Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone (304) 926-0475
Fax (304) 926-0479

west virginia department of environmental protection

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

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-C217**	FACILITY ID: **051-00154**

- ☐ CONSTRUCTION
- ☒ MODIFICATION
- ☐ RELOCATION
- ☐ CLASS I ADMINISTRATIVE UPDATE
- ☐ CLASS II ADMINISTRATIVE UPDATE

BACKGROUND INFORMATION

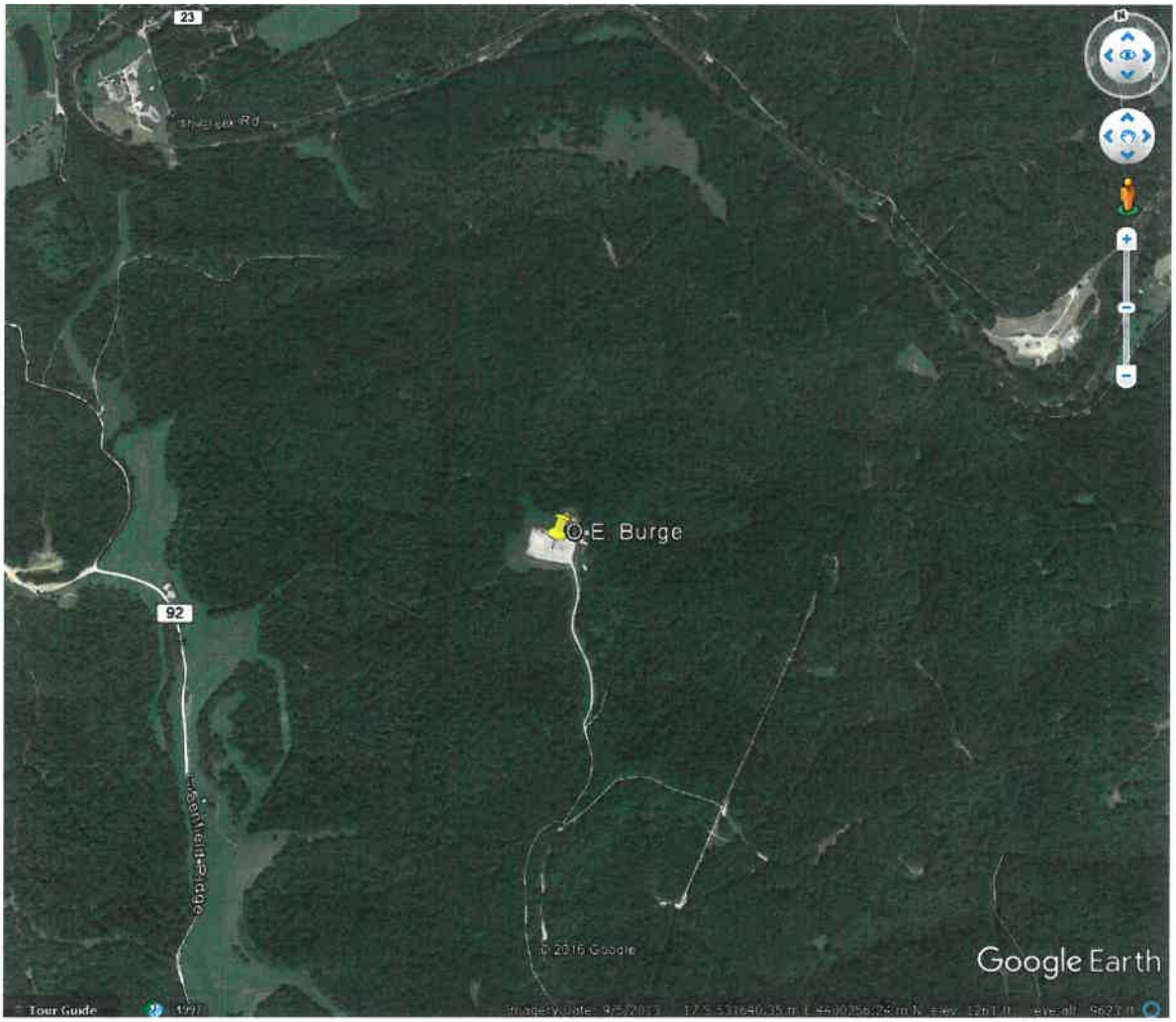
Name of Applicant (as registered with the WV Secretary of State's Office): SWN Production Company, LLC		
Federal Employer ID No. (FEIN): 26-4388727		
Applicant's Mailing Address: 10000 Energy Drive		
City: Spring	State: TX	ZIP Code: 77389
Facility Name: O.E. Burge Pad		
Operating Site Physical Address: 266 Teagarden Lane If none available, list road, city or town and zip of facility.		
City: Cameron	Zip Code: 26033	County: Marshall
Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits): Latitude: 39.75076 Longitude: -80.63191		
SIC Code: 1311 NAICS Code: 211111	Date Application Received: August 31, 2016	
Fee Amount: $1,500	Date Fee Received: September 1, 2016	
Applicant Ad Date: August 26, 2016	Newspaper: *The Intelligencer*	
Date Application Complete: November 2, 2016	Due Date of Final Action: December 18, 2016	
Engineer Assigned: David Keatley		
Description of Permitting Action: Permit Registration G70-C217 will supersede and replace permit R13-3015C. Installation and operation of one (1) 1.5-mmBtu/hr gas production unit (GPU). Removal of one (1) 1.5-mmBtu/hr line heater. Condensate and produced water throughput has increased.		

