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west virginia department of environmental protection

G70-B 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-B169A

FACILITY ID: 017-00053

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): EQT Production Company

Federal Employer ID No. (FEIN): 25-0724685

Applicant's Mailing Address: 625 Liberty Avenue

City: Pittsburgh

State: PA

ZIP Code: 26421

Facility Name: OXF-153

Operating Site Physical Address: Taylor Drain Road
If none available, list road, city or town and zip of facility.

City: Oxford

Zip Code: 26421

County: Doddridge

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

Latitude: 39.18997 N

Longitude: 80.81757 W

SIC Code: 1311
NAICS Code: 211111

Date Application Received:
April 20, 2016

Fee Amount: \$1,500

Date Fee Received: May 20, 2016

Applicant Ad Date: April 22, 2016

Newspaper: The Doddridge Independent

Date Application Complete: June 22, 2016

Due Date of Final Action: August 6, 2016

Engineer Assigned: David Keatley

Description of Permitting Action: Permit registration G70-B169A will supersede and replace registration G70-A169. Installation and operation of: one (1) 1.15-mmBtu/hr line heater, one (1) 110-hp VRU engine, and one (1) 11.66-mmBtu/hr enclosed combustor.

PROCESS DESCRIPTION

This facility is an existing natural gas production facility. Raw natural gas from seven (7) natural gas wells will go to sand separator(s). The produced liquids and sand from the sand separator(s) will go to one (1) 140-bbl sand separator tank S031. The liquid from the sand separator tank is trucked off site. The gas from the sand separator(s) will go to the six (6) 1.54-mmBtu/hr and one (1) 0.77-mmBtu/hr Line Heaters (S016-S018 and S032-S035) to heat the gas to encourage separation in a high-pressure separator. The gas from the high-pressure separator exits the facility via pipeline. The liquid from the high-pressure separator is heated by one (1) 1.15-mmBtu/hr line heater and sent to a low-pressure separator. The liquid from the low-pressure separator is sent to ten (10) 400-bbl produced liquid tanks. The vapors from the produced liquid tanks will be controlled by two (2) 11.66-mmBtu/hr LEED enclosed combustors (C001 and C002). Vapors from the sand separator tank may be controlled by the enclosed combustors, but emissions were estimated as if the tank will not be controlled. Produced liquids from the produced liquid tanks will be trucked off site and vapor return will be used. Vapors from the low-pressure separator will be compressed to a higher pressure by a vapor recovery unit (VRU). The VRU will be powered by one (1) 110-bhp four-stroke rich-burn Ford CSG-637 natural gas fired engine. Three (3) 0.013-mmBtu/hr thermoelectric generators will provide electrical power for the facility.

SITE INSPECTION

Site Inspection Date: July 20, 2015

Site Inspection Conducted By: James Robertson

Results of Site Inspection: The facility was not in operation at the time.

Did Applicant meet Siting Requirements? Yes

If applicable, was siting criteria waiver submitted? NA

Directions to Facility: From West Union, travel US 50 west for approximately three miles and turn left onto Sunnyside Road. Travel on Sunnyside Road for approximately two miles and left onto Oxford Road. Travel on Oxford Road for approximately five miles and turn left onto S. Fork of Hughes River Road. Travel on S. Fork of Hughes River Road for approximately one mile and turn left onto Taylor Drain Road. Travel on Taylor Drain Road for approximately 1.5 miles. 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.)
S016	Line Heater	AP-42
S017	Line Heater	AP-42
S018	Line Heater	AP-42
S019	Thermoelectric Generator	AP-42
S020	Thermoelectric Generator	ProMax
S022	Produced Liquid Tank	ProMax
S023	Produced Liquid Tank	ProMax
S024	Produced Liquid Tank	ProMax
S025	Produced Liquid Tank	ProMax
S026	Produced Liquid Tank	ProMax
S027	Produced Liquid Tank	ProMax
S028	Produced Liquid Tank	ProMax
S029	Produced Liquid Tank	ProMax
S030	Produced Liquid Tank	ProMax
S031	Sand Separator Tank	ProMax
S032	Line Heater	AP-42
S033	Line Heater	AP-42
S034	Line Heater	AP-42
S035	Line Heater	AP-42
S036	Line Heater	AP-42
S037	Uncaptured Liquid Loading	AP-42 chapter 5 section 2 equation
S038	Line Heater	AP-42
S039	VRU Engine	NOx, CO, and VOC, certificate of conformity; AP-42
C001	Enclosed Combustor	Promax, AP-42
C002	Enclosed Combustor	ProMax, AP-42

