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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	G70-A100
Plant ID No.:	009-00127
Applicant:	Chesapeake Appalachia, L.L.C. (CHK)
Facility Name:	Violet Coss BRK Pad
Location:	Wellsburg, Brooke County
NAICS Code:	211111
Application Type:	Construction
Received Date:	October 15, 2014
Engineer Assigned:	Jerry Williams, P.E.
Fee Amount:	$1,500.00
Date Received:	October 15, 2014
Complete Date:	November 12, 2014
Due Date:	December 27, 2014
Applicant Ad Date:	October 22, 2014
Newspaper:	*Wheeling Intelligencer*
UTM's:	Easting: 532.1254 km Northing: 4,455.7638 km Zone: 17S
Description:	This permitting action is for an oil and natural gas production facility that will include the installation of one (1) natural gas fired flash gas compressor engine, one (1) natural gas fired vapor recovery unit (VRU) compressor engine, one (1) gas production unit (GPU) burner, one (1) heater treater, two (2) 400 barrel (bbl) condensate tanks, two (2) 400 bbl produced water tanks, condensate truck loading and produced water truck loading.

DESCRIPTION OF PROCESS

The following process description was taken from Registration Application G70-A100:

The facility is an oil and natural gas exploration and production facility, responsible for the production of natural gas. Storage of condensate and produced water will also occur on site. Condensate, gas, and water come from the wellhead to the production unit, where the first stage of separation occurs. Fluids (condensate and produced water) will be sent to the heater treater. Flash gases from the heater treater are captured via natural gas fired engine driven flash gas

compressor. Produced water from the heater treater flows into the 400-bbl produced water tanks. Condensate flows into the condensate storage tanks.

Condensate and produced water tank vapors (working, breathing, and flashing emissions) are captured and routed to a VRU. The VRU has a 95% control efficiency for Volatile Organic Compounds (VOCs) and Hazardous Air Pollutants (HAPs).

The natural gas stream will exit the facility via pipeline. Condensate and produced water are transported off site via truck.

SITE INSPECTION

A site inspection was conducted by Al Carducci of the DAQ NPRO Enforcement Section on October 30, 2014. The closest residence is approximately 1,000 feet from the proposed facility. Mr. Carducci stated that the site is appropriate for the facility and the G70-A siting requirements were met.

Latitude: 40.25171
Longitude: -80.62226

Directions to the proposed facility are as follows:

From I-70 East in Wheeling, take exit 1A. Turn right at the bottom of the off ramp onto SR2 north and travel north to the community of Beech Bottom and turn right (east) onto 49 Hill Road. Travel approximately 1 mile on 49 Hill Road to CR 28 (Apple Pie Ridge Road) and turn left onto CR 28. Travel approximately 1 mile on CR 28 to CR 67/1 (Green Run Road) and turn left onto CR 67/1. Travel 0.1 mile on CR 67/1 and turn left onto Coss Road. Travel 1.8 miles on Coss Road to well pad access road on right.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions associated with this construction application consist of the combustion emissions from the two (2) compressor engines (EU-ENG1, EU-ENG2), one (1) GPU burner (EU-GPU1), one (1) heater treater (EU-HT1), two (2) condensate tanks (EU-TANKS-COND), two (2) produced water tanks (EU-TANKS-PW), condensate truck loading (EU-LOAD-COND), produced water truck loading (EU-LOAD-PW) and fugitive emissions (EU-FUG).

The following table indicates which methodology was used in the emissions determination:

Emission Unit ID#	**Process Equipment**	**Calculation Methodology**
EU-ENG1	145 hp Caterpillar G3306 NA Compressor Engine[1]	Manufacturer's Data, EPA AP-42 Emission Factors
EU-ENG2	77 hp Zenith ZPP-644 Compressor Engine	Manufacturer's Data, EPA AP-42 Emission Factors
EU-GPU1	1.0 MMBTU/hr Gas Production Unit Burner [2]	EPA AP-42 Emission Factors
EU-HT1	0.5 MMBTU/hr Heater Treater [3]	EPA AP-42 Emission Factors
EU-TANKS-COND	Two (2) 400 bbl Condensate Tanks [4]	EPA Tanks 4.09 Emission Estimation Software, Promax Process Simulation
EU-TANKS-PW	Two (2) 400 bbl Produced Water Tanks [4]	EPA Tanks 4.09 Emission Estimation Software, Promax Process Simulation
EU-LOAD-COND	Condensate Truck Loading [5]	EPA AP-42 Emission Factors
EU-LOAD-PW	Produced Water Truck Loading [5]	EPA AP-42 Emission Factors

