 bhp	Nitrogen Oxides	1.52	6.66
		Carbon Monoxide	0.61	2.67
		Volatile Organic Compounds	1.00	4.40
		Sulfur Dioxide	0.01	0.03
		PM <sub>10</sub>	0.11	0.45
		Total Particulate Matter	0.11	0.45
		Formaldehyde	0.18	0.80
		Carbon Dioxide Equivalents	1,519	6,655
S11	Caterpillar G3516B 1,380 bhp	Nitrogen Oxides	1.52	6.66
		Carbon Monoxide	0.61	2.67
		Volatile Organic Compounds	1.00	4.40
		Sulfur Dioxide	0.01	0.03
		PM <sub>10</sub>	0.11	0.45
		Total Particulate Matter	0.11	0.45
		Formaldehyde	0.18	0.80
		Carbon Dioxide Equivalents	1,519	6,655
S12	Caterpillar G3516B 1,380 bhp	Nitrogen Oxides	1.52	6.66
		Carbon Monoxide	0.61	2.67
		Volatile Organic Compounds	1.00	4.40
		Sulfur Dioxide	0.01	0.03
		PM <sub>10</sub>	0.11	0.45
		Total Particulate Matter	0.11	0.45
		Formaldehyde	0.18	0.80
		Carbon Dioxide Equivalents	1,519	6,655
S13	Caterpillar G3516B 1,380 bhp	Nitrogen Oxides	1.52	6.66
		Carbon Monoxide	0.61	2.67
		Volatile Organic Compounds	1.00	4.40
		Sulfur Dioxide	0.01	0.03
		PM <sub>10</sub>	0.11	0.45
		Total Particulate Matter	0.11	0.45
		Formaldehyde	0.18	0.80
		Carbon Dioxide Equivalents	1,519	6,655
S14	Truck Loading	Volatile Organic Compounds	0.39	0.83
S15	Pigging and Blowdowns	Volatile Organic Compounds	NA	1.70
S16	Fugitive Emissions	Volatile Organic Compounds	0.54	2.37

## REGULATORY APPLICABILITY

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

The glycol dehydrator reboiler (S7) at this facility meets the definition for fuel burning unit (section 2.10). This heater is less than 10 MMBTU and is exempt from the following sections: 4,5,6,8, and 9.

The reboiler vent S7 is however subject a 10% opacity limit.

### **45CSR4** - *To Prevent an Control the Discharge of Air Pollutants into the Open Air which Causes or Contributes to the Objectionable Odor or Odors*

The Carbide Site shall not cause the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.

### **45CSR10** - *To Prevent and Control Air Pollution From the Emissions of Sulfur Oxides*

Natural gas line heater S6 is a fuel burning unit that has a 1.5 MMBTU heat capacity rate. S6 is a Type 'b' fuel burning unit, which is below the 10 MMBTU threshold and therefore S6 is exempt from sections 3, 6, 7, and 8 (Section 10.1). This facility is in Wetzel County and is in Priority Classification II. This heater is not consider a manufacturing process, refinery, or process gas stream. S6 is subject to this rule, but has no requirements due to this rule.

### **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 they exceed the regulatory emission threshold for regulated air pollutants of 6 lb/hr and 10 ton/year. A construction permit was required.

### **45CSR16** - *Standards of Performance for New Stationary Sources Pursuant to 40CFR60*

45CSR16 incorporates by reference the standards of performance for new stationary sources (40CFR60). This facility has ten (10) engines (S1 - S4 and S8 - S13) that are subject to 40CFR60 Subpart JJJJ, and is therefore subject to 45CSR16.

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

The permittee will be required to keep their Certificate to Operate current. A 1,000 NSPS fee was paid.

#### **40CFR60 Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines**

40CFR60 Subpart JJJJ sets forth emission limits, fuel requirements, installation requirements, and monitoring requirements based on the date of construction, date of manufacture, and horsepower (hp) of the spark ignition internal combustion engine. This subpart applies to engines S1-S4 and S8-S13 because the site will commence construction after June 12, 2006 engines will be manufactured on or after July 1, 2007 and exceeds 500 hp. These engines will have a manufacture date after January 1, 2010 and are required to meet the following emission standards: NO<sub>x</sub> 1.0 g/hp-hr, CO 2.0 g/hp-hr, and VOC 0.7 g/hp-hr. To demonstrate compliance with the emission standards these engines will be required to have an initial performance test and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first. The performance tests will be for the regulated air pollutants NO<sub>x</sub>, CO, and VOCs. These engines will also have to keep maintenance records.

