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west virginia department of environmental protection

## G70-C GENERAL PERMIT ENGINEERING EVALUATION

PREVENTION AND CONTROL OF AIR POLLUTION IN REGARD TO THE CONSTRUCTION, MODIFICATION, RELOCATION, ADMINISTRATIVE UPDATE AND OPERATION OF NATURAL GAS PRODUCTION FACILITIES LOCATED AT THE WELL SITE

APPLICATION NO.: **G70-C208**

FACILITY ID: **051-00181**

CONSTRUCTION  
 MODIFICATION  
 RELOCATION

CLASS I ADMINISTRATIVE UPDATE  
 CLASS II ADMINISTRATIVE UPDATE

### BACKGROUND INFORMATION

Name of Applicant (as registered with the WV Secretary of State's Office): **Chevron Appalachia, LLC**

Federal Employer ID No. (FEIN): **25-0527925**

Applicant's Mailing Address: **700 Cherrington Parkway**

City: **Coraopolis**

State: **PA**

ZIP Code: **15108**

Facility Name: **Curry Site**

Operating Site Physical Address: **9 Waymans Ridge Road**  
If none available, list road, city or town and zip of facility.

City: **Moundsville**

Zip Code: **26041**

County: **Marshall**

Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits):

Latitude: **39.91013**

Longitude: **-80.66596**

SIC Code: **1311**

NAICS Code: **211111**

Date Application Received:  
**August 4, 2016**

Fee Amount: **\$4,000**

Date Fee Received: **August 8, 2016**

Applicant Ad Date: **August 3, 2016**

Newspaper: **Moundsville Daily Echo**

Date Application Complete: **September 13, 2016**

Due Date of Final Action: **October 28, 2016**

Engineer Assigned: **David Keatley**

Description of Permitting Action: **Installation and operation of: two (2) 1.0-mmBtu/hr line heaters, three (3) 1.25-mmBtu/hr line heaters, one (1) 30-mmscf/day TEG dehydration unit utilizing a flash tank and associated 0.5-mmBtu/hr reboiler. Removal of one (1) 15.3-mmBtu/hr enclosed combustor.**

## **PROCESS DESCRIPTION**

This facility is a natural production facility. Natural gas from four wells go to two (2) 1.0-mmBtu/hr line heaters and two (2) 1.25-mmBtu/hr line heaters. The line heaters (BAP-0110, BAP-0210, BAP-0910, and BAP-0810) heat the natural gas to encourage phase separation. Produced water from the separators go to tanks (ABJ-0014, ABJ-0011A, and ABJ-0011B). Vapors from the produced water tanks are sent to a flash gas compressor by an electric driven VRU. Condensate from the separators go to another line heater (BAP-0012) to encourage further phase separation. The heated condensate go to a condensate flash vessel where the condensate leaves the facility via pipeline. The gas from the condensate flash vessel go to a flash gas compressor. The flash gas compressor is powered by one (1) four-stroke rich-burn 276-bhp Caterpillar G3406 TA natural gas fired engine.

Natural gas from the separators and from the flash gas compressor go to a TEG dehydration unit to reduce the water content of the natural gas stream. Natural gas at a maximum rate of 30 mmscf/day will flow counter current to TEG in a contactor tower. The natural gas from the contactor tower will exit the facility via pipeline. The rich TEG from the contactor tower will go to a TEG flash tank to allow volatile components to vaporize. The vapors from the TEG flash tank go to an electric VRU. The liquids from the flash tank go to a regenerator to remove the water from the TEG. The regenerator is heated by one (1) 0.5-mmBtu/hr natural gas fired reboiler (BBC-0100). The vapors from the regenerator exit through the regenerator overhead (E0100B).

This facility will have three blowdowns per year which the vapors go to a produced water tank (ABJ-0014). Produced water will be trucked off site at a maximum rate of 82,026 gallons/day.

## SITE INSPECTION

Site Inspection Date: March 23, 2016

Site Inspection Conducted By: Angela Carey

Results of Site Inspection: The facility was deemed in compliance

Did Applicant meet Siting Requirements? Yes

If applicable, was siting criteria waiver submitted? N/A

Directions to Facility: Directions from Moundsville on Waynesburg Pike (US 250 S). Travel approximately 6.0 miles. Turn left onto Waymans Ridge Road (CR 38). Travel on CR 38 for approximately 1.75 miles the access road to the facility is on the left.

