625 Liberty Ave,
Suite1700
Pittsburgh PA 15222
www.eqt.com

CERTIFIED MAIL # 7015 1660 0000 9399 6406

September 7, 2016

Mr. William Durham, Director
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, West Virginia, 25304

RE: EQT Production Company, SMI-28 Well Pads
Doddridge County, WV
G70C Permit Application
Consent Order CO-R13-E-2016-04
G70-A142A; Plant ID No. 017-00055

Dear Mr. Durham:

EQT Production Company (EQT) is submitting this permit application to the West Virginia Department of Environmental Protection (WVDEP) to convert the current G70-A permit to a G70-C and remove combustors C003 & C004 from the permit. This site is currently operating under the Consent Order CO-R13-E-2016-04 (Consent Order). These combustors were originally anticipated to be needed based on engineering assumptions but based upon actual operating conditions the additional VDUs are not required. Additionally, this site passed an optical gas imaging inspection without the use of these units.

EQT believes that this application satisfies the obligations and the requirement in Consent Order, in which EQT is required to submit an application and/or RFD to request to remove the requirement for controls. If you have any questions concerning this permitting action, please contact Alex Bosiljevac at (412) 395-3699 or by email at abosiljevac@eqt.com.

Sincerely,

RAB

R. Alex Bosiljevac
EQT Production

PROJECT REPORT

EQT Production
SMI-28 Pad

G70-C Permit Application

Where energy meets innovation.

TRINITY CONSULTANTS
4500 Brooktree Drive
Suite 103
Wexford, PA 15090
(724) 935-2611

July 2016

Trinity Consultants

Environmental solutions delivered uncommonly well

TABLE OF CONTENTS

EQT Production Company (EQT) is submitting this Class II General Permit (G70-C) application to the West Virginia Department of Environmental Protection (WVDEP) for the SMI-28 pad, an existing natural gas production well pad, located in Doddridge County, West Virginia. The SMI-28 pad is currently operating under G70-A permit number G70-A142A. This general permit application is to convert the permit to a G70-C and remove combustors C003 and C004, which have maximum design capacity of 19.22 MMBtu/hr (each), from the permit.

1.1. FACILITY AND PROJECT DESCRIPTION

The SMI-28 pad is a natural gas production facility that currently consists of thirteen (13) natural gas wells. Natural gas and liquids (including water and condensate) are extracted from deposits underneath the surface. Natural gas is transported from the well to a gas line for additional processing and compression, as necessary. The liquids produced are stored in storage vessels.

The SMI-28 pad consists of the following equipment:

- Fourteen (14) 400 barrel (bbl) storage tanks for condensate/water (produced fluids) controlled by two (2) existing combustors rated at 11.66 MMBtu/hr;
- One (1) 140 bbl storage tank for sand and produced fluids from the sand separator;
- Liquid loading operations, which are vapor balanced and controlled by the combustors;
- Thirteen (13) line heaters rated at 1.54 MMBtu/hr (heat input) ;
- Two (2) thermoelectric generators (TEGs), each rated at 0.029 MMBtu/hr (heat input) and;
- Three (3) thermoelectric generators (TEGs), each rated at 0.07 MMBtu/hr (heat input);
- Produced fluid truck loading; and
- Associated piping and components

A process flow diagram is included as Attachment D. A comparison of the potential emissions of the proposed and existing equipment at the wellpad in comparison with G70-C emission limits is provided in Table 1. Facility emissions are well below the permit limits. Note that in accordance with condition 1.1.1. of the G70-C permit, fugitive emissions are not considered in determining eligibility of the permit.

Table 1 - Comparison of Wellpad Potential Emissions to G70-C Permit Emission Limits

Pollutant	Wellpad Potential Annual Emissions (tpy)	G70-C Maximum Annual Emission Limits (tpy)
Nitrogen Oxides	18.49	50
Carbon Monoxide	15.53	80
Volatile Organic Compounds	23.20	80
Particulate Matter – 10/2.5	1.41	20
Sulfur Dioxide	0.11	20
Individual HAP (n-hexane)[1]	2.45	8
Total HAP[1]	4.58	20

1. Includes fugitive emissions

Also, as part of this application, EQT requests that the department remove combustors C003 and C004 from the permit.

1.2. SOURCE STATUS

WVDEP must make stationary source determinations on a case-by-case basis using the guidance under the Clean Air Act (CAA) and EPA's and WVDEP's implementing regulations. The definition of stationary source in 40 CFR 51.166(b) includes the following:

> *"(6) Building, structure, facility, or installation means all of the pollutant emitting activities which belong to the same industrial grouping, are located on or more contiguous or adjacent properties, and are under control of the same person (or persons under common control)."*

Other additional pollutant emitting facilities should be aggregated with the SMI-28 Pad for air permitting purposes if, and only if, all three elements of the "stationary source" definition above are fulfilled.

WVDEP determined that the SMI-28 pad is a separate stationary source when the current permit was issued. There are no Marcellus facilities within a quarter-mile radius of the SMI-28 Pad. The nearest wellpad, WEU51, is located approximately 1.4 miles southwest of SMI-28. Therefore, the SMI-28 pad should continue to be considered a separate stationary source with respect to permitting programs, including Title V and Prevention of Significant Deterioration (PSD). As discussed in this application, the facility is a minor source of air emissions with respect to New Source Review (NSR) and Title V permitting.

1.3. G70-C APPLICATION ORGANIZATION

This West Virginia Code of State Regulations, Title 45 (CSR) Series 13 (45 CSR 13) G70-C permit application is organized as follows:

- Attachment A: Single Source Determination;
- Attachment B: Siting Criteria Waiver **(Not Applicable)**;
- Attachment C: Business Certificate;
- Attachment D: Process Flow Diagram;
- Attachment E: Process Description;
- Attachment F: Plot Plan;
- Attachment G: Area Map;
- Attachment H: Applicability Form;
- Attachment I: Emission Units Table;
- Attachment J: Fugitive Emissions Summary Sheet;
- Attachment K: Gas Well Data Sheet;
- Attachment L: Storage Vessel Data Sheet;
- Attachment M: Heaters Data Sheet;
- Attachment N: Engines Data Sheet **(Not Applicable)**;
- Attachment O: Truck Loading Data Sheet;
- Attachment P: Glycol Dehydrator Data Sheet **(Not Applicable)**;
- Attachment Q: Pneumatic Controller Data Sheet **(Not Applicable)**;
- Attachment R: Air Pollution Control Device Data Sheet;
- Attachment S: Emission Calculations;
- Attachment T: Emission Summary Sheet;
- Attachment U: Class I Legal Advertisement; and
- Attachment V: General Permit Registration Application Fee.

2. SAMPLE EMISSION SOURCE CALCULATIONS

The characteristics of air emissions from the existing natural gas production operations, along with the methodology for calculating emissions, are briefly described in this section of the application. Detailed emission calculations are presented in Attachment S of this application.

Emissions from this project will result from natural gas combustion in the enclosed combustors, as well as storage of organic liquids in storage tanks and loading of organic liquids into tank trucks. In addition, fugitive emissions will result from component leaks from the operation of the station. The methods by which emissions from each of these source types, as well as the existing source types, are calculated are summarized below.

- **Line Heaters, Enclosed Combustors, and TEGs:** Potential emissions of criteria pollutants and hazardous air pollutants (HAPs) are calculated using U.S. EPA's AP-42 factors for natural gas external combustion.[1] These calculations assume a site-specific heat content of natural gas. Greenhouse gas (GHG) emissions are calculated according to 40 CFR 98 Subpart C.[2]

- **Storage Tanks:** Working, breathing and flashing emissions of VOC and HAPs from the produced fluids storage tanks at the facility are calculated using Bryan Research & Engineering ProMax® Software. Controlled calculations assume an overall control efficiency (capture and destruction) of 98%. The throughput for the produced fluids tanks are based on the maximum annualized monthly condensate and produced water at the SMI-28 (i.e., the maximum monthly throughput for the pad times 12) and includes a safety factor. The composition for the analysis was from a sample taken at SMI-28. Emissions of VOC and HAPs from the sand separator tank are calculated using E&P TANK v2.0. The produced fluids throughput is calculated as follows:

$$Throughput\ \left(\frac{bbl}{day}\right) = \left(Condensate\ Throughput\ \left(\frac{bbl}{month}\right) + \left(Produced\ Water\ Throughput\ \left(\frac{bbl}{month}\right)\right)\right) * \frac{12\left(\frac{months}{year}\right)}{365\left(\frac{days}{year}\right)} * 1.40$$

- **Fugitive Equipment Leaks:** Emissions of VOC and HAPs from leaking equipment components have been estimated using facility estimated component counts and types along with *Table 2-4: Oil & Gas Production Operations Average Emission Factors, Protocol for Equipment Leak Emission Estimates, EPA 453/R-95-017, November 1995.* Emission factors used are based on average measured TOC from component types indicated in gas service at O&G Production Operations. Greenhouse gas emissions from component leaks are calculated according to the procedures in 40 CFR 98 Subpart W.[3] Pneumatic devices at the wellpad are intermittent bleed and are assumed to be in operation 1/3 of the year.

- **Tank Truck Loading:** Uncontrolled emissions of VOC and HAPs from the loading of organic liquids from storage tanks to tank truck are calculated using Bryan Research Engineering ProMax® Software. Truck loading is controlled by the enclosed combustors. U.S. EPA's AP-42 Chapter 5 Section 2 factors were used for capture efficiency.[4]

- **Haul Roads:** Fugitive dust emitted from facility roadways has been estimated using projected vehicle miles traveled along with U.S. EPA's AP-42 factors for unpaved haul roads.[5]

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[1] U.S. EPA, AP 42, Fifth Edition, Volume I, Chapter 1.4, Natural Gas Combustion, Supplement D, July 1998.

[2] 40 CFR 98 Subpart C, *General Stationary Fuel combustion Sources*, Tables C-1 and C-2.

[3] 40 CFR 98 Subpart W, *Petroleum and Natural Gas Systems*, Section 98.233(r), *Population Count and Emission Factors*.

[4] U.S. EPA, AP 42, Fifth Edition, Volume I, Chapter 5.2, Transportation And Marketing Of Petroleum Liquids, June 2008.

[5] U.S. EPA, AP 42, Fifth Edition, Volume I, Section 13.2.2, Unpaved Roads, November 2006.

This section documents the applicability determinations made for Federal and State air quality regulations. In this section, applicability or non-applicability of the following regulatory programs is addressed:

- Prevention of Significant Deterioration permitting;
- Title V of the 1990 Clean Air Act Amendments;
- New Source Performance Standards (NSPS);
- National Emission Standards for Hazardous Air Pollutants (NESHAP); and
- West Virginia State Implementation Plan (SIP) regulations.

This review is presented to supplement and/or add clarification to the information provided in the WVDEP G70-C permit application forms.

In addition to providing a summary of applicable requirements, this section of the application also provides non-applicability determinations for certain regulations, allowing the WVDEP to confirm that identified regulations are not applicable to the wellpad. Note that explanations of non-applicability are limited to those regulations for which there may be some question of applicability specific to the operations at the wellpad. Regulations that are categorically non-applicable are not discussed (e.g., NSPS Subpart J, Standards of Performance for Petroleum Refineries).

3.1. PREVENTION OF SIGNIFICANT DETERIORATION SOURCE CLASSIFICATION

Federal construction permitting programs regulate new and modified sources of attainment pollutants under Prevention of Significant Deterioration. PSD regulations apply when a major source makes a change, such as installing new equipment or modifying existing equipment, and a significant increase in emissions results from the change. The wellpad is not a major source with respect to the PSD program since its potential emissions are below all the PSD thresholds. As such, PSD permitting is not triggered by this permitting activity. EQT will monitor future construction activities at the site closely and will compare any future increase in emissions with the PSD thresholds to ensure these activities will not trigger this program.

3.2. TITLE V OPERATING PERMIT PROGRAM

Title 40 of the Code of Federal Regulations Part 70 (40 CFR 70) establishes the federal Title V operating permit program. West Virginia has incorporated the provisions of this federal program in its Title V operating permit program in West Virginia Code of State Regulations (CSR) 45-30. The major source thresholds with respect to the West Virginia Title V operating permit program regulations are 10 tons per year (tpy) of a single HAP, 25 tpy of any combination of HAP and 100 tpy of all other regulated pollutants.[6] The potential emissions of all regulated pollutants are below the corresponding threshold(s) at this facility after the proposed project. Therefore, the wellpad is not a major source for Title V purposes.

3.3. NEW SOURCE PERFORMANCE STANDARDS

New Source Performance Standards, located in 40 CFR 60, require new, modified, or reconstructed sources to control emissions to the level achievable by the best demonstrated technology as specified in the applicable provisions.

[6] On June 23, 2014, the U.S Supreme Court decision in the case of *Utility Air Regulatory Group v. EPA* effectively changed the permitting procedures for GHGs under the PSD and Title V programs.

Moreover, any source subject to an NSPS is also subject to the general provisions of NSPS Subpart A, except where expressly noted. The following is a summary of applicability and non-applicability determinations for NSPS regulations of relevance to the wellpad.

3.3.1. NSPS Subparts D, Da, Db, and Dc

These subparts apply to steam generating units of various sizes, all greater than 10 MMBtu/hr. The proposed project does not include any steam generating units with a heat input greater than 10 MMBtu/hr, therefore the requirements of these subparts do not apply.

3.3.2. NSPS Subparts K, Ka, and Kb

These subparts apply to storage tanks of certain sizes constructed, reconstructed, or modified during various time periods. Subpart K applies to storage tanks constructed, reconstructed, or modified prior to 1978, and Subpart Ka applies to those constructed, reconstructed, or modified prior to 1984. Both Subparts K and Ka apply to storage tanks with a capacity greater than 40,000 gallons. Subpart Kb applies to volatile organic liquid (VOL) storage tanks constructed, reconstructed, or modified after July 23, 1984 with a capacity equal to or greater than 75 m^3 (~19,813 gallons). All of the tanks at the wellpad have a capacity of 19,813 gallons or less. As such, Subparts K, Ka, and Kb do not apply to the storage tanks at the wellpad.

