



west virginia department of environmental protection

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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: G70-A167
Plant ID No.: 051-00217
Applicant: EQT Gathering, LLC
Facility Name: Francis Pad
Location: Marshall County
NAICS Code: 211111
Application Type: Construction
Received Date: June 16, 2015
Engineer Assigned: Caraline Griffith
Fee Amount: \$4,000
Date Received: June 17, 2015
Complete Date: July 20, 2015
Due Date: September 3, 2015
Applicant Ad Date: June 18, 2015
Newspaper: Moundsville Daily Echo
UTM's: Easting: 526.14 km Northing: 4,413.24 km Zone: 17
Description: Chevron Appalachia, LLC is applying for a G70-A permit to authorize the construction of the Francis Pad, A Natural Gas Production Facility.

Description of Process:

Incoming raw natural gas from the wells enters the site through a pipeline. The raw gas is first routed through a line heater (BAP-0210, BAP-0310, BAP-0410, BAP-0610, BAP-0710, BAP-0810, BAP-0910, BAP-1010, BAP-1110, BAP-1210, or BAP-1310) to assist with the phase separation process in the downstream three-phase separator (MBD-0220, MBD-0320, MBD-0420, MBD-0620, MBD-0720, MBD-0820, MBD-0920, MBD-1020, MBD-1120, MBD-1220, or MBD-1320). In the separators, produced water is

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removed from the raw gas and transferred to the produced water tank and test tanks (ABJ-0011A, ABJ-0011B, ABJ-0011C, ABJ-0011D, ABJ-0011E, ABJ-0014). Produced water flows from the separators to the test tank, where the tank acts as a separator. From the test tank, produced water flows to the five (5) produced water tanks.

Condensate is removed from the raw gas in the separators and is transferred to the condensate flash vessel (MBD-0040). The condensate is routed through a line heater (BAP-0012) prior to the condensate flash vessel to aid in fluid separation. At these pressure and temperature conditions light hydrocarbon constituents volatilize within the condensate flash vessel and are directed to the gas compression units (CBA-1055, CB-2055). The permanent flash gas compressor (CBA-2055) will be an electric engine that will not generate emissions of regulated air pollutants. In order to handle the initial influx of fluids and associated volatilized hydrocarbons, Chevron Appalachia, LLC is proposing to install a second, temporary natural gas-fired flash gas compressor engine. The gas compressors increase the pressure of the recovered gas and are pumped into the natural gas sales line. The remaining condensate fluid flows from the condensate flash vessel to a condensate through the condensate sales line.

From the phase separators, natural gas flows to the downstream sales pipeline. Emissions from the produced water and test tanks are directed to the electric vapor recovery unit (CBA-0055), where they are routed to the flash gas compressors. From the storage tanks, the produced water and blowdown fluids are pumped into tank trucks on an as needed basis and are disposed of off-site. Vapors from the unloading of the tanks are directed to a vent stack (ZZZ-0011) and released to the atmosphere. Blowdown events and emergency vents from the tanks located at the Francis well pad are also directed to the vent stack.

Various control systems are used at the site to monitor and regulate temperature, flow, and pressure. Other sources of emissions at the production site include fugitive component leaks and maintenance blowdowns. Emissions realized from blowdown events are routed to a blowdown vent stack and are uncontrolled.

SITE INSPECTION

The site was inspected by enforcement officer John Money Penny on July 29, 2015. There were 11 natural gas wells and no dwellings within 300 feet. He reported that he anticipates no problems with issuing a permit for construction to operate this facility.

Directions:

From Charleston, WV get on I-64/I-77 ramp to Beckley/Charleston/Toll Rd. Keep right at the fork, follow signs for Interstate 64 W/Interstate 77 N/Charleston. Keep left at the fork and merge onto I-64W/I-77 N. Continue to I-77 N toward Parkersburg for 76.9 miles. Take exit 179 for W. Virginia 2 N/W. Virginia 68 S/Emerson Ave. toward Vienna. Turn right onto WV-2 N/Emerson Ave (signs for St. Marys/Airport). Go for 15.7 miles then turn left onto WV-807 N and continue on OH-807 N. Turn left onto OH-7 N/Ohio River Scenic Byway. Then in 51.7 miles take the Ohio 872 exit toward State Route 2/Moundsville W VA. Turn right onto OH-872 E, continue onto State Route 2 Spur,

continue onto 12th Street, continue onto Fork Ridge Road and in 2.4 miles you will reach the proposed facility site.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