Overhead Google Earth Image of Facility:



## ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

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

Emission Unit ID#	Process Equipment	Calculation Methodology (e.g. ProMax, GlyCalc, mfg. data, AP-42, etc.)
BAP-0110, BAP-0210, BAP-0810, BAP-0910, and BAP-0012	Line Heaters	AP-42
CBA-0050	Flash Gas Compressor Engine	mfg. data and AP-42
BBC-0100	TEG Reboiler	AP-42
BBC-0100	Regenerator Overhead	GRI-GLYCalc 4.0
MBD-0110	TEG Dehydration Unit Flash Tank	GRI-GLYCalc 4.0
MBD-0110, ABJ- 0011B, and ABJ-0014	Produced Water and Blowdown Tanks	ProMax
ZZZ-0060	Enclosed Combustor	AP-42
ZZZ-0011AB and ZZZ-0014	Truck Loading	AP-42 equation

The total facility PTE for the facility (including fugitive emissions) is shown in the following table:

Pollutant	Facility Wide PTE (tons/year)
Nitrogen Oxides	2.74
Carbon Monoxide	2.54
Volatile Organic Compounds	40.18
Particulate Matter	0.25
Particulate Matter-10/2.5	0.25
Sulfur Dioxide	0.02
Formaldehyde	0.42
Benzene	0.21
Toluene	0.77
Ethylbenzene	0.59
Xylenes	1.51
n-Hexane	1.32
Total HAPs	4.80
Carbon Dioxide Equivalent	6,947

Estimated New/Modified Maximum Controlled PTE:

Emission Point ID	Emission Unit ID	Emission Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tpy)
E0110 and E0810	BAP-0110 and BAP-0810	Line Heaters 1.0 mmBtu/hr (Emissions per Each)	Nitrogen Oxides	0.08	0.33
			Carbon Monoxide	0.06	0.28
			Volatile Organic Compounds	<0.01	0.02
			Total Particulate Matter	<0.01	0.03
		CO <sub>2</sub> e		118	513
E0210, E0910, and E0012	BAP-0210, BAP-0910, and BAP-0012	Line Heaters 1.25 mmBtu/hr (Emissions per Each)	Nitrogen Oxides	0.09	0.42
			Carbon Monoxide	0.08	0.35
			Volatile Organic Compounds	<0.01	0.02
			Total Particulate Matter	<0.01	0.03
		CO <sub>2</sub> e		147	642
E0050	CBA-0050	Flash Gas Compressor Engine Caterpillar G3406TA	Nitrogen Oxides	0.15	0.67
			Carbon Monoxide	0.18	0.80
			Volatile Organic Compounds	0.19	0.84
			Total Particulate Matter	0.02	0.09
		Formaldehyde		0.09	0.42
		Benzene		<0.01	0.02
		CO <sub>2</sub> e		54	237
E0100A	BBC-0100	TEG Dehydration Unit Reboiler 0.5 mmBtu/hr	Nitrogen Oxides	0.04	0.17
			Carbon Monoxide	0.03	0.14
			Volatile Organic Compounds	<0.01	0.01

			Total Particulate Matter	<0.01	0.01
E0100B	BBC-0100	TEG Dehydration Unit Still Vent  30 mmscf/day	CO <sub>2</sub> e	59	257
			Volatile Organic Compounds	1.11	4.88
			Benzene	0.04	0.17
			Toluene	0.16	0.71
			Ethylbenzene	0.13	0.55
			Xylenes	0.32	1.40
			n-Hexane	0.02	0.10
			CO <sub>2</sub> e	3	11
VS-1	MBD-110, ABJ-0011A, ABJ-0011B, ABJ-0014, ZZZ-0011AB and ZZZ-0014	TEG Dehydration Unit Flash Tank, Produced Liquid Tanks, and Truck Loading	Volatile Organic Compounds	8.88	33.30
			Benzene	<0.01	0.02
			Toluene	0.01	0.05
			Ethylbenzene	0.01	0.03
			Xylenes	0.02	0.11
			n-Hexane	0.27	1.18
			CO <sub>2</sub> e	790	3,462

## REGULATORY APPLICABILITY

### 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) MMBTU/hr 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. If the individual heat input of all of the proposed fuel burning units are below 10 MMBTU/hr, these units are exempt from the aforementioned sections of 45CSR2. However, the registrant would be subject to the opacity requirements in 45CSR2, which is 10% opacity based on a six minute block average. Fuel burning units greater than 10 MMBTU/hr are ineligible for registration under General Permit G70-C