#### **40CFR60 Subpart OOOO (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution)**

EPA issued its new source performance standards (NSPS) and air toxics rules for the oil and gas sector on April 17, 2012. 40CFR60 Subpart OOOO establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO<sub>2</sub>) 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.*

- 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.

*There are no centrifugal compressors at this facility*

- 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.

*There will be compressors which will be delivered to this facility after August 23, 2011. The compressors which are subject to this section are: S1 through S13.*

- d. 1. 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.
2. 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 pneumatic controllers at this facility are intermittent and are exempt from these requirements.*

- 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:

1. 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.
2. Process vessels such as surge control vessels, bottoms receivers or knockout vessels.
3. 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 condensate tanks located at this facility emit less than 6 tpy of VOCs.*

- f. The group of all equipment, except compressors, within a process unit is an affected facility.
  1. 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.
  2. 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.
  3. 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.

*This facility is not a natural gas processing plant. Therefore, LDAR 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.
1. Each sweetening unit that processes natural gas is an affected facility; and
  2. Each sweetening unit that processes natural gas followed by a sulfur recovery unit is an affected facility.
  3. Facilities that have a design capacity less than 2 long tons per day (LT/D) of hydrogen sulfide (H<sub>2</sub>S) 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.
  4. 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 this facility.*

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

The following rules do not apply to the facility:

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

The condensate tanks at this facility are larger than 75 m<sup>3</sup>, however the condensate tanks at this facility are not be subject to this regulation because they won't emit VOCs into the atmosphere.

**TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS**

The following information was obtained from USEPA's Air Toxic Website.

**Formaldehyde**

Formaldehyde is used mainly to produce resins used in particleboard 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.

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Eureka Hunter Pipeline, LLC  
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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).

### **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.

### **Ethyl Benzene**

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.

### **Toluene**

Toluene is added to gasoline, used to produce benzene, and used as a solvent. Exposure to toluene may occur from breathing ambient or indoor air. The central nervous system (CNS) is the primary target organ for toluene toxicity in both humans and animals for acute (short-term) and chronic (long-term) exposures. CNS dysfunction and narcosis have been frequently observed in humans acutely exposed to toluene by inhalation; symptoms include fatigue, sleepiness, headaches, and nausea. CNS depression has been reported to occur in chronic abusers exposed to high levels of toluene. Chronic inhalation exposure of humans to toluene also causes irritation of the upper respiratory tract and eyes, sore throat, dizziness, and headache. Human studies have reported developmental effects, such as CNS dysfunction, attention deficits, and minor craniofacial and limb anomalies, in the children of pregnant women exposed to toluene or mixed solvents by inhalation. Reproductive effects, including an association between exposure to toluene and an increased incidence of spontaneous abortions, have also been noted. However,

these studies are not conclusive due to many confounding variables. EPA has classified toluene as a Group D, not classifiable as to human carcinogenicity.

### **Xylene**

Commercial or mixed xylene usually contains about 40-65% m-xylene and up to 20% each of o-xylene and p-xylene and ethylbenzene. 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.

### **Hexane**

Hexane is used to extract edible oils from seeds and vegetables, as a special-use solvent, and as a cleaning agent. Acute (short-term) inhalation exposure of humans to high levels of hexane causes mild central nervous system (CNS) effects, including dizziness, giddiness, slight nausea, and headache. Chronic (long-term) exposure to hexane in air is associated with polyneuropathy in humans, with numbness in the extremities, muscular weakness, blurred vision, headache, and fatigue observed. Neurotoxic effects have also been exhibited in rats. No information is available on the carcinogenic effects of hexane in humans or animals. EPA has classified hexane as a Group D, not classifiable as to human carcinogenicity.

## AIR QUALITY IMPACT ANALYSIS

Based on the annual emission rates this facility will not be a major source as defined by 45CSR14, so air quality modeling was not required.

## CHANGES TO PERMIT

Installation of six (6) compressor engines. Installation of ten (10) new condensate tanks and one (1) lube oil tank. Subpart OOOO requirements included.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates Eureka Hunter's natural gas compressor station should meet applicable requirements of state rules and federal regulations. It is recommended that Eureka Hunter's proposed changes to Carbide Site should be granted a 45CSR13 Construction permit for their facility.

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David Keatley  
Permit Writer

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Date