These estimates were made from calculations that used AP-42 chapters 3.2 (for the CBA-0050 engine), AP-42 chapter 1.4 (for the line heaters), manufacturing guarantees, and 40CFR98 Subpart C (for GHG emissions). A sample equation that was used for some calculations can be seen below:

$$\text{MaximumHourlyEmissions}(lb / hr) = \text{EmissionFactor}(lb / \text{MMBtu}) \times \text{BSFC}(\text{Btu} / \text{hr} - \text{hp}) \div 1000000 \times \text{EngineRate}(\text{bhp})$$

Table 1: Estimated Maximum Controlled PTE

Emission Unit ID	Emission Point ID	Emission Unit Description	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Yearly Emissions (TPY)
BAP(0210-0410, 0610-1310)	BAP(0210-0410, 0610-1310)	11 Line Heaters (Pietro Fiorentini 6362001-1440-J100) (1.25 mmBtu/hr Aggregate)	NOx	1.10	4.73
			CO	0.88	3.96
			VOC	0.055	0.22
			HAPs	0.022	0.088
			PM/PM ₁₀	0.077	0.33
			CO ₂ e	1610.07	7052.21
BAP-0012	BAP-0012	Line Heater (Pietro Fiorentini 6492001-J120) (1.25 mmBtu/hr Aggregate)	NOx	0.10	0.43
			CO	0.08	0.36
			VOC	0.005	0.02
			HAPs	0.002	0.008
			PM/PM ₁₀	0.007	0.03
			CO ₂ e	146.37	641.11
CBA-0050	CBA-0050	Flash Gas Compressor (Caterpillar G379TA)	NOx	0.23	1.00
			CO	0.27	1.20
			VOC	0.18	0.80
			HAPs	0.07	0.31
			PM filterable	0.03	0.13
			PM condensable	0.03	0.13

			CO ₂ e	74.65	326.96
ABJ-0011(A-E) & ABJ-0014	ABJ-0011(A-E) & ABJ-0014	Produced Water Tanks & Test Tank	VOCs	10.13	44.35
			HAPs	0.41	1.78
			CO ₂	0.03	0.11
			CH ₄	2.31	10.11
CBA-0055	CBA-0055	Vapor Recovery Unit	VOCs	10.13	44.35
			Total HAPs	0.41	1.78
			Hexane	0.38	1.66
			Benzene	0.004	0.02
			Toluene	0.01	0.04
			Ethylbenze	0.004	0.02
			Xylene	0.009	0.03
			CO ₂	0.03	0.11
			CH ₄	2.31	10.11
			CO ₂ e	57.75	252.96
ZZZ-0011(A-C)	ZZZ-0111	Tank Unloading Events	VOCs	0.25	0.83
			HAPs	<0.001	0.003
			CO ₂	0.07	0.31
			CH ₄	0.45	1.96
			CO ₂ e	11.24	49.23

Table 2: Summarized Estimated Maximum Controlled Facility Wide Emissions

Pollutant	Maximum Annual Facility Wide Emissions (tpy)
VOC	48.38
NOx	6.11
CO	5.50
CO2e	8,391.89
PM/PM10	15.04
Total HAPs	2.30

The maximum potential emissions after controls will not exceed 100 tons per year of any regulated air pollutant, 10 tons per year of any hazardous air pollutant (HAP), or 25 tons per year of any combination of hazardous air pollutants (HAPs), or 100,000 tons per year of carbon dioxide equivalent emissions.

AGGREGATION DETERMINATION

The below aggregation discussion was taken from the permit application.

Analysis Regarding Applicability of Source Aggregation

This analysis addresses how well-site equipment owned and operated by Chevron Appalachia, LLC (Chevron) should be treated in relation to equipment owned and operated by Williams Ohio Valley Midstream (Williams OVM), specifically asking whether or not it would be appropriate to treat them as two stationary sources or as a single source under the Prevention of Significant Deterioration (PSD) and Title V permitting programs. Treating them as a single source would be improper and inconsistent with the intent of the Clean Air Act.

As explained in detail below, the two companies' equipment at or near the West Virginia natural gas well sites are not under common control—even where that equipment might be located near one another. Therefore, these are separate sources under the Clean Air Act and the regulations of the West Virginia Department of Environmental Protection, Division of Air Quality (DAQ). This means that these separate source emissions should not be aggregated in determining applicability of permitting programs.