PROCESS DESCRIPTION

Raw natural gas from four (4) natural gas wells is heated by two (2) 1.5-mmBtu/hr line heaters. The heated raw natural gas from the line heaters goes to four (4) GPUs (one (1) 1.5-mmBtu/hr GPU burner, two (2) 1.0-mmBtu/hr GPU burner, and one (1) 0.75-mmBtu/hr) to be heated again and for separation. The natural gas from the GPUs exits the facility via pipeline. The condensate from the GPUs is sent to two (2) 400-bbl condensate tanks. The produced water from the GPUs goes to four (4) 400-bbl produced water tanks. Condensate will be loaded into trucks at a maximum rate of 22,995,000 gallons/year and be trucked off site. Produced water will be loaded into trucks at a maximum rate of 78,950 gallons/year and be trucked off site.

SITE INSPECTION

Site Inspection Date: January 22, 2015
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? NA
Directions to Facility: Directions from the intersection of CR2 and CR7 in New Martinsville, WV. Travel east on CR7 for approximately 13.4 miles to CR 1/15 (Brock Ridge Road). Turn left onto CR 1/15 and travel for approximately 4.1 miles. Turn right onto CR 89 and travel for 4.5 miles. Turn left onto CR 1/21 (Laurel Run Road) and travel for approximately 0.2 miles. Bear left onto CR 6 Macedonia Ridge Road) and travel for 3.3 miles. Turn right onto CR 92 and travel for 2.5 miles. Turn left onto Teagarden Lane (CR 92/1) travel 0.3 turn left. Travel 0.6 miles and turn left again and travel 0.2 miles to the site.
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.)
EU-GPU1	Gas Production Unit Burner	AP-42 emission factors
EU-GPU2	Gas Production Unit Burner	AP-42 emission factors
EU-GPU3	Gas Production Unit Burner	AP-42 emission factors
EU-GPU4	Gas Production Unit Burner	AP-42 emission factors
EU-LH1	Line Heater	AP-42 emission factors
EU-LH2	Line Heater	AP-42 emission factors
EU-TANKS-COND	Two (2) 400-bbl Condensate Tanks	ProMax with representative sample from Shawn Harlan Pad for flash emissions and TANKS 4.0.9d for working and breathing losses
EU-TANKS-PW	Four (4) 400-bbl Produced Water Tanks	ProMax with representative sample from Shawn Harlan Pad and TANKS 4.0.9d for working and breathing losses
EU-LOAD-COND	Condensate Truck Loading	AP-42 equation, Submerged Loading
EU-LOAD-PW	Produced Water Truck Loading	AP-42 equation, Submerged Loading
EU-FUG	Fugitive Emissions	EPA-453/R-95-017
EU-HR	Haul Road Emissions	AP-42 emission factors

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

Pollutant	Facility Wide PTE (tons/year)
Nitrogen Oxides	3.51
Carbon Monoxide	2.95
Volatile Organic Compounds	13.97
Particulate Matter	5.30
Particulate Matter-10/2.5	5.30
Sulfur Dioxide	0.02
Benzene	0.01
Ethylbenzene	0.11
n-Hexane	0.47
Toluene	0.09
Xylenes	0.32
Total HAPs	1.00
Carbon Dioxide Equivalent	4,157

Estimated New/Modified Maximum Controlled PTE:

Emission Point ID	Emission Unit ID	Emission Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tpy)
EU-TANKS-COND	EP-TANKS-COND	Two (2) Condensate Tanks 400-bbl (each)	Volatile Organic Compounds	2.41	10.58
			n-Hexane	0.07	0.32
			Benzene	<0.01	0.01
			Toluene	0.02	0.07
			Ethylbenzene	0.02	0.09
			Xylenes	0.06	0.26
EU-TANKS-PW	EP-TANKS-PW	Four (4) Produced Water Tanks 400-bbl (each)	Volatile Organic Compounds	0.03	0.14
EU-GPU4	EP-GPU4	GPU Burner 1.5 mmBtu/hr	Nitrogen Oxides	0.17	0.73
			Carbon Monoxide	0.14	0.61
			Volatile Organic Compounds	0.01	0.04
			Total Particulate Matter	0.01	0.06
			n-Hexane	<0.01	0.01
			CO_2e	176	770
EP-LOAD-COND	EU-LOAD-COND	Condensate Truck Loading 68,985 gallons/year	Volatile Organic Compounds	0.03	0.14
			CO_2e	1	1
EP-LOAD-PW	EU-LOAD-PW	Produced Water Truck Loading 22,995,000 gallons/year	Volatile Organic Compounds	0.18	0.79
			Ethylbenzene	<0.01	0.01
			n-Hexane	<0.01	0.02
			Toluene	<0.01	0.01

			Xylenes	<0.01	0.02
			CO_2e	82	358

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)
EU-GPU1	Gas Production Unit Burner	0.75
EU-GPU2	Gas Production Unit Burner	1.0
EU-GPU3	Gas Production Unit Burner	1.0
EU-GPU4	Gas Production Unit Burner	1.5
EU-LH1	Line Heater	1.5
EU-LH2	Line Heater	1.5

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

45CSR10 establishes emission limitations for SO_2 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_2 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)
EU-GPU1	Gas Production Unit Burner	0.75
EU-GPU2	Gas Production Unit Burner	1.0
EU-GPU3	Gas Production Unit Burner	1.0

EU-GPU4	Gas Production Unit Burner	1.5
EU-LH1	Line Heater	1.5
EU-LH2	Line Heater	1.5

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 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_2) 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

If Yes, list.

API number(s) for each Gas Well at this facility	Date the Gas Well was drilled or re-fractured
470-510-13150	March 23, 2012
470-510-12910	March 19, 2012
470-510-13230	March 24, 2012
470-510-18530	To Be Determined

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.

No Emission Reduction Devices are Used on these Storage Vessels

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.

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: David Keatley
Name and Title: David Keatley, Permit Writer - NSR Permitting
Date: November 3, 2016