Emission Unit ID#	Emission Unit Description	Maximum Design Heat Input (MDHI) (MMBTU/hr)
BAP-0110	Line Heater	1.00
BAP-0210	Line Heater	1.25
BAP-0810	Line Heater	1.00
BAP-0910	Line Heater	1.25
BAP-0012	Line Heater	1.25
BBC-0100	Reboiler	0.5

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

45CSR10 establishes emission limitations for SO<sub>2</sub> 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 45CSR10-2.8 include GPUs, 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. The SO<sub>2</sub> emissions from a fuel burning unit will be listed in the G70-C permit registration at the discretion of the permit engineer on a case-by-case basis. Issues such as non-attainment designation, fuel use, and amount of sulfur dioxide emissions will be factors used in this determination. Fuel burning units greater than 10 MMBTU/hr are ineligible for registration under General Permit G70-C

Fuel burning units burning natural gas are exempt from Section 8 (Monitoring, Recording and Reporting) as well as interpretive rule 10A. The G70-C 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.

Emission Unit ID#	Emission Unit Description	Maximum Design Heat Input (MDHI) (MMBTU/hr)
BAP-0110	Line Heater	1.00
BAP-0210	Line Heater	1.25
BAP-0810	Line Heater	1.00
BAP-0910	Line Heater	1.25
BAP-0012	Line Heater	1.25
BBC-0100	Reboiler	0.5

**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 the applicant is defined as a “stationary source” under 45CSR13 Section 2.24.b. *Stationary source* means, for the purpose of this rule, any building, structure, facility, installation, or emission unit or combination thereof, excluding any emission unit which meets or falls below the criteria delineated in Table 45-13B which: (a) is subject to any substantive requirement of an emission control rule promulgated by the Secretary; (b) 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; (c) discharges or has the potential to discharge more than two (2) pounds per hour or five (5) tons per year of hazardous air pollutants considered on an aggregated basis; (d) discharges or has the potential to discharge any air pollutant(s) listed in Table 45-13A in the amounts shown in Table 45-13A or greater; or, (e) an owner or operator voluntarily chooses to be subject to a construction or modification permit pursuant to this rule, even though not otherwise required to do so. 45CSR13 has an original effective date of June 1, 1974.

The applicant meets the definition of a stationary source because (check all that apply):

- Subject to a substantive requirement of an emission control rule promulgated by the Secretary.
- 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.
- Discharges or has the potential to discharge more than two (2) pounds per hour or five (5) tons per year of hazardous air pollutants considered on an aggregated basis.
- Discharges or has the potential to discharge any air pollutant(s) listed in Table 45-13A in the amounts shown in Table 45-13A or greater.
- Voluntarily chooses to be subject to a construction or modification permit pursuant to this rule, even though not otherwise required to do so.

General Permit G70-C Registration satisfies the construction, modification, relocation and operating permit requirements of 45CSR13. General Permit G70-C sets forth reasonable conditions that enable eligible registrants to establish enforceable permit limits.

Section 5 of 45CSR13 provides the permit application and reporting requirements for construction of and modifications to stationary sources. No person shall cause, suffer, allow or permit the construction, modification, relocation and operation of any stationary source to be commenced without notifying the Secretary of such intent and obtaining a permit to construct, modify, relocate and operate the stationary source as required in the rule or any other applicable rule promulgated by the Secretary.

If applicable, the applicant meets the following (check all that apply):

- Relocation
- Modification
- Class I Administrative Update (45CSR13 Section 4.2.a)
- Class II Administrative Update (45CSR13 Section 4.2.b)

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

45CSR16 applies to all registrants that are subject to any of the NSPS requirements described in more detail in the Federal Regulations section. Applicable requirements of NSPS, Subparts IIII, JJJJ and OOOO are included in General Permit G70-C.

The applicant is subject to:

- 40CFR60 Subpart IIII
- 40CFR60 Subpart JJJJ
- 40CFR60 Subpart OOOO

**45CSR22 (Air Quality Management Fee Program)**

45CSR22 is the program to collect fees for certificates to operate and for permits to construct or modify sources of air pollution. 45CSR22 applies to all registrants. The general permit fee of \$500 is defined in 45CSR13. In addition to the application fee, all applicants subject to NSPS requirements or NESHAP requirements shall pay additional fees of \$1,000 and \$2,500, respectively.

Registrants are also required to obtain and have in effect a valid certificate to operate in accordance with 45CSR22 §4.1. The fee group for General Permit G70-C is 9M (all other sources) with an annual operating fee of \$200.