For these reasons, and for those more fully explained below, aggregation would be inappropriate here.

Background

Chevron is a natural gas producer that acquired several natural gas wells from Chief Oil and Gas LLC (Chief) and AB Resources LLC (AB Resources) in mid-2011. In 2009,

Chief and AB Resources entered into a “gathering agreement” with Caiman Eastern Midstream (Caiman) to compress and process the gas produced. Subsequently, Williams OVM purchased Caiman and now owns the gathering system. The natural gas well-sites that Chevron acquired are being produced with equipment typically found at natural gas well-sites, which may include heaters, separators, tanks (produced water, condensate, blowdown), and in some cases, vapor destruction and/or vapor recovery units. The equipment associated with the gathering system includes compressors and dehydration units, all of which are separately owned and operated by Williams OVM. Ultimately, the gas is routed to processing plants, owned by either Williams or MarkWest.

The sites produce and sell condensate, which also must be gathered and processed. Depending on which of the sites is involved, the condensate may be stored in a condensate tank and trucked offsite for processing or may be pumped offsite by pipeline. The condensate is gathered and processed by either Williams OVM or another company, Ergon, which currently contracts with sites that are not pipeline-equipped. Ergon could also truck condensate at sites where the condensate is currently pumped offsite and may be called upon to do so if there is a disruption or Chevron chooses to enter into a contract for that purpose. Both Ergon and Williams would process the condensate at their plants, depending on which of them Chevron contracts with for that service at that site. As a result, there are distinct systems for production and condensate, which may or may not necessitate emission units on site. Chevron owns and operates a production system, and Williams OVM and Ergon own and operate gathering and processing systems for gas and condensate.

As a general matter, Williams OVM's business is to process and transport gas and condensate and Ergon's business is to process and transport condensate produced from wells owned by exploration and production companies. Companies like Williams OVM and Ergon are not producers, and they independently operate whatever equipment they may need to achieve their business goals. In the case of Williams OVM, compression and dehydration equipment and condensate storage and processing equipment are in service to support their business.

Before providing its services, Williams OVM—like its predecessors in interest—enters into contracts to move customers' gas and condensate from receipt points (wells) to delivery points. Moreover, Williams OVM's predecessors in interest had to design the gathering system in such a way to meet its contractual obligations. Gas and condensate entering and leaving Williams OVM's gathering system is not owned by Williams OVM but is rather owned by the producers with whom it contracts. The types of equipment and emission units that are required for gathering gas are typically compressors and dehydrators but may also include vapor destruction or vapor recovery units.

Here, Williams OVM provides pipeline and compression for gas and condensate

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gathering for 17 wells owned by Chevron. This analysis focuses on one well site in particular—the Francis Pad A (Francis site). For the Francis site, Williams OVM performs gas gathering services offsite, while condensate is pumped offsite for processing by Williams OVM.

At the Francis site, Chevron and Williams OVM perform separate operations. Chevron and Williams OVM each operate their separate equipment, serving separate functions—production and gathering—under a gas gathering agreement. To be clear, there is no common ownership of the equipment. Moreover, Chevron does not have decision-making authority over Williams OVM, nor does Williams OVM have such authority over Chevron, and there is no voting interest of one company in the other or shared board members. Finally, as discussed in more detail below, the key commonalities that EPA looks for in determining if a control relationship exists are not present here.

Consistent with the general arrangement discussed just above, Chevron owns specific equipment at the Francis site, and Williams OVM will own distinct gathering and processing equipment. Thus, Chevron owns twelve heaters, five produced water tanks, one test tank, eleven separators, one flash gas compressor, and a vapor recovery unit, whereas Williams OVM will own a dehydrator and sales gas compressor. Moreover, the equipment is located more than 500 feet apart at this site.. Finally, there is not a common relationship in any event. Chevron cannot direct the operation of Williams OVM's equipment, nor can Williams OVM do the same to Chevron.

Moreover, it is possible that independent third parties might own and operate future wells at or near Chevron's well sites, and if that happens, it is anticipated that the Williams OVM's gathering system will accept any gas produced by these other owners and operators. Chevron does not have a say over what other gas Williams OVM processes.

Determination

Due to this aggregate discussion given by Chevron Appalachia, LLC the writer determines that aggregation is not necessary for this facility and permit. Though the two sources from Chevron Appalachia, LLC and Williams OVM are considered adjacent and contiguous, these sources are independent of each other and will not interfere with each others operations.