3.3.3. NSPS Subpart OOOO—Crude Oil and Natural Gas Production, Transmission, and Distribution

Subpart OOOO, Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution, applies to affected facilities that commenced construction, reconstruction, or modification after August 23, 2011 and on or before September 18, 2015. This NSPS was published in the Federal Register on August 16, 2012, and subsequently amended. The proposed project does not include any source categories under NSPS Subpart OOOO or change any prior determinations related to NSPS Subpart OOOO. Therefore, this subpart is not applicable to the proposed project. Note that EPA recently finalized 40 CFR 60 Subpart OOOOa.[7]; applicability of Subpart OOOOa is discussed in the following section.

3.3.4. NSPS Subpart OOOOa—Crude Oil and Natural Gas Facilities

Subpart OOOOa, Standards of Standards of Performance for Crude Oil and Natural Gas Facilities, applies to affected facilities that commenced construction, reconstruction, or modification after September 18, 2015. The regulation was published final in the Federal Register on June 3, 2016. The rule includes provisions for the following facilities:

- Hydraulically fractured wells;
- Centrifugal compressors located between the wellhead and the point of custody transfer to the natural gas distribution segment;
- Reciprocating compressors located between the wellhead and the point of custody transfer to the natural gas distribution segment;
- Continuous bleed natural gas-driven pneumatic controllers with a bleed rate of > 6 scfh located in the production, gathering, processing, or transmission and storage segments (excluding natural gas processing plants);
- Continuous bleed natural gas-driven pneumatic controllers located at natural gas processing plants;

[7] September 18, 2015 publication in Federal Register: https://www.federalregister.gov/articles/2015/09/18/2015-21023/oil-and-natural-gas-sector-emission-standards-for-new-and-modified-sources

- Pneumatic pumps located in the production and processing segments;
- Storage vessels located in the production, gathering, processing, or transmission and storage segments;
- The collection of fugitive emissions components at a well site;
- The collection of fugitive emissions components at a compressor station; and
- Sweetening units located onshore that process natural gas produced from either onshore or offshore wells.

There are fourteen (14) produced fluids tanks and one (1) sand separator tank at the wellpads. These tanks were installed prior to the applicability date of OOOOa. Furthermore, the storage vessels will each have potential VOC emissions less than 6 tpy based on the previous permit application materials and enforceable limits to be included in the G70-C permit. As such, per 60.5365a(e), the tanks will not be storage vessel affected facilities under the rule.

Note that the proposed changes to the well pad do not met the definition of modification under 60.5365a(i)(3). Therefore, EQT will not be subject to the leak detection and repair program under OOOOa.

The pneumatic controllers will potentially subject to NSPS OOOOa. Per 60.5365a(d)(1), a pneumatic controller affected facility is a single continuous bleed natural gas driven pneumatic controller operating at a natural gas bleed rate greater than 6 scfh. No pneumatic controllers installed will meet the definition of a pneumatic controller affected facility. Therefore, these units are not subject to the requirements of Subpart OOOOa.

3.3.5. Non-Applicability of All Other NSPS

NSPS are developed for particular industrial source categories. Other than NSPS developed for natural gas processing plants (Subparts OOOO) and associated equipment (Subparts D-Dc and K-Kb), the applicability of a particular NSPS to the wellpad can be readily ascertained based on the industrial source category covered. All other NSPS are categorically not applicable to the proposed project.

3.4. NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP)

Part 63 NESHAP allowable emission limits are established on the basis of a maximum achievable control technology (MACT) determination for a particular major source. A HAP major source is defined as having potential emissions in excess of 25 tpy for total HAP and/or potential emissions in excess of 10 tpy for any individual HAP. The wellpad is an Area (minor) source of HAP since its potential emissions of HAP are less than the 10/25 major source thresholds. NESHAP apply to sources in specifically regulated industrial source categories (Clean Air Act Section 112(d)) or on a case-by-case basis (Section 112(g)) for facilities not regulated as a specific industrial source type. Besides 40 CFR 63 Subpart A (NESHAP Subpart A), which is similar to 40 CFR 60 Subpart A (NSPS Subpart A), the following NESHAP could potentially apply to the wellpad:

- 40 CFR Part 63 Subpart HH – Oil and Natural Gas Production Facilities
- 40 CFR Part 63 Subpart JJJJJJ – Industrial, Commercial, and Institutional Boilers

The applicability of these NESHAP Subparts is discussed in the following sections.

3.4.1. 40 CFR 63 Subpart HH – Oil and Natural Gas Production Facilities

This standard contains requirements for both major and area sources of HAP. At area sources, the only affected source is a triethylene glycol (TEG) dehydration unit (§63.760(b)(2)). The wellpad does not include a triethylene glycol dehydration unit; therefore the requirements of this subpart do not apply.

3.4.2. 40 CFR 63 Subpart JJJJJJ – Industrial, Commercial, and Institutional Boilers

This MACT standard applies to industrial, commercial, and institutional boilers of various sizes and fuel types at area sources. The heaters at the wellpad are natural-gas fired and are specifically exempt from this subpart. Therefore, the requirements of this subpart do not apply.

3.5. WEST VIRGINIA SIP REGULATIONS

The wellpad is potentially subject to regulations contained in the West Virginia Code of State Regulations, Chapter 45 (Code of State Regulations). The Code of State Regulations fall under two main categories, those regulations that are generally applicable (e.g., permitting requirements), and those that have specific applicability (e.g., PM standards for manufacturing equipment).

3.5.1. 45 CSR 2: To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers

45 CSR 2 applies to fuel burning units, defined as equipment burning fuel "for the primary purpose of producing heat or power by indirect heat transfer". The TEGs and line heaters are fuel burning units and therefore must comply with this regulation. Per 45 CSR 2-3, opacity of emissions from units shall not exceed 10 percent. Per 45 CSR 2-4, PM emissions from the unit will not exceed a level of 0.09 multiplied by the heat design input in MMBtu/hr of the unit.

3.5.2. 45 CSR 4: To Prevent and Control the Discharge of Air Pollutants into the Air Which Causes or Contributes to an Objectionable Odor

According to 45 CSR 4-3:

No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.

The wellpad is generally subject to this requirement. However, due to the nature of the process at the wellpad, production of objectionable odor from the wellpad during normal operation is unlikely.

3.5.3. 45 CSR 6: Control of Air Pollution from the Combustion of Refuse

45 CSR 6 applies to activities involving incineration of refuse, defined as "the destruction of combustible refuse by burning in a furnace designed for that purpose. For the purposes of this rule, the destruction of any combustible liquid or gaseous material by burning in a flare or flare stack, thermal oxidizer or thermal catalytic oxidizer stack shall be considered incineration." The enclosed combustors are incinerators and therefore must comply with this regulation. Per 45 CSR 6-4.3, opacity of emissions from this unit shall not exceed 20 percent, except as provided by 4.4. PM emissions from this unit will not exceed the levels calculated in accordance with 6-4.1

3.5.4. 45 CSR 16: Standards of Performance for New Stationary Sources

45 CSR 16-1 incorporates the federal Clean Air Act (CAA) standards of performance for new stationary sources set forth in 40 CFR Part 60 by reference. As such, by complying with all applicable requirements of 40 CFR Part 60 at the wellpad, EQT will be complying with 45 CSR 16.

3.5.5. 45 CSR 17: To Prevent and Control Particulate Matter Air Pollution from Materials Handling, Preparation, Storage and Other Sources of Fugitive Particulate Matter

According to 45 CSR 17-3.1:

No person shall cause, suffer, allow or permit fugitive particulate matter to be discharged beyond the boundary lines of the property lines of the property on which the discharge originates or at any public or residential location, which causes or contributes to statutory air pollution.

Due to the nature of the activities at the wellpad, it is unlikely that fugitive particulate matter emissions will be emitted under normal operating conditions. However, EQT will take measures to ensure any fugitive particulate matter emissions will not cross the property boundary should any such emissions occur.

3.5.6. 45 CSR 21-28: Petroleum Liquid Storage in Fixed Roof Tanks

45 CSR 21-28 applies to any fixed roof petroleum liquid storage tank with a capacity greater than 40,000 gallons. The capacity of each storage tank proposed for the wellpad is less than 40,000 gallons; therefore, 45 CSR 21-28 will not apply to the petroleum liquid storage tanks at this wellpad.

3.5.7. 45 CSR 34: Emissions Standards for Hazardous Air Pollutants

45 CSR 34-1 incorporates the federal Clean Air Act (CAA) national emissions standards for hazardous air pollutants (NESHAPs) as set forth in 40 CFR Parts 61 and 63 by reference. As such, by complying with all applicable requirements of 40 CFR Parts 61 and 63 at the wellpad, EQT will be complying with 45 CSR 34. Note that there are no applicable requirements under 40 CFR Parts 61 and 63 for the wellpad.

3.5.8. Non-Applicability of Other SIP Rules

A thorough examination of the West Virginia SIP rules with respect to applicability at the wellpad reveals many SIP regulations that do not apply or impose additional requirements on operations. Such SIP rules include those specific to a particular type of industrial operation that is categorically not applicable to the wellpad.

4. G70-C APPLICATION FORMS

The WVDEP permit application forms contained in this application include all applicable G70-C application forms including the required attachments.

west virginia department of environmental protection

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

G70-C GENERAL PERMIT REGISTRATION APPLICATION

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

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

SECTION I. GENERAL 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, Suite 1700

City: Pittsburgh	State: PA	ZIP Code: 15222

Facility Name: SMI-28 Wellpad

Operating Site Physical Address:
If none available, list road, city or town and zip of facility. New Milton, Doddridge County

City: New Milton	Zip Code: 26411	County: Doddridge

Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits):
Latitude: 39.26262 N
Longitude: -80.73805 W

SIC Code: 1311 NAICS Code: 211111	DAQ Facility ID No. (For existing facilities) 017-00055

CERTIFICATION OF INFORMATION

This G70-C General Permit Registration Application shall be signed below by a Responsible Official. A Responsible Official is a President, Vice President, Secretary, Treasurer, General Partner, General Manager, a member of the Board of Directors, or Owner, depending on business structure. A business may certify an Authorized Representative who shall have authority to bind the Corporation, Partnership, Limited Liability Company, Association, Joint Venture or Sole Proprietorship. Required records of daily throughput, hours of operation and maintenance, general correspondence, compliance certifications and all required notifications must be signed by a Responsible Official or an Authorized Representative. If a business wishes to certify an Authorized Representative, the official agreement below shall be checked off and the appropriate names and signatures entered. **Any administratively incomplete or improperly signed or unsigned G70-C Registration Application will be returned to the applicant. Furthermore, if the G70-C forms are not utilized, the application will be returned to the applicant. No substitution of forms is allowed.**

I hereby certify that Kenneth Kirk is an Authorized Representative and in that capacity shall represent the interest of the business (e.g., Corporation, Partnership, Limited Liability Company, Association Joint Venture or Sole Proprietorship) and may obligate and legally bind the business. If the business changes its Authorized Representative, a Responsible Official shall notify the Director of the Division of Air Quality immediately.

I hereby certify that all information contained in this G70-C General Permit Registration Application and any supporting documents appended hereto is, to the best of my knowledge, true, accurate and complete, and that all reasonable efforts have been made to provide the most comprehensive information possible.

Responsible Official Signature: _____ 4125535700
Name and Title: Kenneth Kirk, Executive Vice President — Phone: — Fax:
Email: KKirk@eqt.com — Date: 9/7/16

If applicable:
Authorized Representative Signature: _____
Name and Title: — Phone: — Fax:
Email: — Date:

If applicable:
Environmental Contact
Name and Title: Alex Bosiljevac, Environmental Coordinator — Phone: 412-395-3699 — Fax: 412-395-7027
Email: ABosiljevac@eqt.com — Date:

OPERATING SITE INFORMATION
Briefly describe the proposed new operation and/or any change(s) to the facility: General permit application for an existing natural gas production well pad.
Directions to the facility: From Parkersburg on US-50E, go 43.2 miles to Maxwell Ridge in Doddridge County. Turn right onto WV-18S and travel 1.9 miles. Turn right onto Maxwell Ridge and the facility will be on the left after 0.7 miles.
ATTACHMENTS AND SUPPORTING DOCUMENTS
I have enclosed the following required documents:
Check payable to WVDEP – Division of Air Quality with the appropriate application fee (per 45CSR13 and 45CSR22). ☐ Check attached to front of application. ☐ I wish to pay by electronic transfer. Contact for payment (incl. name and email address): ☒ I wish to pay by credit card. Contact for payment (incl. name and email address): R. Alex Bosiljevac, abosiljevac@eqt.com ☐$500 (Construction, Modification, and Relocation) ☐$300 (Class II Administrative Update) ☐$1,000 NSPS fee for 40 CFR60, Subpart IIII, JJJJ and/or OOOO [1] ☐$2,500 NESHAP fee for 40 CFR63, Subpart ZZZZ and/or HH [2] [1] Only one NSPS fee will apply. [2] Only one NESHAP fee will apply. The Subpart ZZZZ NESHAP fee will be waived for new engines that satisfy requirements by complying with NSPS, Subparts IIII and/or JJJJ. *NSPS and NESHAP fees apply to new construction or if the source is being modified.*
☒ Responsible Official or Authorized Representative Signature (if applicable)
☒ Single Source Determination Form **(must be completed in its entirety)** – Attachment A
☐ Siting Criteria Waiver (if applicable) – Attachment B ☒ Current Business Certificate – Attachment C
☒ Process Flow Diagram – Attachment D ☒ Process Description – Attachment E
☒ Plot Plan – Attachment F ☒ Area Map – Attachment G
☒ G70-C Section Applicability Form – Attachment H ☒ Emission Units/ERD Table – Attachment I
☒ Fugitive Emissions Summary Sheet – Attachment J
☒ Gas Well Affected Facility Data Sheet (if applicable) – Attachment K
☒ Storage Vessel(s) Data Sheet (include gas sample data, USEPA Tanks, simulation software (e.g. ProMax, E&P Tanks, HYSYS, etc.), etc. where applicable) – Attachment L
☒ Natural Gas Fired Fuel Burning Unit(s) Data Sheet (GPUs, Heater Treaters, In-Line Heaters if applicable) – Attachment M
☐ Internal Combustion Engine Data Sheet(s) (include manufacturer performance data sheet(s) if applicable) – Attachment N
☒ Tanker Truck Loading Data Sheet (if applicable) – Attachment O
☐ Glycol Dehydration Unit Data Sheet(s) (include wet gas analysis, GRI- GLYCalc™ input and output reports and information on reboiler if applicable) – Attachment P
☐ Pneumatic Controllers Data Sheet – Attachment Q
☒ Air Pollution Control Device/Emission Reduction Device(s) Sheet(s) (include manufacturer performance data sheet(s) if applicable) – Attachment R
☒ Emission Calculations (please be specific and include all calculation methodologies used) – Attachment S
☒ Facility-wide Emission Summary Sheet(s) – Attachment T
☒ Class I Legal Advertisement – Attachment U
☒ One (1) paper copy and two (2) copies of CD or DVD with pdf copy of application and attachments

All attachments must be identified by name, divided into sections, and submitted in order.