[1] Per Caterpillar, NMNEHC emission factor does not include formaldehyde, therefore, NMNEHC and formaldehyde factors have been added to arrive at total VOC. In addition, per AP-42, all PM from combustion of natural gas (total, condensable, and filterable PM) is presumed < 1 micrometer.

[2] Per AP-42, all PM from combustion of natural gas (total, condensable, and filterable PM) is presumed < 1 micrometer.

[3] Per AP-42, all PM from combustion of natural gas (total, condensable, and filterable PM) is presumed < 1 micrometer.

[4] Maximum annual emissions based on average daily production with rolling daily throughput total not to exceed maximum annual throughput.

[5] Maximum hourly based on average hourly truck loading rate.

Fugitive emissions for the facility are based on calculation methodologies presented in the 2009 American Petroleum Institute Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Gas Industry. The factors presented in the API Compendium are

for methane emissions. Therefore, the fugitive VOC and HAP emissions were calculated using a representative gas analysis and the weight percent of each respective pollutant.

The total facility PTE for the Violet Coss BRK Pad is shown in the following table:

Pollutant	**Facility Wide PTE (tons/year)**
Nitrogen Oxides	5.03
Carbon Monoxide	5.82
Volatile Organic Compounds	48.38
Particulate Matter	0.19
Particulate Matter-10/2.5	0.10
Sulfur Dioxide	0.01
Formaldehyde	0.13
Total HAPs	3.85
Carbon Dioxide Equivalent	1,780

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

Chesapeake Appalachia, LLC – Violet Coss BRK Pad (G70-A100)

Emission Point ID#	Source	NO_x		CO		VOC		PM		PM-10/2.5		SO_2		Formaldehyde		Total HAPs		CO_2e
		lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	ton/year
EP-MC1706	Caterpillar G3306 NA RICE	0.64	2.80	0.64	2.80	0.34	1.49	0.02	0.09	0.01	0.04	<0.01	<0.01	0.02	0.09	0.03	0.15	724
EP-MC4907	Zenith ZPP-644 RICE	0.34	1.49	0.55	2.41	0.34	1.49	0.01	0.04	<0.01	0.02	<0.01	<0.01	0.01	0.04	0.01	0.06	241
EP-GPU1	Gas Production Unit	0.11	0.48	0.09	0.39	0.01	0.03	0.01	0.04	0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	513
EP-HT1	Heater Treater	0.06	0.26	0.05	0.22	<0.01	0.01	<0.01	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	256
EP-TANKS-COND	Condensate Tanks (Total)	-	-	-	-	6.44	28.19	-	-	-	-	-	-	-	-	0.52	2.28	-
EP-TANKS-PW	Produced Water Tanks (Total)	-	-	-	-	0.01	0.02	-	-	-	-	-	-	-	-	<0.01	<0.01	-
EP-LOAD-COND	Condensate Truck Loading	-	-	-	-	3.49	15.27	-	-	-	-	-	-	-	-	0.28	1.24	2
EP-LOAD-PW	Produced Water Truck Loading	-	-	-	-	0.03	0.11	-	-	-	-	-	-	-	-	<0.01	0.01	2
Total Point Source PTE		**1.15**	**5.03**	**1.33**	**5.82**	**10.66**	**46.61**	**0.04**	**0.19**	**0.02**	**0.10**	**<0.01**	**0.01**	**0.03**	**0.13**	**0.86**	**3.76**	**1739**
EP-FUG	Process Piping Fugitives	0.00	0.00	0.00	0.00	0.40	1.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.09	41
Total Fugitive PTE		**0.00**	**0.00**	**0.00**	**0.00**	**0.40**	**1.77**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.09**	**41**
Total Sitewide PTE		**1.15**	**5.03**	**1.33**	**5.82**	**11.06**	**48.38**	**0.04**	**0.19**	**0.02**	**0.10**	**<0.01**	**0.01**	**0.03**	**0.13**	**0.88**	**3.85**	**1780**

REGULATORY APPLICABILITY

The following rules apply to the facility:

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

The purpose of 45CSR2 (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers) is to establish emission limitations for smoke and particulate matter which are discharged from fuel burning units.