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REGULATORY APPLICABILITY

The following state and federal regulations apply to sources requesting registration under the G70-A General Permit:

State Regulations:

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

45CSR2 establishes emission limitations for smoke and particulate matter that are discharged from fuel burning units. Sources subject to 45CSR2 include gas producing units, in-line heaters, heater treaters, and glycol dehydration reboilers.

The line heaters at the proposed Francis Pad Facility are indirect heat exchangers that combust natural gas with heat input ratings less than 10 MMBtu/hr. Such units are subject to 10% opacity as a six-minute block average limitation. These line heaters must also abide by the testing, monitoring, reporting and recordkeeping requirements in 45CSR2, Section 8.

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

45CSR4 states that an objectionable odor is an odor that is deemed objectionable when in the opinion of a duly authorized representative of the Air Pollution Control Commission (Division of Air Quality), based upon their investigations and complaints, such odor is objectionable. All facilities are inspected by the DAQ Enforcement Section. The facility-wide requirements of the general permit include the odor standards of 45CSR §4-3.1.

The proposed Francis Pad is subject to this rule, however the presence of objectionable odors is unlikely.

45CSR10 To Prevent and Control Air Pollution from the Emission of Sulfur Oxides

45CSR10 establishes emission limitations for SO₂ emissions which are discharged from stacks of fuel burning units. A "fuel burning unit" means and includes any furnace, boiler apparatus, device, mechanism, stack or structure used in the process of burning fuel or other combustible material for the primary purpose of producing heat or power by indirect heat transfer. Sources that meet the definition of "Fuel Burning Units" per

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45CSR10-2.8 include gas producing units, in-line heaters, heater treaters, and glycol dehydration unit reboilers.

Fuel burning units less than 10 MMBtu/hr are exempt. The sulfur dioxide emission standard set forth in 45CSR10 is generally less stringent than the potential emissions from a fuel burning unit for natural gas.

Fuel burning units burning natural gas are exempt from section 8 (Monitoring, Recording and Reporting) as well as interpretive rule 10A. The G70-A eligibility requirements exclude from eligibility any fuel burning unit that does not use natural gas as the fuel; therefore, there are no permit conditions for 45CSR10.

The line heaters at the proposed Francis wellpad are indirect heat exchangers that combust natural gas with heat input ratings less than 10 MMBTU/hr. Such units are subject to the 2,000 ppmv sulfur dioxide concentration limitation. They also must comply with the testing, monitoring, recording, and recordkeeping requirements in 45CSR10, Section 8. Compliance with the allowable sulfur dioxide concentration limitations is based on a block (3) hour averaging time.

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

The facility is subject to construction because it is a new facility and meets all requirements in 45CSR13 - 5. Since this is a Class II General Permit, the permit application is subject to public notice of 30 days and must pay all applicable fees per 45CSR13 - 8 & 12.

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

45CSR16 incorporates by reference the standards of performance for new stationary sources (40CFR60). This facility is subject to 40CFR60 subpart OOOO and therefore this facility is subject to 45CSR16.

45CSR22 Air Quality Management Fee Program

This facility is a minor source as can be seen in Table 1 and not subject to 45CSR30 since the regulations this facility is subject to are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71. This facility has a maximum horsepower capacity less than 1,000 hp and is a 9M source and is required to pay a \$200 annual fee. Chevron Appalachia, LLC is required to keep their Certificate to Operate current.

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This facility was also subject to 40CFR60 Subpart OOOO and was required to pay the \$1000 NSPS fee.

Federal Regulations:

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

Subpart JJJJ sets forth nitrogen oxides (NO_x), carbon monoxide (CO), and volatile organic compound (VOC) emission limits, fuel requirements, installation requirements, and monitoring requirements based on the year of installation of the subject internal combustion engine. The provisions for non-emergency stationary spark ignition (SI) internal combustion engines for owners or operators of this subpart have been included in the G70-A General Permit, Section 13. EPA finalized amendments to this subpart on January 15, 2013 and they were published in the Federal Register on January 30, 2013. The final rule is effective on April 1, 2013.

The natural gas-fired flash gas compressor engine that will be installed at the proposed Francis natural gas production facility is not subject to the requirements of this Rule. The engine is a non-emergency spark ignition internal combustion engine (SI ICE) with less than 500 bhp that will be installed at the site in 2015, was constructed prior to June 12, 2006, and has not been reconstructed or modified after June 12, 2006.