ATTACHMENT A

Single Source Determination

ATTACHMENT A - SINGLE SOURCE DETERMINATION FORM

Classifying multiple facilities as one "stationary source" under 45CSR13, 45CSR14, and 45CSR19 is based on the definition of Building, structure, facility, or installation as given in §45-14-2.13 and §45-19-2.12. The definition states:

"Building, Structure, Facility, or Installation" means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control). Pollutant-emitting activities are a part of the same industrial grouping if they belong to the same "Major Group" (i.e., which have the same two (2)-digit code) as described in the Standard Industrial Classification Manual, 1987 (United States Government Printing Office stock number GPO 1987 0-185-718:QL 3).

Is there a facility owned by or associated with the natural gas industry located within one (1) mile of the proposed facility? Yes ☐ No ☒

If Yes, please complete the questionnaire on the following page (Attachment A).

Please provide a source aggregation analysis for the proposed facility below:

Please see discussion in the Application Report.

ATTACHMENT A - SINGLE SOURCE DETERMINATION FORM – NOT APPLICABLE

Answer each question with a detailed explanation to determine contiguous or adjacent properties which are under a common control and any support facilities. This section must be completed in its entirety.

Provide a map of contiguous or adjacent facilities (production facilities, compressor stations, dehydration facilities, etc.) which are under common control and those facilities that are not under common control but are support facilities. Please indicate the SIC code, permit number (if applicable), and the distance between facilities in question on the map.	
Are the facilities owned by the same parent company or a subsidiary of the parent company? Provide the owners identity and the percentage of ownership of each facility.	Yes ☐ No ☐
Does an entity such as a corporation have decision making authority over the operation of a second entity through a contractual agreement or voting interest? Please explain.	Yes ☐ No ☐
Is there a contract for service relationship between the two (2) companies or, a support/dependency relationship that exists between the two (2) companies? Please explain.	Yes ☐ No ☐
Do the facilities share common workforces, plant managers, security forces, corporate executive officers or board executives?	Yes ☐ No ☐
Will managers or other workers frequently shuttle back and forth to be involved actively at both facilities?	Yes ☐ No ☐
Do the facilities share common payroll activities, employee benefits, health plans, retirement funds, insurance coverage, or other administrative functions? Please explain.	Yes ☐ No ☐
Does one (1) facility operation support the operation of the other facility?	Yes ☐ No ☐
Is one (1) facility dependent on the other? If one (1) facility shuts down, what are the limitations on the other to pursue outside business? Please explain.	Yes ☐ No ☐
Are there any financial arrangements between the two (2) entities?	Yes ☐ No ☐
Are there any legal or lease agreements between the two (2) facilities?	Yes ☐ No ☐
Do the facilities share products, byproducts, equipment, or other manufacturing or air pollution control device equipment? Please explain.	Yes ☐ No ☐
Do all the pollutant-emitting activities at the facilities belong to the same SIC Code? Please provide the SIC Codes.	Yes ☐ No ☐
Was the location of the new facility chosen primarily because of its proximity to the existing facility to integrate the operation of the two (2) facilities? Please explain.	Yes ☐ No ☐
Will materials be routinely transferred between the two (2) facilities? Please explain the amount of transfer and how often the transfers take place and what percentages go to the various entities.	Yes ☐ No ☐
Does the facility influence production levels or compliance with environmental regulations at other facilities? Who accepts the responsibility for compliance with air quality requirements? Please explain.	Yes ☐ No ☐

ATTACHMENT A: SINGLE SOURCE DETERMINATION MAP

Note – red ring is a 1-mile radius from SMI-28

ATTACHMENT B

Siting Criteria Waiver *(Not Applicable)*

ATTACHMENT B - SITING CRITERIA WAIVER – NOT APPLICABLE
If applicable, please complete this form and it must be notarized.

G70-C General Permit
Siting Criteria Waiver

WV Division of Air Quality 300' Waiver

I _____ hereby
Print Name

acknowledge and agree that _____ will
General Permit Applicant's Name

construct an emission unit(s) at a natural gas production facility
that will be located within 300' of my dwelling and/or business.

.

I hereby offer this waiver of siting criteria to the West Virginia Department of Environmental Protection Division of Air Quality as permission to construct, install and operate in such location.

Signed:

_____

Signature Date

_____

Signature Date

Taken, subscribed and sworn before me this _____ day of

_____, 20_____.

My commission expires: _____

SEAL_____
Notary Public

ATTACHMENT C

Business Certificate

WEST VIRGINIA
STATE TAX DEPARTMENT
BUSINESS REGISTRATION CERTIFICATE

ISSUED TO:
EQT PRODUCTION COMPANY
625 LIBERTY AVE 1700
PITTSBURGH, PA 15222-3114

BUSINESS REGISTRATION ACCOUNT NUMBER: **1022-8081**

This certificate is issued on: 08/4/2010

This certificate is issued by
the West Virginia State Tax Commissioner
in accordance with Chapter 11, Article 12, of the West Virginia Code

The person or organization identified on this certificate is registered to conduct business in the State of West Virginia at the location above.

This certificate is not transferrable and must be displayed at the location for which issued.

This certificate shall be permanent until cessation of the business for which the certificate of registration was granted or until it is suspended, revoked or cancelled by the Tax Commissioner.

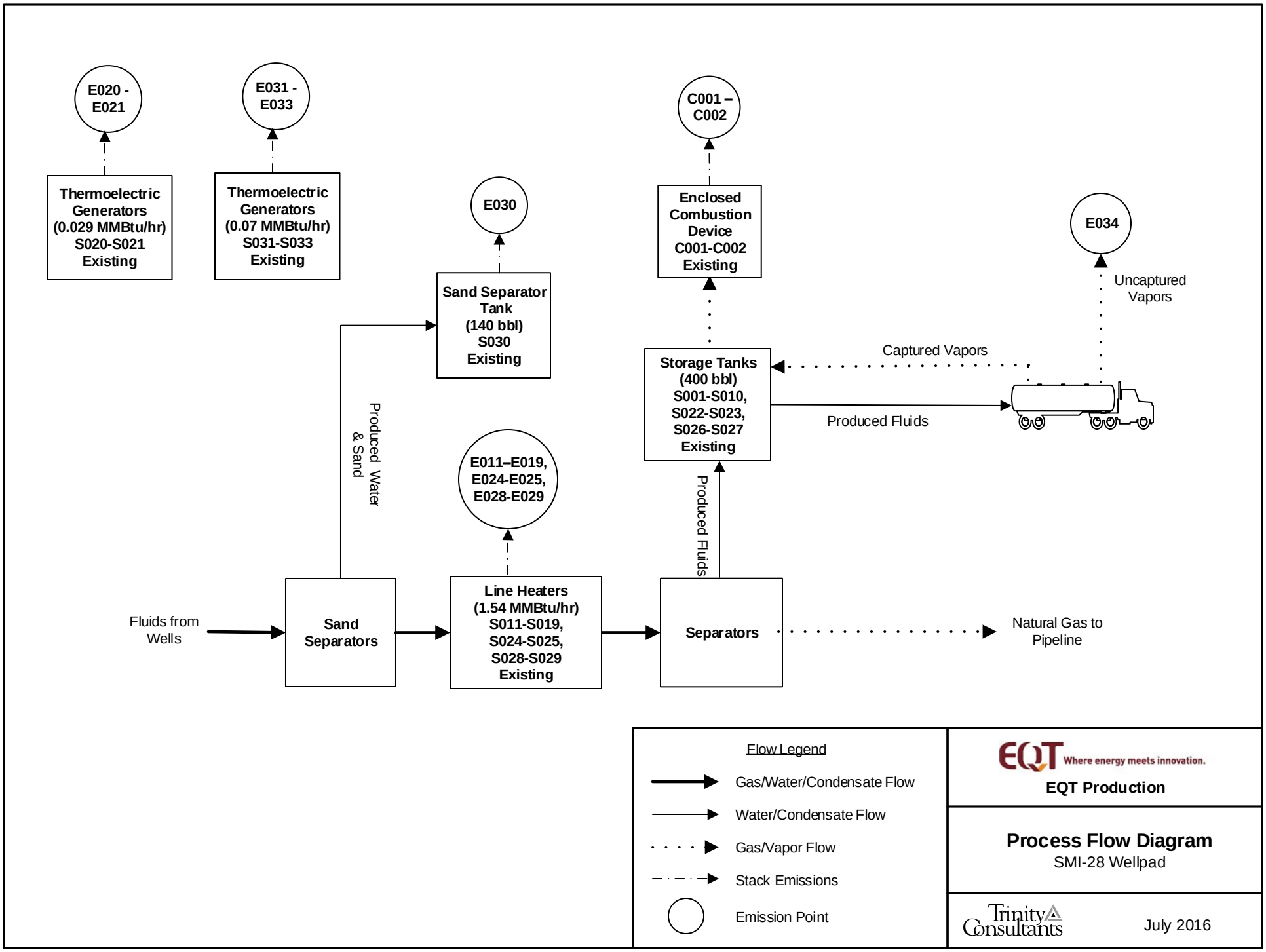
Change in name or change of location shall be considered a cessation of the business and a new certificate shall be required.

TRAVELING/STREET VENDORS: Must carry a copy of this certificate in every vehicle operated by them. CONTRACTORS, DRILLING OPERATORS, TIMBER/LOGGING OPERATIONS: Must have a copy of this certificate displayed at every job site within West Virginia.

atL006 v.3
L0553297664

ATTACHMENT D

Process Flow Diagram


E020 - E021
E031 - E033
C001 – C002
Thermoelectric Generators (0.029 MMBtu/hr) S020-S021 Existing
Thermoelectric Generators (0.07 MMBtu/hr) S031-S033 Existing
E030
Enclosed Combustion Device C001-C002 Existing
E034
Uncaptured Vapors
Sand Separator Tank (140 bbl) S030 Existing
Captured Vapors
Storage Tanks (400 bbl) S001-S010, S022-S023, S026-S027 Existing
Produced Fluids
Produced Water & Sand
E011–E019, E024-E025, E028-E029
Produced Fluids
Fluids from Wells
Sand Separators
Line Heaters (1.54 MMBtu/hr) S011-S019, S024-S025, S028-S029 Existing
Separators
Natural Gas to Pipeline
Flow Legend
Gas/Water/Condensate Flow
Water/Condensate Flow
Gas/Vapor Flow
Stack Emissions
Emission Point
EQT Where energy meets innovation.
EQT Production
Process Flow Diagram
SMI-28 Wellpad
Trinity Consultants
July 2016

ATTACHMENT E

Process Description

ATTACHMENT E: PROCESS DESCRIPTION

EQT is submitting this application to remove two (2) enclosed combustors (C003 and C004) from the wellpad. The SMI-28 wellpad consists of thirteen (13) wells, each with the same basic operation. Additionally, this application seeks to convert the current General Permit G70-A142A to the G-70C.

The incoming gas/liquid stream from the underground well will pass through a sand separator, where sand, water, and residual solids are displaced and transferred to the sand separator tank. The gas stream will then pass through a line heater to raise/maintain temperature of the stream and prevent hydrate formation. The stream will then pass through a high pressure separator, which will separate gas (natural gas from the separator is sent to the sales line) from liquids (condensate and produced water). The liquids are then transferred to the produced fluids tanks.

Emissions from the storage vessels are controlled by enclosed combustors. Once the tanks are filled, the contents are loaded into trucks for transport. EQT utilizes vapor balancing in the truck loading operations, which means the vapors displaced by the filling of tanker trucks are routed back into the battery of tanks and ultimately to the combustor. Facility electricity is provided by thermoelectric generators.

A process flow diagram is included as Attachment D.

ATTACHMENT F

Plot Plan

Production Units w/ In-Line Heaters (13)

Thermoelectric Generators (5)

NOTE: This diagram is not to scale. Locations and distances between surface equipment are not known at this time.

Sand Separator Tank 140 bbl (1)

Entrance to SMI-28 pad

Wellheads (13)

Combustors 11.66 MMBTU/hr (each)

Produced Fluid Tanks 400 bbl (14)

Attachment F

SMI-28 Well Pad Plot Plan

ATTACHMENT G

Area Map

ATTACHMENT G: AREA MAP

Figure 1 - Map of SMI-28 Location

UTM Northing (KM)	4,345.954
UTM Easting (KM)	522.599
Elevation (m)	381

ATTACHMENT H

Applicability Form

ATTACHMENT H – G70-C SECTION APPLICABILITY FORM

General Permit G70-C Registration
Section Applicability Form

General Permit G70-C was developed to allow qualified applicants to seek registration for a variety of sources. These sources include gas well affected facilities, storage vessels, gas production units, in-line heaters, heater treaters, glycol dehydration units and associated reboilers, pneumatic controllers, centrifugal compressors, reciprocating compressors, reciprocating internal combustion engines (RICEs), tank truck loading, fugitive emissions, completion combustion devices, flares, enclosed combustion devices, and vapor recovery systems. All registered facilities will be subject to Sections 1.0, 2.0, 3.0, and 4.0.

General Permit G70-C allows the registrant to choose which sections of the permit they are seeking registration under. Therefore, please mark which additional sections that you are applying for registration under. If the applicant is seeking registration under multiple sections, please select all that apply. Please keep in mind, that if this registration is approved, the issued registration will state which sections will apply to your affected facility.