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

The individual heat input of all of the proposed fuel burning units (EP-GPU1, EP-HT1) are below 10 MMBTU/hr. Therefore, these units are exempt from the aforementioned sections of 45CSR2. However, CHK would be subject to the opacity requirements in 45CSR2, which is 10% opacity based on a six minute block average.

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

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

The individual heat input of all of the proposed fuel burning units (EP-GPU1, EP-HT1) are below 10 MMBTU/hr. Therefore, these units are exempt from the aforementioned sections of 45CSR10.

45CSR13 (Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation)

45CSR13 applies to this source due to the fact that CHK is defined as a "stationary source" under 45CSR13 Section 2.24.b, which states that an owner or operator discharges or has the potential to discharge more than six (6) pounds per hour and ten (10) tons per year, or has the potential to discharge more than 144 pounds per calendar day of any regulated air pollutant. CHK's volatile organic compounds (VOC) emissions exceed 45CSR13 permit thresholds. CHK has published the required Class I legal advertisement notifying the public of their permit application, and paid the appropriate application fee (construction).

45CSR22 (Air Quality Management Fee Program)

This facility is a minor source and not subject to 45CSR30. CHK is required to keep their Certificate to Operate current.

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

40CFR60.4230 states that a source that commenced construction after June 12, 2006 whose SI ICE was less than 500 hp and was manufactured on or after July 1, 2008 is subject to this rule. Since the SI ICEs (EU-ENG1, EU-ENG2) that CHK will install were manufactured after January 1, 2011, CHK is subject to this rule.

CHK has provided documentation from the manufacturer that the emission limits will be met when the components and equipment are operated according to manufacturer's specifications.

Because EU-ENG1 will not be certified by the manufacturer, CHK will be required to perform an initial performance test within 180 days from startup, and subsequent testing every 8,760 hours or 3 years, whichever comes first.

CHK submitted EPA Certificate of Conformity's for EU-ENG2 which states that these emission standards will be met. Therefore, as long as this engine is operated in a certified manner, performance testing is not required.

The proposed engines meet these standards.

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.

The gas wells that currently exist at the Violet Coss BRK Pad were drilled principally for the production of natural gas and were done so after August 23, 2011. Therefore, these wells would be considered affected facilities under this subpart. The compliance date for these hydraulically fractured wells is October 15, 2012. CHK is required under §60.5410 to submit an initial notification, initial annual report, maintain a log of records for each well completion, and maintain records of location and method of compliance. §60.5420 requires CHK

demonstrate continuous compliance by submitting reports and maintaining records for each completion operation.

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 the Violet Coss BRK Pad. 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.

There are two (2) reciprocating internal combustion engine located at the Violet Coss BRK Pad. These engines will be delivered after the effective date of this rule. However, §60.5365(c) states that 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. 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.

There are no continuous bleed gas-driven pneumatic controllers with bleed rates greater than 6 standard cubic feet per hour (scfh) at the Violet Coss BRK Pad.

Therefore, there are no applicable requirements regarding pneumatic controllers under 40 CFR 60 Subpart OOOO that would 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 Violet Coss BRK Pad are controlled by a vapor combustor and emit less than 6 tpy of VOC. Therefore, CHK 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 Violet Coss BRK Pad 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 Violet Coss BRK Pad. Therefore, all requirements regarding sweetening units under 40 CFR 60 Subpart OOOO would not apply.

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 at the Violet Coss BRK Pad are subject to the area source requirements for non-emergency spark ignition engines.

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

The following rules do not apply to the facility:

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

40CFR60 Subpart Kb does not apply to storage vessels with a capacity less than 75 cubic meters. The tanks that CHK has proposed to install are 63.60 cubic meters each. Therefore, CHK would not be subject to this rule.

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

40CFR60 Subpart KKK applies to onshore natural gas processing plants that commenced construction after January 20, 1984, and on or Before August 23, 2011. The Violet Coss BRK Pad was constructed after August 23, 2011 and is not a natural gas processing plant, therefore, CHK would not be subject to this rule.