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

Subpart JJJJ sets forth nitrogen oxides (NOx), 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 stationary spark ignition (SI) internal combustion engines for owners or operators of this Subpart have been included in General Permit G70-C, Section 13.

Emission Unit ID#	Engine Description (Make, Model)	Engine Size (HP)	Date of Manufacture	Provide Justification how 40CFR60 Subpart JJJJ is met.
CBA-0050	Flash Gas Compressor Engine, Caterpillar G3406TA	276 bhp	October 1, 2014	<input checked="" type="checkbox"/> Met Emission Standard <input type="checkbox"/> Certified Engine

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

EPA published its New Source Performance Standards (NSPS) and air toxics rules for the oil and gas sector on August 16, 2012. EPA published final amendments to the Subpart on September 23, 2013.

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 affected sources which commence construction, modification or reconstruction after August 23, 2011 are subject to the applicable provisions of this Subpart as described below:

***Gas well affected facilities are included in General Permit G70-C in Section 5.0.***

Are there any applicable gas well affected facilities?  Yes  No

API number(s) for each Gas Well at this facility	Date the Gas Well was drilled or re-fractured
47-051-01297	March 13, 2010
47-051-01779	TBD
47-051-01784	TBD
47-051-01785	TBD

**Centrifugal compressor affected facilities are included in General Permit G70-C, Section 11.0.**

Are there any applicable centrifugal compressor affected facilities not located at the well site?

Yes  No

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. 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.

**Reciprocating compressor affected facilities are included in General Permit G70-C, Section 12.0.**

Are there any applicable reciprocating compressor affected facilities not located at the well site?

Yes  No

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. 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.

**Pneumatic controllers affected facilities are included in General Permit G70-C, Section 10.0.**

Are there any applicable pneumatic controller affected facilities?  Yes  No

For the natural gas production segment (between the wellhead and the point of custody transfer to the natural gas transmission and storage segment and not including natural gas processing plants), 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.

**Requirements for storage vessel affected facilities are included in General Permit G70-C, Section 7.0.**

**Determination of storage vessel affected facility status is included in Section 6.0 of General Permit G70-C.**

Are there any applicable storage vessel affected facilities?  Yes  No

If No, list any emission reduction devices and control efficiencies used to avoid 40CFR60 Subpart OOOO.

The storage vessels (ABJ-0011A, ABJ-0011B, and ABJ-0014) at this facility utilize a flash gas compressor to reduce emissions by 95%.

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, and has the potential for VOC emissions equal to or greater than 6 tpy as determined according to this section by October 15, 2013 for Group 1 storage vessels and by April 15, 2014, or 30 days after startup (whichever is later) for Group 2 storage vessels. A storage vessel affected facility that subsequently has its potential for VOC emissions decrease to less than 6 tpy shall remain an affected facility under this subpart.

**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 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. 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.

WVDEP DAQ has delegation of the area source air toxics provisions of this Subpart requiring Generally Achievable Control Technology (GACT). The provisions of this Subpart have been included in this general permit under Section 13.0.

Emission Unit ID#	Engine Description (Make, Model)	Engine Size (HP)	Date of Manufacture	New or Existing under 40CFR63 Subpart ZZZZ?	Provide Justification how 40CFR63 Subpart ZZZZ is met.
CBA-0050	Flash Gas Compressor Engine, Caterpillar G3406TA	276 bhp	October 1, 2014	New	40CFR63 Subpart ZZZZ will be met through the requirements of 40CFR60 Subpart JJJJ

Are there any engines that fall in the window of being new under 40CFR60 Subpart ZZZZ but manufactured before the applicability date in 40CFR60 Subpart JJJJ?  Yes  No

**SOURCE AGGREGATION DETERMINATION**

"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.

Are there surrounding wells or compressor stations under "common control" of the applicant?

Yes  No

Are the properties in question located on "contiguous or adjacent" properties?

Yes  No

Are there surrounding facilities that share the same two (2) digit SIC code?

Yes  No

**Final Source Aggregation Decision.**

Source not aggregated with any other source.

Source aggregated with another source. List Company/Facility Name:

## RECOMMENDATION TO DIRECTOR

The information provided in the permit application, including all supplemental information received, indicates the applicant meets all the requirements of applicable regulations and the applicant has shown they meet the eligibility requirements of General Permit G70-C. Therefore, impact on the surrounding area should be minimized and it is recommended that the facility should be granted registration under General Permit G70-C.

Permit Engineer Signature:



Name and Title: David Keatley - Permit Writer (NSR Permitting)

Date: September 14, 2016