GENERAL PERMIT G70-C APPLICABLE SECTIONS	
☒ Section 5.0	Gas Well Affected Facility (NSPS, Subpart OOOO)
☒ Section 6.0	Storage Vessels Containing Condensate and/or Produced Water[1]
☐ Section 7.0	Storage Vessel Affected Facility (NSPS, Subpart OOOO)
☒ Section 8.0	Control Devices and Emission Reduction Devices not subject to NSPS Subpart OOOO and/or NESHAP Subpart HH
☒ Section 9.0	Small Heaters and Reboilers not subject to 40CFR60 Subpart Dc
☐ Section 10.0	Pneumatic Controllers Affected Facility (NSPS, Subpart OOOO)
☐ Section 11.0	Centrifugal Compressor Affected Facility (NSPS, Subpart OOOO)[2]
☐ Section 12.0	Reciprocating Compressor Affected Facility (NSPS, Subpart OOOO)[2]
☐ Section 13.0	Reciprocating Internal Combustion Engines, Generator Engines, Microturbines
☒ Section 14.0	Tanker Truck Loading[3]
☐ Section 15.0	Glycol Dehydration Units[4]

1 *Applicants that are subject to Section 6 may also be subject to Section 7 if the applicant is subject to the NSPS, Subpart OOOO control requirements or the applicable control device requirements of Section 8.*

2 *Applicants that are subject to Section 11 and 12 may also be subject to the applicable RICE requirements of Section 13.*

3 *Applicants that are subject to Section 14 may also be subject to control device and emission reduction device requirements of Section 8.*

4 *Applicants that are subject to Section 15 may also be subject to the requirements of Section 9 (reboilers). Applicants that are subject to Section 15 may also be subject to control device and emission reduction device requirements of Section 8.*

ATTACHMENT I

Emission Units Table

ATTACHMENT I – EMISSION UNITS / EMISSION REDUCTION DEVICES (ERD) TABLE

Include ALL emission units and air pollution control devices/ERDs that will be part of this permit application review. Do not include fugitive emission sources in this table. Deminimis storage tanks shall be listed in the Attachment L table. This information is required for all sources regardless of whether it is a construction, modification, or administrative update.

Emission Unit ID[1]	Emission Point ID[2]	Emission Unit Description	Year Installed	Manufac. Date[3]	Design Capacity	Type[4] and Date of Change	Control Device(s)[5]	ERD(s)[6]
S001	C001-C002	Produced Fluid Storage Tank	2013	2013	400 bbl	Existing; No change	C001-C002	---
S002	C001-C002	Produced Fluid Storage Tank	2013	2013	400 bbl	Existing; No change	C001-C002	---
S003	C001-C002	Produced Fluid Storage Tank	2013	2013	400 bbl	Existing; No change	C001-C002	---
S004	C001-C002	Produced Fluid Storage Tank	2013	2013	400 bbl	Existing; No change	C001-C002	---
S005	C001-C002	Produced Fluid Storage Tank	2013	2013	400 bbl	Existing; No change	C001-C002	---
S006	C001-C002	Produced Fluid Storage Tank	2013	2013	400 bbl	Existing; No change	C001-C002	---
S007	C001-C002	Produced Fluid Storage Tank	2013	2013	400 bbl	Existing; No change	C001-C002	---
S008	C001-C002	Produced Fluid Storage Tank	2013	2013	400 bbl	Existing; No change	C001-C002	---
S009	C001-C002	Produced Fluid Storage Tank	2013	2013	400 bbl	Existing; No change	C001-C002	---
S010	C001-C002	Produced Fluid Storage Tank	2013	2013	400 bbl	Existing; No change	C001-C002	---
S011	E011	Line Heater	2013	2013	1.54 MMBtu/hr	Existing; No change	None	---
S012	E012	Line Heater	2013	2013	1.54 MMBtu/hr	Existing; No change	None	---
S013	E013	Line Heater	2013	2013	1.54 MMBtu/hr	Existing; No change	None	---
S014	E014	Line Heater	2013	2013	1.54 MMBtu/hr	Existing; No change	None	---
S015	E015	Line Heater	2013	2013	1.54 MMBtu/hr	Existing; No change	None	---
S016	E016	Line Heater	2013	2013	1.54 MMBtu/hr	Existing; No change	None	---
S017	E017	Line Heater	2013	2013	1.54 MMBtu/hr	Existing; No change	None	---
S018	E018	Line Heater	2013	2013	1.54 MMBtu/hr	Existing; No change	None	---
S019	E019	Line Heater	2013	2013	1.54 MMBtu/hr	Existing; No change	None	---

S020	E020	Thermoelectric Generator	2013	2013	0.029 MMBtu/hr	Existing; No change	None	---
S021	E021	Thermoelectric Generator	2013	2013	0.029 MMBtu/hr	Existing; No change	None	---
S022	C001 – C002	Produced Fluid Storage Tank	2014	2014	400 bbl	Existing; No change	C001 – C002	---
S023	C001 – C002	Produced Fluid Storage Tank	2014	2014	400 bbl	Existing; No change	C001 – C002	---
S024	E024	Line Heater	2014	2014	1.54 MMBtu/hr	Existing; No change	None	---
S025	E025	Line Heater	2014	2014	1.54 MMBtu/hr	Existing; No change	None	---
S026	C001 – C002	Produced Fluid Storage Tank	2015	2015	400 bbl	Existing; No change	C001 – C002	---
S027	C001 – C002	Produced Fluid Storage Tank	2015	2015	400 bbl	Existing; No change	C001 – C002	---
S028	E028	Line Heater	2015	2015	1.54 MMBtu/hr	Existing; No change	None	---
S029	E029	Line Heater	2015	2015	1.54 MMBtu/hr	Existing; No change	None	---
S030	E030	Sand Separator Storage Tank	2015	2015	140 bbl	Existing; No change	C001 – C002 (Optional)	---
S031	E031	Thermoelectric Generator	2015	2015	0.07 MMBtu/hr	Existing; No change	None	---
S032	E032	Thermoelectric Generator	2015	2015	0.07 MMBtu/hr	Existing; No change	None	---
S033	E033	Thermoelectric Generator	2015	2015	0.07 MMBtu/hr	Existing; No change	None	---
S034	E034 (Uncaptured) C001–C002 (Controlled, Captured)	Liquid Loading	2015	2015	36,209,460	Existing; No change	C001 – C002	---
C001	C001	Combustor	2013	2013	11.66 MMBtu/hr	Existing; No change	NA	---
C002	C002	Combustor	2014	2014	11.66 MMBtu/hr	Existing; No change	NA	---

[1] For Emission Units (or Sources) use the following numbering system:1S, 2S, 3S,... or other appropriate designation.
[2] For Emission Points use the following numbering system:1E, 2E, 3E, ... or other appropriate designation.
[3] When required by rule
[4] New, modification, removal, existing
[5] For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.
[6] For ERDs use the following numbering system: 1D, 2D, 3D,... or other appropriate designation.

ATTACHMENT J

Fugitive Emissions Summary Sheet

ATTACHMENT J – FUGITIVE EMISSIONS SUMMARY SHEET

Sources of fugitive emissions may include loading operations, equipment leaks, blowdown emissions, etc.
Use extra pages for each associated source or equipment if necessary.

Source/Equipment: Fugitive Emissions

Leak Detection Method Used	☐ Audible, visual, and olfactory (AVO) inspections	☐ Infrared (FLIR) cameras	☒ Other (please describe) Will satisfy condition 4.1.4. of the G70-C	☐ None required

Component Type	Closed Vent System	Count	Source of Leak Factors (EPA, other (specify))	Stream type (gas, liquid, etc.)	Estimated Emissions (tpy)		
					VOC	HAP	GHG (CO_2e)
Pumps	☐ Yes ☒ No	23	U.S. EPA. Office of Air Quality Planning and Standards. Protocol for Equipment Leak Emission Estimates. Table 2-1. (EPA-453/R-95-017, 1995).	☐ Gas ☒ Liquid ☐ Both	4.32	0.19	0.84
Valves	☐ Yes ☒ No	683	U.S. EPA. Office of Air Quality Planning and Standards. Protocol for Equipment Leak Emission Estimates. Table 2-1. (EPA-453/R-95-017, 1995).	☒ Gas ☐ Liquid ☐ Both	7.11	0.31	69.11
Safety Relief Valves	☐ Yes ☒ No	50	U.S. EPA. Office of Air Quality Planning and Standards. Protocol for Equipment Leak Emission Estimates. Table 2-1. (EPA-453/R-95-017, 1995).	☒ Gas ☐ Liquid ☐ Both	8.99	0.39	7.43
Open Ended Lines	☐ Yes ☒ No	50	U.S. EPA. Office of Air Quality Planning and Standards. Protocol for Equipment Leak Emission Estimates. Table 2-1. (EPA-453/R-95-017, 1995).	☐ Gas ☐ Liquid ☒ Both	0.15	0.01	11.32
Sampling Connections	☐ Yes ☐ No	---	N/A	☐ Gas ☐ Liquid ☐ Both	---	---	---
Connections (Not sampling)	☐ Yes ☒ No	3,003	U.S. EPA. Office of Air Quality Planning and Standards. Protocol for Equipment Leak Emission Estimates. Table 2-1. (EPA-453/R-95-017, 1995).	☐ Gas ☐ Liquid ☒ Both	9.59	0.41	33.79
Compressors	☐ Yes ☐ No	---	(included in other component counts)	☐ Gas ☐ Liquid ☐ Both	---	---	---
Flanges	☐ Yes ☐ No	---	(included in connections)	☐ Gas ☐ Liquid ☐ Both	---	---	---
Other[1]	☐ Yes ☒ No	65	40 CFR 98 Subpart W	☒ Gas ☐ Liquid ☐ Both	12.64	0.55	1,096.92

[1] Other equipment types may include compressor seals, relief valves, diaphragms, drains, meters, etc.

Please provide an explanation of the sources of fugitive emissions (e.g. pigging operations, equipment blowdowns, pneumatic controllers, etc.):
Pneumatic Controller count is 'Other' category. An estimate of Miscellaneous Gas Venting emissions are included in the Emission Calculations and serve to include such sources as compressor venting, pigging, vessel blowdowns and other sources.

Please indicate if there are any closed vent bypasses (include component): N/A

Specify all equipment used in the closed vent system (e.g. VRU, ERD, thief hatches, tanker truck loading, etc.) N/A

ATTACHMENT K

Gas Well Data Sheet

ATTACHMENT K – GAS WELL AFFECTED FACILITY DATA SHEET

Complete this data sheet if you are the owner or operator of a gas well affected facility for which construction, modification or reconstruction commenced after August 23, 2011. This form must be completed for natural gas well affected facilities regardless of when flowback operations occur (or have occurred).

API Number	Date of Flowback[1]	Date of Well Completion[2]	Green Completion and/or Combustion Device
47-017-06136	07/05/2014	04/29/2014	Green
47-017-06137	07/05/2014	05/01/2014	Green
47-017-06116	07/10/2014	04/26/2014	Green
47-017-06115	07/05/2014	05/04/2014	Green
47-017-06135	07/06/2014	05/02/2014	Green
47-017-06214	07/08/2014	05/03/2014	Green
47-017-06217	07/12/2014	05/03/2014	Green
47-017-06215	07/09/2014	04/29/2014	Green
47-017-06216	07/09/2014	05/01/2014	Green
47-017-06291	07/14/2014	05/08/2014	Green
47-017-06186	07/14/2014	05/06/2014	Green
47-017-06587	07/09/2014	06/18/2015	Green
47-017-06588	07/08/2014	06/15/2015	Green

Note: If future wells are planned and no API number is available please list as PLANNED.
If there are existing wells that commenced construction prior to August 23, 2011, please acknowledge as existing.

This is the same API (American Petroleum Institute) well number(s) provided in the well completion notification and as provided to the WVDEP, Office of Oil and Gas for the well permit. The API number may be provided on the application without the state code (047).

Every oil and gas well permitted in West Virginia since 1929 has been issued an API number. This API is used by agencies to identify and track oil and gas wells.

The API number has the following format: 047-001-00001

Where,

047 = State code. The state code for WV is 047.
001 = County Code. County codes are odd numbers, beginning with 001 (Barbour) and continuing to 109 (Wyoming).
00001= Well number. Each well will have a unique well number.

[1] Start date of well fluid flowback
[2] Start date of frac plug drill out

ATTACHMENT L

Storage Vessel Data Sheet

ATTACHMENT L – STORAGE VESSEL DATA SHEET

Complete this data sheet if you are the owner or operator of a storage vessel that contains condensate and/or produced water. This form must be completed for ***each*** new or modified bulk liquid storage vessel(s) that contains condensate and/or produced water . (If you have more than one (1) identical tank (i.e. 4-400 bbl condensate tanks), then you can list all on one (1) data sheet). **Include gas sample analysis, flashing emissions, working and breathing losses, USEPA Tanks, simulation software (ProMax, E&P Tanks, HYSYS, etc.), and any other supporting documents where applicable.**

The following information is REQUIRED:

☒ Composition of the representative sample used for the simulation
☒ For each stream that contributes to flashing emissions:
- ☒ Temperature and pressure (inlet and outlet from separator(s))
- ☒ Simulation-predicted composition
- ☒ Molecular weight
- ☒ Flow rate

☒ Resulting flash emission factor or flashing emissions from simulation
☒ Working/breathing loss emissions from tanks and/or loading emissions if simulation is used to quantify those emissions

Additional information may be requested if necessary.