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

Subpart HH establishes national emission limitations and operating limitations for HAPs emitted from oil and natural gas production facilities located at major and area sources of HAP emissions. There are no glycol dehydration units at this facility, therefore, this rule does 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)

On September 30, 2013, EPA approved a redesignation request and State Implementation Plan (SIP) revision submitted by the State of West Virginia. The West Virginia Department of Environmental Protection (WVDEP) requested that the West Virginia portion of the Wheeling, WV–OH fine particulate matter ($PM_{2.5}$) nonattainment area (''Wheeling Area'' or ''Area'') be redesignated as attainment for the 1997 annual $PM_{2.5}$ national ambient air quality standard (NAAQS).

The Violet Coss BRK Pad is located in Brooke County, which is located in this metropolitan statistical area and is an attainment county for all pollutants. Therefore the Violet Coss BRK Pad is not subject to 45CSR19.

As shown in the following table, CHK 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.

Pollutant	**PSD (45CSR14) Threshold (tpy)**	**NANSR (45CSR19) Threshold (tpy)**	**Violet Coss BRK Pad PTE (tpy)**	**45CSR14 or 45CSR19 Review Required?**
Carbon Monoxide	250	NA	5.82	No
Nitrogen Oxides	250	NA	5.03	No
Sulfur Dioxide	250	NA	0.01	No
Particulate Matter 2.5	250	NA	0.10	No
Ozone (VOC)	250	NA	46.61	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. The following table lists common HAP's emitted from these types of facilities and each HAP's carcinogenic risk (as based on analysis provided in the Integrated Risk Information System (IRIS)):

HAPs	Type	Known/Suspected Carcinogen	Classification
Formaldehyde	VOC	Yes	Category B1 - Probable Human Carcinogen
Benzene	VOC	Yes	Category A - Known Human Carcinogen
Ethylbenzene	VOC	No	Inadequate Data
Toluene	VOC	No	Inadequate Data
Xylenes	VOC	No	Inadequate Data

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 Violet Coss BRK Pad is located in Brooke County and will be operated by CHK, who is partial owner and operator. Several different entities are involved in the production, gathering, and transmission of gas. The Operators are the parties who drill and operate the wells. The Shippers are the owners of the gas who may or may not be the same entity as the Operator. There are also parties who own and operate the gathering system pipelines and compression station, called Gatherers. In addition, there are parties that own and operate the gas processing plants.

1. The Violet Coss BRK Pad will operate under SIC code 1311 (Crude Petroleum and Natural Gas Extraction). There are surrounding wells and compressor stations operated by CHK that share the same two-digit major SIC code of 13 for oil and gas exploration and production. Therefore, the Violet Coss BRK Pad does share the same SIC code as the wells and surrounding 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 CHK facilities that are contiguous or adjacent with the Violet Coss BRK Pad. Additionally, there are no co-located facilities with the Violet Coss BRK Pad.

3. There are other wells and compressor stations that are under common control of CHK.

Because the facilities are not considered to be on contiguous or adjacent properties, the emissions from the Violet Coss BRK Pad should not be aggregated with other facilities in determining major source or PSD status.

MONITORING OF OPERATIONS

CHK 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 engines, and combustion sources.
- Monitor all applicable requirements of 40CFR60 Subparts JJJJ and OOOO.
- Monitor and record the operating hours of the vapor combustor.
- Maintain records of testing conducted in accordance with the permit.
- Maintain records of the visible emission opacity tests conducted per the permit.
- Maintain a record of all potential to emit (PTE) HAP calculations for the entire facility. These records shall include the natural gas compressor engines and ancillary equipment.
- Monitor the tanks to ensure that the tanks vapors will be sent to the VRU.
- Monitor the condensate and produced water truck loading.
- The records shall be maintained on site or in a readily available off-site location maintained by CHK for a period of five (5) years.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates CHK's Violet Coss BRK Pad meets all the requirements of applicable regulations. Therefore, impact on the surrounding area should be minimized and it is recommended that the Brooke County location should be granted registration under General Permit G70-A.

Jerry Williams, P.E.
Engineer

DEC 15. 2014
Date