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

Subpart OOOO applies to facilities that commence construction, reconstruction, or modification after August 23, 2011 (October 15, 2012 for well completions). Since the Francis pad will begin operation after August 23, 2011 it is subject to the requirements of Subpart OOOO. The tanks at the Francis facility will utilize a vapor recovery unit claiming 95% control. With the VRU in place, the tanks will not have the potential to emit more than 6 tpy of VOC's, therefore the tanks will not be subject to the rule. The site will also include pneumatic controllers that were ordered and installed after August 23, 2011 with a bleed rate equal to or less than 6 scfd, therefore the controllers will not be subject to the applicable provisions of Subpart OOOO. The gas wells at the Francis pad will also be affected facilities subject to Subpart OOOO.

40CFR63 Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines)

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal

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combustion engines (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. Only the area source requirements for non-emergency spark ignition engines are included in the G70-A general permit, Section 15.0. Requirements for engines that combust landfill or combustor gas are not included in the G70-A general permit. This section reflects EPA's final amendments to 40 CFR part 63, Subpart ZZZZ that were issued on January 15, 2013 and published in the Federal Register on January 30, 2013.

The CAT G379TA Compressor Engine that will be installed at the proposed Francis pad facility is subject to the requirements of 40CFR63 Subpart ZZZZ. The engine was manufactured prior to June 12, 2006 and has not been reconstructed or modified. The engine qualifies as a 4SRB SI ICE. The engine is not classified as a black start or emergency engine. With a brake horsepower rating of 415 this engine is subject to the requirements of 63.6603(a), as outlined in Table 2d.10. The requirements for non-emergency, non-black start 4SRB stationary RICE with less than 500 bhp are as follows:

- Change oil and filter every 1,440 hours of operation or annually, which comes first;
- Inspect spark plugs every 1,440 hours of operation or annually, which comes first, and replace as necessary;
- Inspect all hoses and belts every 1,440 hours of operation or annually, which comes first, and replace as necessary.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

Small amounts of non-criteria regulated hazardous air pollutants such as benzene, toluene, 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.

All natural gas production facilities that are issued a G70-A general permit registration by the Director will be limited to those that are classified as minor sources of hazardous air pollutants. Minor sources of hazardous air pollutants are defined as those that have a potential to emit of less than 10 tons per year of any hazardous air pollutant or less than 25 tons per year of any combination of hazardous air pollutants.

Listed below is information regarding each of the possible hazardous air pollutants that may be emitted by the proposed Francis facility.

Benzene:

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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.

n-Hexane:

n-Hexane is a solvent that has many uses in the chemical and food industries, either in pure form or as a component of commercial hexane. The latter is a mixture that contains approximately 52% n-hexane; the balance is made up of structural analogs and related chemicals such as methylpentane and methylcyclopentane. Highly purified n-hexane is used as a reagent for chemical or chromatographic separations. Other grades of n-hexane are used as solvents for extracting edible fats and oils in the food industry and as a cleaning agent in the textile, furniture, and printing manufacturing industries. Hexane is the solvent base for many commercial products, such as glues, cements, paint thinners, and degreasers. n-Hexane is a minor constituent of crude oil and natural gas and occurs in different petroleum distillates. No data are available regarding the potential toxicity of n-hexane in humans orally exposed to n-hexane. However, as might be expected for a chemical with such wide application, the potential exists for persons to be environmentally and/or occupationally exposed to n-hexane via other routes of exposure.

Toluene:

The acute toxicity of toluene is low. Toluene may cause eye, skin, and respiratory tract

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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.

Xylene:

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.

Table 3: Potential HAPs - Carcinogenic Risk

HAPs	Type	Known/Suspected Carcinogen	Classification
n-Hexane	VOC	No	Inadequate Data
Benzene	VOC	Yes	Category A - Known Human Carcinogen
Toluene	VOC	No	Inadequate Data
Xylenes	VOC	No	Inadequate Data
Ethylbenzene	VOC	No	Category D - not classifiable as to human carcinogenicity

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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).

RECOMMENDATION TO DIRECTOR

General permit G70-A167 meets all requirements of applicable state and federal regulations. Therefore, it is recommended that General Permit G70-A167 should be issued.


Caraline Griffith
Permit Engineer

8/3/15
Date

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