GENERAL INFORMATION (REQUIRED)

1. Bulk Storage Area Name SMI 28 Wellpad	2. Tank Name Produced Fluid Tanks (water and condensate)
3. Emission Unit ID number S001-S010, S022-S023, S026-S027	4. Emission Point ID number C001-C002
5. Date Installed , Modified or Relocated *(for existing tanks)* Was the tank manufactured after August 23, 2011? ☒ Yes ☐ No	6. Type of change: none ☐ New construction ☐ New stored material ☐ Other (Low Pressure Tower) ☐ Relocation
7A. Description of Tank Modification *(if applicable)* N/A	
7B. Will more than one material be stored in this tank? *If so, a separate form must be completed for each material.* ☐ Yes ☒ No	
7C. Was USEPA Tanks simulation software utilized? ☐ Yes ☒ No ***If Yes, please provide the appropriate documentation and items 8-42 below are not required.***	

TANK INFORMATION

8. Design Capacity *(specify barrels or gallons).* Use the internal cross-sectional area multiplied by internal height. 400 bbls	
9A. Tank Internal Diameter (ft.) ~12	9B. Tank Internal Height (ft.) ~20
10A. Maximum Liquid Height (ft.) ~20	10B. Average Liquid Height (ft.) ~10
11A. Maximum Vapor Space Height (ft.) ~20	11B. Average Vapor Space Height (ft.) ~10
12. Nominal Capacity *(specify barrels or gallons).* This is also known as "working volume". 400 bbls	
13A. Maximum annual throughput (gal/yr) **See attached emissions calculations for all throughput values**	13B. Maximum daily throughput (gal/day) **See attached emissions calculations for all throughput values**
14. Number of tank turnovers per year **See attached emissions calculations for all throughput values**	15. Maximum tank fill rate (gal/min) **See attached emissions calculations for all throughput values**
16. Tank fill method ☐ Submerged ☒ Splash ☐ Bottom Loading	
17. Is the tank system a variable vapor space system? ☐ Yes ☒ No If yes, (A) What is the volume expansion capacity of the system (gal)? (B) What are the number of transfers into the system per year?	
18. Type of tank (check all that apply): ☒ Fixed Roof ☒ vertical ☐ horizontal ☐ flat roof ☒ cone roof ☐ dome roof ☐ other (describe) ☐ External Floating Roof ☐ pontoon roof ☐ double deck roof ☐ Domed External (or Covered) Floating Roof ☐ Internal Floating Roof ☐ vertical column support ☐ self-supporting ☐ Variable Vapor Space ☐ lifter roof ☐ diaphragm ☐ Pressurized ☐ spherical ☐ cylindrical ☐ Other (describe)	

PRESSURE/VACUUM CONTROL DATA

19. Check as many as apply:

☐ Does Not Apply ☐ Rupture Disc (psig)

☐ Inert Gas Blanket of _____ ☐ Carbon Adsorption[1]

☒ Vent to Vapor Combustion Device[1] (vapor combustors, flares, thermal oxidizers, enclosed combustors)

☒ Conservation Vent (psig) ☐ Condenser[1]

0.5 oz Vacuum Setting 12.5 oz Pressure Setting

☒ Emergency Relief Valve (psig)

Vacuum Setting 14.4 oz Pressure Setting (one per tank)

☐ Thief Hatch Weighted ☐ Yes ☒ No – Cashco Lockdown Hatch

[1] Complete appropriate Air Pollution Control Device Sheet

20. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

Material Name	**Flashing Loss**		**Breathing Loss**		**Working Loss**		**Total Emissions Loss**		**Estimation Method[1]**
	lb/hr	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**	
See attached Emissions Calculation for all values									

[1] EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

Remember to attach emissions calculations, including TANKS Summary Sheets and other modeling summary sheets if applicable.

TANK CONSTRUCTION AND OPERATION INFORMATION			
21. Tank Shell Construction: ☐ Riveted ☐ Gunite lined ☐ Epoxy-coated rivets ☒ Other (describe) Welded or riveted			
21A. Shell Color: Green	21B. Roof Color: Green	21C. Year Last Painted: New	
22. Shell Condition (if metal and unlined): ☒ No Rust ☐ Light Rust ☐ Dense Rust ☐ Not applicable			
22A. Is the tank heated? ☐ Yes ☒ No	22B. If yes, operating temperature:	22C. If yes, how is heat provided to tank?	
23. Operating Pressure Range (psig): **Must be listed for tanks using VRUs with closed vent system.**			
24. Is the tank a **Vertical Fixed Roof Tank**? ☒ Yes ☐ No	24A. If yes, for dome roof provide radius (ft):	24B. If yes, for cone roof, provide slop (ft/ft): 0.06	
25. Complete item 25 for **Floating Roof Tanks** ☐ Does not apply ☒			
25A. Year Internal Floaters Installed:			
25B. Primary Seal Type *(check one):* ☐ Metallic (mechanical) shoe seal ☐ Liquid mounted resilient seal ☐ Vapor mounted resilient seal ☐ Other (describe):			
25C. Is the Floating Roof equipped with a secondary seal? ☐ Yes ☐ No			
25D. If yes, how is the secondary seal mounted? *(check one)* ☐ Shoe ☐ Rim ☐ Other (describe):			
25E. Is the floating roof equipped with a weather shield? ☐ Yes ☐ No			
25F. Describe deck fittings:			
26. Complete the following section for **Internal Floating Roof Tanks** ☒ Does not apply			
26A. Deck Type: ☐ Bolted ☐ Welded	26B. For bolted decks, provide deck construction:		
26C. Deck seam. Continuous sheet construction: ☐ 5 ft. wide ☐ 6 ft. wide ☐ 7 ft. wide ☐ 5 x 7.5 ft. wide ☐ 5 x 12 ft. wide ☐ other (describe)			
26D. Deck seam length (ft.):	26E. Area of deck (ft^2):	26F. For column supported tanks, # of columns:	26G. For column supported tanks, diameter of column:
27. Closed Vent System with VRU? ☐ Yes ☒ No			
28. Closed Vent System with Enclosed Combustor? ☒ Yes ☐ No			
SITE INFORMATION - Not Applicable: Tank calculations performed using ProMax software			
29. Provide the city and state on which the data in this section are based:			
30. Daily Avg. Ambient Temperature (°F):	31. Annual Avg. Maximum Temperature (°F):		
32. Annual Avg. Minimum Temperature (°F):	33. Avg. Wind Speed (mph):		
34. Annual Avg. Solar Insulation Factor (BTU/ft^2-day):	35. Atmospheric Pressure (psia):		
LIQUID INFORMATION - Not Applicable: Tank calculations performed using ProMax software			
36. Avg. daily temperature range of bulk liquid (°F):	36A. Minimum (°F):	36B. Maximum (°F):	
37. Avg. operating pressure range of tank (psig):	37A. Minimum (psig):	37B. Maximum (psig):	
38A. Minimum liquid surface temperature (°F):	38B. Corresponding vapor pressure (psia):		
39A. Avg. liquid surface temperature (°F):	39B. Corresponding vapor pressure (psia):		
40A. Maximum liquid surface temperature (°F):	40B. Corresponding vapor pressure (psia):		
41. Provide the following for each liquid or gas to be stored in the tank. Add additional pages if necessary.			
41A. Material name and composition:			
41B. CAS number:			
41C. Liquid density (lb/gal):			
41D. Liquid molecular weight (lb/lb-mole):			
41E. Vapor molecular weight (lb/lb-mole):			
41F. Maximum true vapor pressure (psia):			
41G. Maximum Reid vapor pressure (psia):			
41H. Months Storage per year. From: To:			
42. Final maximum gauge pressure and temperature prior to transfer into tank used as inputs into flashing emission calculations.			

GENERAL INFORMATION (REQUIRED)

1. Bulk Storage Area Name SMI 28 Wellpad	2. Tank Name Sand Separator Tank
3. Emission Unit ID number S030	4. Emission Point ID number E030
5. Date Installed , Modified or Relocated *(for existing tanks)* Was the tank manufactured after August 23, 2011? ☒ Yes ☐ No	6. Type of change: ☐ New construction ☐ New stored material ☐ Other (Low Pressure Tower) ☐ Relocation
7A. Description of Tank Modification *(if applicable)* N/A	
7B. Will more than one material be stored in this tank? *If so, a separate form must be completed for each material.* ☐ Yes ☒ No	
7C. Was USEPA Tanks simulation software utilized? ☐ Yes ☒ No ***If Yes, please provide the appropriate documentation and items 8-42 below are not required.***	

TANK INFORMATION

8. Design Capacity *(specify barrels or gallons).* Use the internal cross-sectional area multiplied by internal height. 140 bbls	
9A. Tank Internal Diameter (ft.) ~10	9B. Tank Internal Height (ft.) ~10
10A. Maximum Liquid Height (ft.) ~10	10B. Average Liquid Height (ft.) ~5
11A. Maximum Vapor Space Height (ft.) ~10	11B. Average Vapor Space Height (ft.) ~5
12. Nominal Capacity *(specify barrels or gallons).* This is also known as "working volume". 140 bbls	
13A. Maximum annual throughput (gal/yr) **See attached emissions calculations for all throughput values**	13B. Maximum daily throughput (gal/day) **See attached emissions calculations for all throughput values**
14. Number of tank turnovers per year **See attached emissions calculations for all throughput values**	15. Maximum tank fill rate (gal/min) **See attached emissions calculations for all throughput values**
16. Tank fill method ☐ Submerged ☒ Splash ☐ Bottom Loading	
17. Is the tank system a variable vapor space system? ☐ Yes ☒ No If yes, (A) What is the volume expansion capacity of the system (gal)? (B) What are the number of transfers into the system per year?	
18. Type of tank (check all that apply): ☒ Fixed Roof ☐ vertical ☒ horizontal ☐ flat roof ☐ cone roof ☐ dome roof ☐ other (describe) ☐ External Floating Roof ☐ pontoon roof ☐ double deck roof ☐ Domed External (or Covered) Floating Roof ☐ Internal Floating Roof ☐ vertical column support ☐ self-supporting ☐ Variable Vapor Space ☐ lifter roof ☐ diaphragm ☐ Pressurized ☐ spherical ☐ cylindrical	

PRESSURE/VACUUM CONTROL DATA

19. Check as many as apply: ☒ Does Not Apply ☐ Rupture Disc (psig) ☐ Inert Gas Blanket of _____ ☐ Carbon Adsorption[1] ☐ Vent to Vapor Combustion Device[1] (vapor combustors, flares, thermal oxidizers, enclosed combustors) ☐ Conservation Vent (psig) ☐ Condenser[1] Vacuum Setting Pressure Setting ☐ Emergency Relief Valve (psig) Vacuum Setting Pressure Setting ☐ Thief Hatch Weighted ☐ Yes ☐ No

[1] Complete appropriate Air Pollution Control Device Sheet

20. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

Material Name	Flashing Loss		Breathing Loss		Working Loss		Total Emissions Loss		Estimation Method[1]
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	
See attached Emissions Calculation for all values									

[1] EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)
Remember to attach emissions calculations, including TANKS Summary Sheets and other modeling summary sheets if applicable.

TANK CONSTRUCTION AND OPERATION INFORMATION

21. Tank Shell Construction:
☐ Riveted ☐ Gunite lined ☐ Epoxy-coated rivets ☒ Other (describe) Welded

21A. Shell Color: Gray	21B. Roof Color: Gray	21C. Year Last Painted: New

22. Shell Condition (if metal and unlined):
☒ No Rust ☐ Light Rust ☐ Dense Rust ☐ Not applicable

22A. Is the tank heated? ☐ Yes ☒ No	22B. If yes, operating temperature:	22C. If yes, how is heat provided to tank?

23. Operating Pressure Range (psig):
Must be listed for tanks using VRUs with closed vent system.

24. Is the tank a **Vertical Fixed Roof Tank**? ☐ Yes ☒ No	24A. If yes, for dome roof provide radius (ft):	24B. If yes, for cone roof, provide slop (ft/ft):

25. Complete item 25 for **Floating Roof Tanks** ☐ Does not apply ☒

25A. Year Internal Floaters Installed:

25B. Primary Seal Type *(check one):* ☐ Metallic (mechanical) shoe seal ☐ Liquid mounted resilient seal ☐ Vapor mounted resilient seal ☐ Other (describe):

25C. Is the Floating Roof equipped with a secondary seal? ☐ Yes ☐ No

25D. If yes, how is the secondary seal mounted? *(check one)* ☐ Shoe ☐ Rim ☐ Other (describe):

25E. Is the floating roof equipped with a weather shield? ☐ Yes ☐ No

25F. Describe deck fittings:

26. Complete the following section for **Internal Floating Roof Tanks** ☒ Does not apply

26A. Deck Type: ☐ Bolted ☐ Welded	26B. For bolted decks, provide deck construction:

26C. Deck seam. Continuous sheet construction:
☐ 5 ft. wide ☐ 6 ft. wide ☐ 7 ft. wide ☐ 5 x 7.5 ft. wide ☐ 5 x 12 ft. wide ☐ other (describe)

26D. Deck seam length (ft.):	26E. Area of deck (ft^2):	26F. For column supported tanks, # of columns:	26G. For column supported tanks, diameter of column:

27. Closed Vent System with VRU? ☐ Yes ☒ No

28. Closed Vent System with Enclosed Combustor? ☐ Yes ☒ No

SITE INFORMATION - Not Applicable: Tank calculations performed using E&P Tank software

29. Provide the city and state on which the data in this section are based:

30. Daily Avg. Ambient Temperature (°F):	31. Annual Avg. Maximum Temperature (°F):
32. Annual Avg. Minimum Temperature (°F):	33. Avg. Wind Speed (mph):
34. Annual Avg. Solar Insulation Factor (BTU/ft^2-day):	35. Atmospheric Pressure (psia):

LIQUID INFORMATION - Not Applicable: Tank calculations performed using E&P Tank software

36. Avg. daily temperature range of bulk liquid (°F):	36A. Minimum (°F):		36B. Maximum (°F):
37. Avg. operating pressure range of tank (psig):	37A. Minimum (psig):		37B. Maximum (psig):
38A. Minimum liquid surface temperature (°F):		38B. Corresponding vapor pressure (psia):	
39A. Avg. liquid surface temperature (°F):		39B. Corresponding vapor pressure (psia):	
40A. Maximum liquid surface temperature (°F):		40B. Corresponding vapor pressure (psia):	
41. Provide the following for each liquid or gas to be stored in the tank. Add additional pages if necessary.			
41A. Material name and composition:			
41B. CAS number:			
41C. Liquid density (lb/gal):			
41D. Liquid molecular weight (lb/lb-mole):			
41E. Vapor molecular weight (lb/lb-mole):			
41F. Maximum true vapor pressure (psia):			
41G. Maximum Reid vapor pressure (psia):			
41H. Months Storage per year. From: To:			
42. Final maximum gauge pressure and temperature prior to transfer into tank used as inputs into flashing emission calculations.			

STORAGE TANK DATA TABLE

List all deminimis storage tanks (i.e. lube oil, glycol, diesel etc.)

Source ID #[1]	Status[2]	Content[3]	Volume[4]
Not Applicable			

1. Enter the appropriate Source Identification Numbers (Source ID #) for each storage tank located at the compressor station. Tanks should be designated T01, T02, T03, etc.
2. Enter storage tank Status using the following:
   - EXIST Existing Equipment
   - NEW Installation of New Equipment
   - REM Equipment Removed
3. Enter storage tank content such as condensate, pipeline liquids, glycol (DEG or TEG), lube oil, diesel, mercaptan etc.
4. Enter the maximum design storage tank volume in gallons.