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

Pollutant	Facility Wide PTE (tons/year)
Nitrogen Oxides	15.79
Carbon Monoxide	14.49
Volatile Organic Compounds	37.05
Particulate Matter	10.73
Particulate Matter-10/2.5	10.73
Sulfur Dioxide	0.09
Formaldehyde	0.07
Benzene	0.01
Toluene	0.01
Xylenes	0.03
n-Hexane	0.11
Total HAPs	0.24
Carbon Dioxide Equivalent	18,170

			Benzene	0.03	0.01
			Toluene	0.04	0.01
E031	S031	Sand Separator Tank (Emissions when not Controlled)	Volatile Organic Compounds	0.13	0.58
E039	S039	VRU Engine Ford CSG-637	Nitrogen Oxides	0.24	1.06
			Carbon Monoxide	0.49	2.12
			Total Particulate Matter	0.01	0.07

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-B

Emission Unit ID#	New/Modified Emission Unit Description	Maximum Design Heat Input (MDHI) (MMBTU/hr)
S038	Line Heater	1.18 mmBtu/hr

45CSR6 (To Prevent and Control Air Pollution from the Combustion of Refuse)

45CSR6 prohibits open burning, establishes emission limitations for particulate matter, and establishes opacity requirements. Sources subject to 45CSR6 include completion combustion devices, enclosed combustion devices, and flares.

The facility-wide requirements of the general permit include the open burning limitations §§45-6-3.1 and 3.2.

All completion combustion devices, enclosed combustion devices, and flares are subject to the particulate matter weight emission standard set forth in §45-6-4.1; the opacity requirements in §§45-6-4-3 and 4-4; the visible emission standard in §45-6-4.5; the odor standard in §45-6-4.6; and, the testing standard in §§45-6-7.1 and 7.2.

Enclosed combustion control devices and flares that are used to comply with emission standards of NSPS, Subpart OOOO are subject to design, operational, performance, recordkeeping and reporting requirements of the NSPS regulation that meet or exceed the requirements of 45CSR6.

Emission Unit ID#	Maximum Design Heat Input (MDHI) (MMBTU/hr)	Subject to Weight Emission Standard?	Control Efficiency Claimed by Registrant	Provide Justification how 45CSR6 is met.
C001	11.66 mmBtu/hr	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	98%	Estimated emissions are less than allowable.
C002	11.66 mmBtu/hr	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	98%	Estimated emissions are less than allowable.

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 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 SO₂ emissions from a fuel burning unit will be listed in the G70-B 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-B

Fuel burning units burning natural gas are exempt from Section 8 (Monitoring, Recording and Reporting) as well as interpretive rule 10A. The G70-B 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#	New/Modified Emission Unit Description	Maximum Design Heat Input (MDHI) (MMBTU/hr)
S038	Line Heater	1.18 mmBtu/hr

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-B Registration satisfies the construction, modification, relocation and operating permit requirements of 45CSR13. General Permit G70-B 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-B.

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-B 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-B, Section 13.

New/Modified Emission Unit ID#	Engine Description (Make, Model)	Engine Size (HP)	Date of Manufacture	Provide Justification how 40CFR60 Subpart JJJJ is met.
S039	Ford CSG-637	110 bhp	Newer than July 2010	<input type="checkbox"/> Met Emission Standard <input checked="" 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 (SO₂) 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-B in Section 5.0.

Are there any applicable gas well affected facilities? Yes No

If Yes, list.

API number(s) for each Gas Well at this facility	Date the Gas Well was drilled or re-fractured
047-017-05923	May 2011
047-017-05927	May 2011
047-017-05926	May 2011
047-017-05924	May 2011
047-017-05925	May 2011
Planned	subject to subpart OOOO and OOOOa
Planned	subject to subpart OOOO and OOOOa

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.

New/Modified 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.
S039	Ford CSG-637	110 bhp	Newer than July 2010	New	by meeting 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

If so, list the engines:

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-B. Therefore, impact on the surrounding area should be minimized and it is recommended that the facility should be granted registration under General Permit G70-B.

Permit Engineer Signature:

David Keatley

Name and Title: David Keatley, Permit Writer - NSR Permitting

Date: June 24, 2016