ATTACHMENT M

Heaters Data Sheet

ATTACHMENT M – SMALL HEATERS AND REBOILERS NOT SUBJECT TO 40CFR60 SUBPART DC
DATA SHEET

Complete this data sheet for each small heater and reboiler not subject to 40CFR60 Subpart Dc at the facility. ***The Maximum Design Heat Input (MDHI) must be less than 10 MMBTU/hr.***

Emission Unit ID#[1]	Emission Point ID#[2]	Emission Unit Description (manufacturer, model #)	Year Installed/ Modified	Type[3] and Date of Change	Maximum Design Heat Input (MMBTU/hr)[4]	Fuel Heating Value (BTU/scf)[5]
S011	E011	Line Heater	2013	Existing; No change	1.54	1,050
S012	E012	Line Heater	2013	Existing; No change	1.54	1,050
S013	E013	Line Heater	2013	Existing; No change	1.54	1,050
S014	E014	Line Heater	2013	Existing; No change	1.54	1,050
S015	E015	Line Heater	2013	Existing; No change	1.54	1,050
S016	E016	Line Heater	2013	Existing; No change	1.54	1,050
S017	E017	Line Heater	2013	Existing; No change	1.54	1,050
S018	E018	Line Heater	2013	Existing; No change	1.54	1,050
S019	E019	Line Heater	2013	Existing; No change	1.54	1,050
S020	E020	Thermoelectric Generator	2013	Existing; No change	0.029	1,050
S021	E021	Thermoelectric Generator	2014	Existing; No change	0.029	1,050
S024	E024	Line Heater	2014	Existing; No change	1.54	1,050
S025	E025	Line Heater	2014	Existing; No change	1.54	1,050
S028	E028	Line Heater	2015	Existing; No change	1.54	1,050
S029	E029	Line Heater	2015	Existing; No change	1.54	1,050
S031	E031	Thermoelectric Generator	2015	Existing; No change	0.07	1,050
S032	E032	Thermoelectric Generator	2015	Existing; No change	0.07	1,050
S033	E033	Thermoelectric Generator	2015	Existing; No change	0.07	1,050

1 Enter the appropriate Emission Unit (or Source) identification number for each fuel burning unit located at the production pad. Gas Producing Unit Burners should be designated GPU-1, GPU-2, etc. Heater Treaters should be designated HT-1, HT-2, etc. Heaters or Line Heaters should be designated LH-1, LH-2, etc. For sources, use 1S, 2S, 3S…or other appropriate designation. Enter glycol dehydration unit Reboiler Vent data on the Glycol Dehydration Unit Data Sheet.

2 Enter the appropriate Emission Point identification numbers for each fuel burning unit located at the production pad. Gas Producing Unit Burners should be designated GPU-1, GPU-2, etc. Heater Treaters should be designated HT-1, HT-2, etc. Heaters or Line Heaters should be designated LH-1, LH-2, etc. For emission points, use 1E, 2E, 3E…or other appropriate designation.

3 New, modification, removal

4 Enter design heat input capacity in MMBtu/hr.

5 Enter the fuel heating value in BTU/standard cubic foot.

ATTACHMENT N

Engines Data Sheet *(Not Applicable)*

ATTACHMENT N – INTERNAL COMBUSTION ENGINE DATA SHEET

NOT APPLICABLE

Complete this data sheet for each internal combustion engine at the facility. Include manufacturer performance data sheet(s) or any other supporting document if applicable. Use extra pages if necessary. *Generator(s) and microturbine generator(s) shall also use this form.*

Emission Unit ID#[1]						
Engine Manufacturer/Model						
Manufacturers Rated bhp/rpm						
Source Status[2]						
Date Installed/ Modified/Removed/Relocated[3]						
Engine Manufactured /Reconstruction Date[4]						
Check all applicable Federal Rules for the engine (include EPA Certificate of Conformity if applicable)[5]		☐40CFR60 Subpart JJJJ ☐JJJJ Certified? ☐40CFR60 Subpart IIII ☐IIII Certified? ☐40CFR63 Subpart ZZZZ ☐ NESHAP ZZZZ/ NSPS JJJJ Window ☐ NESHAP ZZZZ Remote Sources		☐40CFR60 Subpart JJJJ ☐JJJJ Certified? ☐40CFR60 Subpart IIII ☐IIII Certified? ☐40CFR63 Subpart ZZZZ ☐ NESHAP ZZZZ/ NSPS JJJJ Window ☐ NESHAP ZZZZ Remote Sources		☐40CFR60 Subpart JJJJ ☐JJJJ Certified? ☐40CFR60 Subpart IIII ☐IIII Certified? ☐40CFR63 Subpart ZZZZ ☐ NESHAP ZZZZ/ NSPS JJJJ Window ☐ NESHAP ZZZZ Remote Sources
Engine Type[6]						
APCD Type[7]						
Fuel Type[8]						
H_2S (gr/100 scf)						
Operating bhp/rpm						
BSFC (BTU/bhp-hr)						
Hourly Fuel Throughput		ft^3/hr gal/hr		ft^3/hr gal/hr		ft^3/hr gal/hr
Annual Fuel Throughput (Must use 8,760 hrs/yr unless emergency generator)		$MMft^3$/yr gal/yr		$MMft^3$/yr gal/yr		$MMft^3$/yr gal/yr
Fuel Usage or Hours of Operation Metered		Yes ☐ No ☐		Yes ☐ No ☐		Yes ☐ No ☐
Calculation Methodology[9]	**Pollutant[10]**	**Hourly PTE (lb/hr)[11]**	**Annual PTE (tons/year)[11]**	**Hourly PTE (lb/hr)[11]**	**Annual PTE (tons/year)[11]**	**Hourly PTE (lb/hr)[11]**	**Annual PTE (tons/year)[11]**
Manufacturer	NO_x						
Manufacturer	CO						
Manufacturer	VOC						
AP-42	SO_2						
AP-42	PM_{10}						
AP-42	Formaldehyde						
AP-42	Total HAPs						
40 CFR Part 98 Subpart C	GHG (CO_2e)						

1 Enter the appropriate Source Identification Number for each natural gas-fueled reciprocating internal combustion compressor/generator engine located at the compressor station. Multiple compressor engines should be designated CE-1, CE-2, CE-3 etc. Generator engines should be designated GE-1, GE-2, GE-3 etc. Microturbine generator engines should be designated MT-1, MT-2, MT-3 etc. If more than three (3) engines exist, please use additional sheets.

2 Enter the Source Status using the following codes:

NS	Construction of New Source (installation)	ES	Existing Source
MS	Modification of Existing Source	RS	Relocated Source

REM Removal of Source

3 Enter the date (or anticipated date) of the engine's installation (construction of source), modification, relocation or removal.

4 Enter the date that the engine was manufactured, modified or reconstructed.

5 Is the engine a certified stationary spark ignition internal combustion engine according to 40CFR60 Subpart IIII/JJJJ? If so, the engine and control device must be operated and maintained in accordance with the manufacturer's emission-related written instructions. You must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required. If the certified engine is not operated and maintained in accordance with the manufacturer's emission-related written instructions, the engine will be considered a non-certified engine and you must demonstrate compliance as appropriate.

Provide a manufacturer's data sheet for all engines being registered.

6 Enter the Engine Type designation(s) using the following codes:

2SLB	Two Stroke Lean Burn	4SRB	Four Stroke Rich Burn
4SLB	Four Stroke Lean Burn		

7 Enter the Air Pollution Control Device (APCD) type designation(s) using the following codes:

A/F	Air/Fuel Ratio	IR	Ignition Retard
HEIS	High Energy Ignition System	SIPC	Screw-in Precombustion Chambers
PSC	Prestratified Charge	LEC	Low Emission Combustion
NSCR	Rich Burn & Non-Selective Catalytic Reduction	OxCat	Oxidation Catalyst
SCR	Lean Burn & Selective Catalytic Reduction		

8 Enter the Fuel Type using the following codes:

PQ	Pipeline Quality Natural Gas	RG	Raw Natural Gas /Production Gas	D	Diesel

9 Enter the Potential Emissions Data Reference designation using the following codes. Attach all reference data used.

MD	Manufacturer's Data	AP	AP-42	
GR	GRI-HAPCalc™	OT	Other	(please list)

10 Enter each engine's Potential to Emit (PTE) for the listed regulated pollutants in pounds per hour and tons per year. PTE shall be calculated at manufacturer's rated brake horsepower and may reflect reduction efficiencies of listed Air Pollution Control Devices. Emergency generator engines may use 500 hours of operation when calculating PTE. PTE data from this data sheet shall be incorporated in the *Emissions Summary Sheet*.

11 PTE for engines shall be calculated from manufacturer's data unless unavailable.

Engine Air Pollution Control Device – NOT APPLICABLE
(Emission Unit ID# S030-S031, use extra pages as necessary)

Air Pollution Control Device Manufacturer's Data Sheet included?
Yes ☐ No ☐
See attached certification

☐ NSCR ☐ SCR ☐ Oxidation Catalyst

Provide details of process control used for proper mixing/control of reducing agent with gas stream:

Manufacturer:	Model #:
Design Operating Temperature:	Design gas volume: scfm
Service life of catalyst:	Provide manufacturer data? ☐Yes ☐ No
Volume of gas handled:	Operating temperature range for NSCR/Ox Cat: From °F to °F
Reducing agent used, if any:	Ammonia slip (ppm):

Pressure drop against catalyst bed (delta P):

Provide description of warning/alarm system that protects unit when operation is not meeting design conditions:

Is temperature and pressure drop of catalyst required to be monitored per 40CFR63 Subpart ZZZZ?
☐ Yes ☐ No

How often is catalyst recommended or required to be replaced (hours of operation)?

How often is performance test required?
☐ Initial
☐ Annual
☐ Every 8,760 hours of operation
☐ Field Testing Required
☐ No performance test required. If so, why (please list any maintenance required and the applicable sections in NSPS/GACT, Per 40 CFR §60.4243(a)(1), EQT must maintain the certified engine and control device according to the manufacturer's emission related written instructions and keep records of conducted maintenance to demonstrate compliance, but no performance testing is required.

ATTACHMENT O

Truck Loading Data Sheet

ATTACHMENT O – TANKER TRUCK LOADING DATA SHEET

Complete this data sheet for each new or modified bulk liquid transfer area or loading rack at the facility. This is to be used for bulk liquid transfer operations to tanker trucks. Use extra pages if necessary.

Truck Loadout Collection Efficiencies

The following applicable capture efficiencies of a truck loadout are allowed:

- For tanker trucks passing the MACT level annual leak test – 99.2%
- For tanker trucks passing the NSPS level annual leak test – 98.7%
- For tanker trucks not passing one of the annual leak tests listed above – 70%

Compliance with this requirement shall be demonstrated by keeping records of the applicable MACT or NSPS Annual Leak Test certification for ***every*** truck and railcar loaded/unloaded. This requirement can be satisfied if the trucking company provided certification that its entire fleet was compliant. This certification must be submitted in writing to the Director of the DAQ. These additional requirements must be noted in the Registration Application.

Emission Unit ID#: S034	Emission Point ID#: E034 (Uncaptured) C001-C002 (Controlled, Captured)	Year Installed/Modified: Installed 2013
Emission Unit Description: Uncaptured losses from loading of produced fluids into tanker trucks		
Loading Area Data		
Number of Pumps: 1	Number of Liquids Loaded: 1	Max number of trucks loading at one (1) time: 1
Are tanker trucks pressure tested for leaks at this or any other location? ☐ Yes ☒ No ☐ Not Required If Yes, Please describe:		
Provide description of closed vent system and any bypasses. Trucks utilize vapor recovery lines to route displaced vapors back into battery of tanks.		
Are any of the following truck loadout systems utilized? ☐ Closed System to tanker truck passing a MACT level annual leak test? ☐ Closed System to tanker truck passing a NSPS level annual leak test? ☒ Closed System to tanker truck not passing an annual leak test and has vapor return?		

Projected Maximum Operating Schedule (for rack or transfer point as a whole)

Time	Jan – Mar	Apr - Jun	Jul – Sept	Oct - Dec
Hours/day	Varies	Varies	Varies	Varies
Days/week	7	7	7	7

Bulk Liquid Data (use extra pages as necessary)

Liquid Name	Produced Fluids		
Max. Daily Throughput (1000 gal/day)	See attached emissions calculations for all throughput values		
Max. Annual Throughput (1000 gal/yr)	See attached emissions calculations for all throughput values		
Loading Method[1]	SP		
Max. Fill Rate (gal/min)	Varies		
Average Fill Time (min/loading)	Varies		
Max. Bulk Liquid Temperature (°F)	See ProMax results		
True Vapor Pressure[2]	See ProMax results		
Cargo Vessel Condition[3]	U		

Control Equipment or Method[4]		VB, ECD (captured loading losses)		
Max. Collection Efficiency (%)		70		
Max. Control Efficiency (%)		98		
Max.VOC Emission Rate	Loading (lb/hr)	See attached emission calculations for breakdown		
	Annual (ton/yr)	See attached emission calculations for breakdown		
Max.HAP Emission Rate	Loading (lb/hr)	See attached emission calculations for breakdown		
	Annual (ton/yr)	See attached emission calculations for breakdown		
Estimation Method[5]		AP-42 Section 5.2 Methodology (via ProMax)		

1 BF Bottom Fill SP Splash Fill SUB Submerged Fill

2 At maximum bulk liquid temperature

3 B Ballasted Vessel C Cleaned U Uncleaned (dedicated service)
O Other (describe)

4 List as many as apply (complete and submit appropriate Air Pollution Control Device Sheets)
CA Carbon Adsorption VB Dedicated Vapor Balance (closed system)
ECD Enclosed Combustion Device F Flare
TO Thermal Oxidization or Incineration

5 EPA EPA Emission Factor in AP-42 MB Material Balance
TM Test Measurement based upon test data submittal O Other (describe)

ATTACHMENT P

Glycol Dehydrator Data Sheet *(Not Applicable)*

ATTACHMENT P – GLYCOL DEHYDRATION UNIT DATA SHEET – NOT APPLICABLE

Complete this data sheet for each Glycol Dehydration Unit, Reboiler, Flash Tank and/or Regenerator at the facility. Include gas sample analysis and GRI- GLYCalc™ input and aggregate report. Use extra pages if necessary.

Manufacturer:	Model:
Max. Dry Gas Flow Rate:	Reboiler Design Heat Input
Design Type: ☐ TEG ☐ DEG ☐ EG	Source Status[1]:
Date Installed/Modified/Removed[2]:	Regenerator Still Vent APCD/ERD[3]:
Control Device/ERD ID#[3]:	Fuel HV (BTU/scf):
H_2S Content (gr/100 scf):	Operation (hours/year):
Pump Rate (gpm):	
Water Content (wt %) in: Wet Gas: Dry Gas:	

Is the glycol dehydration unit exempt from 40CFR63 Section 764(d)? ☐ Yes ☐ No: If Yes, answer the following:

The actual annual average flowrate of natural gas to the glycol dehydration unit is less than 85 thousand standard cubic meters per day, as determined by the procedures specified in §63.772(b)(1) of this subpart. ☐ Yes ☐ No

The actual average emissions of benzene from the glycol dehydration unit process vent to the atmosphere are less than 0.90 megagram per year (1 ton per year), as determined by the procedures specified in §63.772(b)(2) of this subpart. ☐ Yes ☐ No

Is the glycol dehydration unit located within an Urbanized Area (UA) or Urban Cluster (UC)? ☐ Yes ☐ No

Is a lean glycol pump optimization plan being utilized? ☐ Yes ☐ No

Recycling the glycol dehydration unit back to the flame zone of the reboiler.
☐ Yes ☐ No

Recycling the glycol dehydration unit back to the flame zone of the reboiler and mixed with fuel.
☐ Yes ☐ No

What happens when temperature controller shuts off fuel to the reboiler?
☐ Still vent emissions to the atmosphere.
☐ Still vent emissions stopped with valve.
☐ Still vent emissions to glow plug.
☐ None of the above: Still vent emissions are controlled by an enclosed combustor

Please indicate if the following equipment is present.
☐ Flash Tank
☐ Burner management system that continuously burns condenser or flash tank vapors

Control Device Technical Data

Pollutants Controlled	Manufacturer's Guaranteed Control Efficiency (%)

Emissions Data

Emission Unit ID / Emission Point ID[4]	Description	Calculation Methodology[5]	PTE[6]	Controlled Maximum Hourly Emissions (lb/hr)	Controlled Maximum Annual Emissions (tpy)

1 Enter the Source Status using the following codes:

NS	Construction of New Source	ES	Existing Source		
MS	Modification of Existing Source				

2 Enter the date (or anticipated date) of the glycol dehydration unit's installation (construction of source), modification or removal.

3 Enter the Air Pollution Control Device (APCD)/Emission Reduction Device (ERD) type designation using the following codes and the device ID number:

NA	None	CD	Condenser	FL	Flare	
CC	Condenser/Combustion Combination	TO	Thermal Oxidizer	O	Other	(please list)

4 Enter the appropriate Emission Unit ID Numbers and Emission Point ID Numbers for the glycol dehydration unit reboiler vent and glycol regenerator still vent. The glycol dehydration unit reboiler vent and glycol regenerator still vent should be designated RBV-1 and RSV-1, respectively. If the compressor station incorporates multiple glycol dehydration units, a Glycol Dehydration Emission Unit Data Sheet shall be completed for each, using Source Identification RBV-2 and RSV-2, RBV-3 and RSV-3, etc.

5 Enter the Potential Emissions Data Reference designation using the following codes:

MD	Manufacturer's Data	AP	AP-42	
GR	GRI-GLYCalc™	OT	Other	(please list)

6 Enter the Reboiler Vent and Glycol Regenerator Still Vent Potential to Emit (PTE) for the listed regulated pollutants in lbs per hour and tons per year. The Glycol Regenerator Still Vent potential emissions may be determined using the most recent version of the thermodynamic software model GRI-GLYCalc™ (Radian International LLC & Gas Research Institute). **Attach all referenced Potential Emissions Data (or calculations) and the GRI-GLYCalc™ Aggregate Calculations Report (shall include emissions reports, equipment reports, and stream reports) to this Glycol Dehydration Emission Unit Data Sheet(s). Backup pumps do not have to be considered as operating for purposes of PTE.** This PTE data shall be incorporated in the Emissions Summary Sheet.

ATTACHMENT Q

Pneumatic Controller Data Sheet *(Not Applicable)*

ATTACHMENT Q – PNEUMATIC CONTROLLERS DATA SHEET
Are there any continuous bleed natural gas driven pneumatic controllers at this facility that commenced construction, modification or reconstruction after August 23, 2011? ☐ Yes ☒ No Please list approximate number.
Are there any continuous bleed natural gas driven pneumatic controllers at this facility with a bleed rate greater than 6 standard cubic feet per hour that are required based on functional needs, including but not limited to response time, safety and positive actuation that commenced construction, modification or reconstruction after August 23, 2011? ☐ Yes ☒ No Please list approximate number.

ATTACHMENT R

Air Pollution Control Device Data Sheet

ATTACHMENT R – AIR POLLUTION CONTROL DEVICE / EMISSION REDUCTION DEVICE SHEETS

Complete the applicable air pollution control device sheets for each flare, vapor combustor, thermal oxidizer, condenser, adsorption system, vapor recovery unit, BTEX Eliminator, Reboiler with and without Glow Plug, etc. at the facility. Use extra pages if necessary.

Emissions calculations must be performed using the most conservative control device efficiency.

The following five (5) rows are only to be completed if registering an alternative air pollution control device.

Emission Unit ID: **Not Applicable**	Make/Model:
Primary Control Device ID:	Make/Model:
Control Efficiency (%):	APCD/ERD Data Sheet Completed: ☐ Yes ☐ No
Secondary Control Device ID:	Make/Model:
Control Efficiency (%):	APCD/ERD Data Sheet Completed: ☐ Yes ☐ No

VAPOR COMBUSTION
(Including Enclosed Combustors)

General Information

Control Device ID#: C001-C002	Installation Date: ☐ New ☐ Modified ☐ Relocated
Maximum Rated Total Flow Capacity ~7,860 scfh ~188,380 scfd	Maximum Design Heat Input (from mfg. spec sheet) 11.66 MMBTU/hr Design Heat Content 1,500 BTU/scf

Control Device Information

Type of Vapor Combustion Control?

☒ Enclosed Combustion Device ☐ Elevated Flare ☐ Ground Flare
☐ Thermal Oxidizer

Manufacturer: LEED Fabrication Model: Enclosed Combustor 48”	Hours of operation per year? 8,760

List the emission units whose emissions are controlled by this vapor control device (Emission Point ID# S001-S012, S034)

Emission Unit ID#	Emission Source Description	Emission Unit ID#	Emission Source Description
S001-S010, S022-S023, S026-S27	Produced Fluid Tanks		
S034	Liquid Loading		

If this vapor combustor controls emissions from more than six (6) emission units, please attach additional pages.

Assist Type (Flares only)	Flare Height	Tip Diameter	Was the design per §60.18?
☐ Steam ☐ Air ☐ Pressure ☒ Non	~25 feet	~4 feet	☐ Yes ☐ No ☒ N/A Provide determination.

Waste Gas Information

Maximum Waste Gas Flow Rate 130 (scfm)	Heat Value of Waste Gas Stream Varies BTU/ft^3	Exit Velocity of the Emissions Stream Varies (ft/s)

Provide an attachment with the characteristics of the waste gas stream to be burned.

Pilot Gas Information

Number of Pilot Lights 1	Fuel Flow Rate to Pilot Flame per Pilot ~25 scfh	Heat Input per Pilot 0.03 MMBTU/hr	Will automatic re-ignition be used? ☐ Yes ☒ No

If automatic re-ignition is used, please describe the method.

Is pilot flame equipped with a monitor to detect the presence of the flame? ☒ Yes ☐ No	If Yes, what type? ☒ Thermocouple ☐ Infrared ☐ Ultraviolet ☐ Camera ☐ Other:

Describe all operating ranges and maintenance procedures required by the manufacturer to maintain the warranty. *(If unavailable, please indicate)*. See attached information on unit

Additional information attached? ☒ Yes ☐ No
Please attach copies of manufacturer’s data sheets, drawings, flame demonstration per §60.18 or §63.11(b) and performance testing.

CONDENSER – Not Applicable		
General Information		
Control Device ID#:	Installation Date: ☐ New ☐ Modified ☐ Relocated	
Manufacturer:	Model:	Control Device Name:
Control Efficiency (%):		
Manufacturer's required temperature range for control efficiency. °F		
Describe the warning and/or alarm system that protects against operation when unit is not meeting the design requirements:		
Describe all operating ranges and maintenance procedures required by the manufacturer to maintain the warranty.		
Additional information attached? ☐ Yes ☐ No Please attach copies of manufacturer's data sheets.		
Is condenser routed to a secondary APCD or ERD? ☐ Yes ☐ No		

ADSORPTION SYSTEM – Not Applicable		
General Information		
Control Device ID#:	Installation Date: ☐ New ☐ Modified ☐ Relocated	
Manufacturer:	Model:	Control Device Name:
Design Inlet Volume: scfm	Adsorbent charge per adsorber vessel and number of adsorber vessels:	
Length of Mass Transfer Zone supplied by the manufacturer:	Adsorber diameter: ft Adsorber area: ft^2	
Adsorbent type and physical properties:	Overall Control Efficiency (%):	
Working Capacity of Adsorbent (%):		
Operating Parameters		
Inlet volume: scfm @ °F		
Adsorption time per adsorption bed (life expectancy):	Breakthrough Capacity (lbs of VOC/100 lbs of adsorbent):	
Temperature range of carbon bed adsorber. °F - °F		
Control Device Technical Data		
Pollutants Controlled	Manufacturer's Guaranteed Control Efficiency (%)	
Describe the warning and/or alarm system that protects against operation when unit is not meeting the design requirements:		
Has the control device been tested by the manufacturer and certified?		
Describe all operating ranges and maintenance procedures required by the manufacturer to maintain the warranty.		
Additional information attached? ☐ Yes ☐ No Please attach copies of manufacturer's data sheets, drawings, and performance testing.		

VAPOR RECOVERY UNIT – Not Applicable

General Information

Emission Unit ID#:	Installation Date: ☐ New ☐ Modified ☐ Relocated

Device Information

Manufacturer:
Model:

List the emission units whose emissions are controlled by this vapor recovery unit (Emission Point ID# NA)

Emission Unit ID#	Emission Source Description	Emission Unit ID#	Emission Source Description

If this vapor recovery unit controls emissions from more than six (6) emission units, please attach additional pages.

Additional information attached? ☐ Yes ☐ No
Please attach copies of manufacturer's data sheets, drawings, and performance testing.

The registrant may claim a capture and control efficiency of 95 % (which accounts for 5% downtime) for the vapor recovery unit.

The registrant may claim a capture and control efficiency of 98% if the VRU has a backup flare that meet the requirements of Section 8.1.2 of this general permit.

The registrant may claim a capture and control efficiency of 98% if the VRU has a backup VRU.

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		Project No.:		Revision:	B		
		Project:		Date:	27 February 2014		
	Enviromental Control Equipment Data Sheet			By:	JS		
		P.O. No.:	-	Checked:	SG		
		RFQ No.:	-	Approved:	MS		
	Client:	Ref. P&ID:	-				
	Site:			Supplier:	LEED FABRICATION		
	Unit/Lease:	Remarks:	-	Model No.:	L30-0011-00		

GENERAL

1	Design Code:		NDE:	LEED Fabrication Standards
2	Service:		Customer Specs:	☐ Yes
3	Description:	Standard Dual Stage 48 High Efficiency Combustor		☑ No

PROCESS DATA

	Gas Composition:	mol %	Process Conditions: Variable	Value	Units
4	Methane		Flow Rate	Up to 140	Mscfd
5	Ethane		Pressure	Up to 12	oz/in2
6	Propane		Temperature		°F
7	I-Butane		Molecular Weight		
8	n-Butane		Process/Waste Stream	☑ Gas	☐ Liquid
9	I-Pentane		Detailed Process Description / Process Notes:		
10	n-Pentane		1. Turndown 10:1. Based on an expected normal operating rate indicated above.		
11	n-Hexane		2. DRE: 98 % operating at design conditions		
12	CO2		3. Burner Pressure Drop: Min. 0.10 oz/in2		
13	N2				
14	Helium				
15	H_2O				
16	C7				
17	C8				
18	C9				
19	C10				
20	C11+				
21	TOTAL				

	Other Components:	PPMV	Available Utilities:	
22	H2S		Fuel / Pilot Gas	Min. 30psig Natural Gas /Propane 40-50 SCFH
23	Benzene		Instrument Air	NA
24	Toluene		Power	120 V / 60 Hz or Solar Power
25	E-Benzene		Steam	NA
26	Xylene		Purge Gas	

DESIGN DATA

27	Ambient Temperatures:		Noise Performance Requirements:	Under 85 dBA
28	Low, °F	-20	Structural Design Code:	
29	High, °F	120	Wind Design Code:	ASCE
30	Design Conditions: Pressure/Temperature			
31	Max. Relative Humidity, %	90	Pressure/Speed	100 mph
32	Elevation (ASL), ft		Category	
33	Area Classification:	Class I Div 2	Seismic Design Code:	
34	Electrical Design Code:	NEC	Location	

EQUIPMENT SPECIFICATION

35	Type:	☐ Elevated ☑ Enclosed	Equipment Design:	
36		☐ Above Ground	Component	Material / Size / Rating / Other
37		☑ Stack ☐ Multiple Stack	Burner	
38		☐ Portable / Trailer	Burner Tip / Assist Gas Burner	304 SS
39			Burner Body	Carbon Steel
40	Smokeless By:	☐ Steam ☐ Assist Air	Pilot	
41		☐ Gas Assist ☑ Staging	Pilot Tip	304 SS
42			Pilot Line(s)	Carbon Steel
43	Stack:	☑ Self Supporting	Firebox / Stack	
44	Flare Burner:	☐ Non-Smokeless ☑ Smokeless ☐ Gas Assist	Shell	Carbon Steel
45	Pilot:	☑ Intermittent ☐ Continuous	Piping	Carbon Steel
46	Pilot Air Inspirator:	☑ Local ☐ Remote	Nozzles	Carbon Steel
47	Pilot Flame Control:	☐ No ☑ Yes (Thermocouple)	Flanges	Carbon Steel
48			Insulation	Blanket
49	Pilot Ignition:	☐ Flamefront Generator ☑ Inspirating Ignitor	Insulation Pins	304 SS
50		☐ Electronic ☑ Automatic ☐ Manual	Refractory	NA
51		☐ With Pilot Flame Control	Refractory Anchors	NA
52		☐ With Auto Pilot Re-Ignition	Ladders and Platforms	NA
53			Stack Sample Connections	Per EPA requirements
54	Pilot Ignition Backup:	☐ Manual Specify: i.e Piezo-Electric	Sight Glass	2
55		☐ Battery Pack	Other	

Environmental Control Equipment
Data Sheet

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		By:	JS		
P.O. No.:	-	**Checked:**	SG		
RFQ No.:	-	**Approved:**	MS		
Client:		**Ref. P&ID:**	-		
Site:		**Supplier:**	LEED FABRICATION		
Unit/Lease:		**Remarks:**	-	**Model No.:**	L30-0011-00

EQUIPMENT SPECIFICATION

Flame Detection: ☐ Thermocouple ☑ Ionization Rod ☐ UV Scanner

General Configuration:

Auxiliary Equipment	
Valves	NA
Blowers	NA
Dampers	NA
Inlet KO / Liquid Seal	NA
Flame / Detonation Arrestor	Yes
Instrumentation & Controls	
Solenoids / Shut-Off Valves	Check with Sales for available config.
Flow Meters	NA
Calorimeter	NA
Pressure Switches/Transmitters	NA
Thermocouples	Check with Sales for available config.
Temperature Switches/Transmitters	NA
BMS	Check with Sales for available config.
CEMS	NA
Other	NA

FABRICATION AND INSPECTION

Special requirements	☐ Skid Mounted ☑ Concrete Pad ☐ Other
Inspection	☑ Vendor Standard ☐ Other. Specify:
Material Certification	☑ Vendor Standard ☐ MTR ☐ Certificate of Compliance ☐ Other (Specify):
NDE	☑ Vendor Standard ☐ Radiography. Specify: ☐ Ultrasonic. Specify: ☐ Liquid Penetrant. ☐ Magnetic Particles. ☐ PMI. Specify: ☐ Other. Specify:
Surface Preparation	☑ Vendor Standard ☐ Other. Specify:
Paint System	☑ Vendor Standard ☐ Other. Specify:
Finished Color	☑ Vendor Standard ☐ Other. Specify:

Equipment Info	
Component	**Weight / Dimensions**
Burner	
Burner Assembly	
Stack	
Stack Assembly	48 " OD x 25 ' H
Pilot Tip	
Pilot Line(s)	
Stack Assembly	
Auxiliary Equipment	
Blowers	
Inlet KO / Liquid Seal	
Flame / Detonation Arrestor	
Skid	
Instrumentation & Controls	
BMS	
Control Panel	

Additional Notes:

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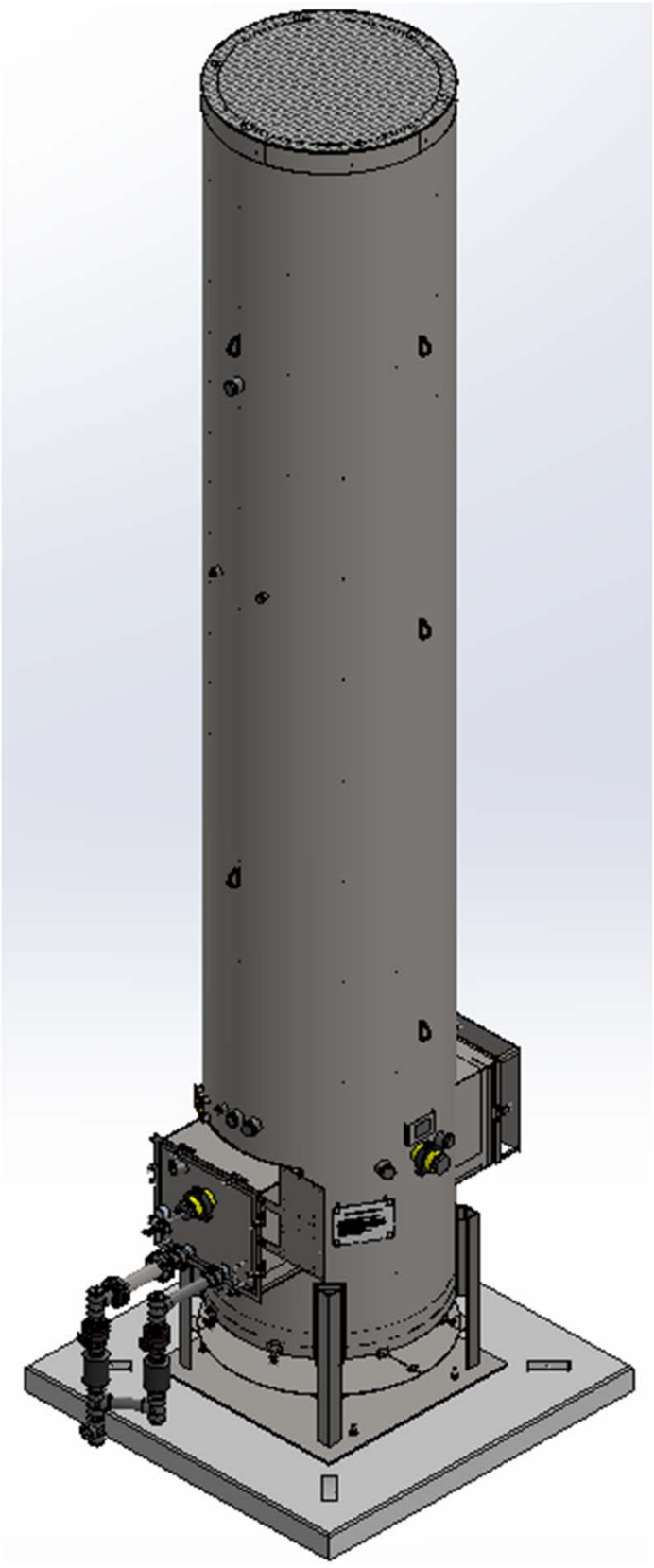
				By:	JS		
Environmental Control Equipment Data Sheet		P.O. No.:	-	Checked:	SG		
		RFQ No.:	-	Approved:	MS		
Client:		Ref. P&ID:	-				
Site:				Supplier:	LEED FABRICATION		
Unit/Lease:		Remarks:	-	Model No.:	L30-0011-00		

GENERAL ARRANGEMENT



§ MMBTU/hr values are calculated based on 1500 BTU/scf gas

Flare Size	# of Orifices (N)	Pressure (OZ/in^2)	m^3/s	mSCFD	MMBTU/hr
18	2	1	0.0021	6.34	0.39
18	2	2	0.0029	8.97	0.56
18	2	3	0.0036	10.99	0.68
18	2	4	0.0042	12.69	0.78
18	2	5	0.0046	14.18	0.88
18	2	6	0.0051	15.54	0.96
18	2	7	0.0055	16.78	1.04
18	2	8	0.0059	17.94	1.11
18	2	9	0.0062	19.03	1.18
18	2	10	0.0066	20.06	1.24
18	2	11	0.0069	21.04	1.30
18	2	12	0.0072	21.97	1.36
18	2	13	0.0075	22.87	1.42
18	2	14	0.0078	23.73	1.47
18	2	15	0.0081	24.57	1.52
18	2	16	0.0083	25.37	1.57
18	2	17	0.0086	26.15	1.62
18	2	18	0.0088	26.91	1.67
24	4	1	0.0042	12.69	0.78
24	4	2	0.0059	17.94	1.11
24	4	3	0.0072	21.97	1.36
24	4	4	0.0083	25.37	1.57
24	4	5	0.0093	28.37	1.76
24	4	6	0.0102	31.08	1.92
24	4	7	0.0110	33.56	2.08
24	4	8	0.0118	35.88	2.22
24	4	9	0.0125	38.06	2.35
24	4	10	0.0131	40.12	2.48
24	4	11	0.0138	42.08	2.60
24	4	12	0.0144	43.95	2.72
24	4	13	0.0150	45.74	2.83
24	4	14	0.0156	47.47	2.94
24	4	15	0.0161	49.13	3.04
24	4	16	0.0166	50.75	3.14
24	4	17	0.0171	52.31	3.24
24	4	18	0.0176	53.82	3.33
36	10	1	0.0104	31.72	1.96
36	10	2	0.0147	44.85	2.78
36	10	3	0.0180	54.93	3.40

36	10	4	0.0208	63.43	3.92
36	10	5	0.0232	70.92	4.39
36	10	6	0.0255	77.69	4.81
36	10	7	0.0275	83.91	5.19
36	10	8	0.0294	89.71	5.55
36	10	9	0.0312	95.15	5.89
36	10	10	0.0329	100.29	6.21
36	10	11	0.0345	105.19	6.51
36	10	12	0.0360	109.87	6.80
36	10	13	0.0375	114.35	7.08
36	10	14	0.0389	118.67	7.34
36	10	15	0.0403	122.83	7.60
36	10	16	0.0416	126.86	7.85
36	10	17	0.0429	130.77	8.09
36	10	18	0.0441	134.56	8.33
48	14	1	0.0146	44.40	2.75
48	14	2	0.0206	62.79	3.89
48	14	3	0.0252	76.91	4.76
48	14	4	0.0291	88.80	5.49
48	14	5	0.0325	99.29	6.14
48	14	6	0.0356	108.76	6.73
48	14	7	0.0385	117.48	7.27
48	14	8	0.0412	125.59	7.77
48	14	9	0.0437	133.21	8.24
48	14	10	0.0460	140.41	8.69
48	14	11	0.0483	147.27	9.11
48	14	12	0.0504	153.81	9.52
48	14	13	0.0525	160.09	9.91
48	14	14	0.0545	166.14	10.28
48	14	15	0.0564	171.97	10.64
48	14	16	0.0582	177.61	10.99
48	14	17	0.0600	183.07	11.33
48	14	18	0.0617	188.38	11.66

Enclosed (Passive Swirl) Flare Flow Rates

$$Q = \left[C_d \mathrm{A} \cdot \sqrt{\frac{2\left(\frac{P}{16}\right)R}{\rho}} \right] \mathrm{N}$$

$$Convert\ to\ mSCFD$$
$$(Q \cdot M \cdot 24) / 1000$$

3/8" Orifice: Dia =	0.00635	m		
Area =	3.16692E-05	m^2	6894.757	Conversion from PSI to Pa (R)
Cd =	1		127132.8	m^3/s to ft^3/hr (M)
Density =	0.8	kg/m^3		

Flare Size	# of Orifices (N)	Pressure (OZ/in^2)	m^3/s	mSCFD	99% Combustion Efficiency
18	2	1	0.00207892	6.34316015	6.28
18	2	2	0.00294003	8.97058312	8.88
18	2	3	0.00360079	10.98667566	10.88
18	2	4	0.00415783	12.68632031	12.56
18	2	5	0.00464860	14.18373729	14.04
18	2	6	0.00509228	15.53750573	15.38
18	2	7	0.00550029	16.78242429	16.61
18	2	8	0.00588006	17.94116623	17.76
18	2	9	0.00623675	19.02948046	18.84
18	2	10	0.00657411	20.05883365	19.86
18	2	11	0.00689498	21.03788221	20.83
18	2	12	0.00720157	21.97335133	21.75
18	2	13	0.00749564	22.87058918	22.64
18	2	14	0.00777859	23.73393204	23.50
18	2	15	0.00805160	24.56695363	24.32
18	2	16	0.00831566	25.37264061	25.12
18	2	17	0.00857159	26.15351931	25.89
18	2	18	0.00882009	26.91174935	26.64
24	4	1	0.00415783	12.68632031	12.56
24	4	2	0.00588006	17.94116623	17.76
24	4	3	0.00720157	21.97335133	21.75
24	4	4	0.00831566	25.37264061	25.12
24	4	5	0.00929719	28.36747459	28.08
24	4	6	0.01018456	31.07501146	30.76
24	4	7	0.01100059	33.56484858	33.23
24	4	8	0.01176012	35.88233246	35.52
24	4	9	0.01247349	38.05896092	37.68
24	4	10	0.01314822	40.11766729	39.72
24	4	11	0.01378996	42.07576442	41.66
24	4	12	0.01440315	43.94670266	43.51
24	4	13	0.01499127	45.74117836	45.28
24	4	14	0.01555718	47.46786408	46.99
24	4	15	0.01610321	49.13390727	48.64
24	4	16	0.01663132	50.74528122	50.24
24	4	17	0.01714318	52.30703862	51.78
24	4	18	0.01764018	53.82349870	53.29
36	10	1	0.01039458	31.71580076	31.40
36	10	2	0.01470015	44.85291558	44.40
36	10	3	0.01800394	54.93337832	54.38
36	10	4	0.02078915	63.43160153	62.80
36	10	5	0.02324298	70.91868647	70.21
36	10	6	0.02546141	77.68752865	76.91
36	10	7	0.02750147	83.91212145	83.07

36	10	8	0.02940030	89.70583116	88.81
36	10	9	0.03118373	95.14740229	94.20
36	10	10	0.03287054	100.29416823	99.29
36	10	11	0.03447491	105.18941106	104.14
36	10	12	0.03600787	109.86675665	108.77
36	10	13	0.03747818	114.35294589	113.21
36	10	14	0.03889295	118.66966020	117.48
36	10	15	0.04025802	122.83476817	121.61
36	10	16	0.04157831	126.86320305	125.59
36	10	17	0.04285794	130.76759655	129.46
36	10	18	0.04410046	134.55874674	133.21
48	14	1	0.01455241	44.40212107	43.96
48	14	2	0.02058021	62.79408181	62.17
48	14	3	0.02520551	76.90672965	76.14
48	14	4	0.02910482	88.80424214	87.92
48	14	5	0.03254017	99.28616105	98.29
48	14	6	0.03564597	108.76254012	107.67
48	14	7	0.03850205	117.47697003	116.30
48	14	8	0.04116043	125.58816363	124.33
48	14	9	0.04365722	133.20636321	131.87
48	14	10	0.04601875	140.41183552	139.01
48	14	11	0.04826488	147.26517548	145.79
48	14	12	0.05041102	153.81345931	152.28
48	14	13	0.05246945	160.09412425	158.49
48	14	14	0.05445012	166.13752428	164.48
48	14	15	0.05636123	171.96867543	170.25
48	14	16	0.05820963	177.60848427	175.83
48	14	17	0.06000112	183.07463517	181.24
48	14	18	0.06174064	188.38224544	186.50

ATTACHMENT S

Emission Calculations

Company Name: EQT Production, LLC
Facility Name: SMI 28 Wellpad
Project Description: G70C Application

Facility-Wide Emission Summary - Controlled

Wells	13	per pad
Storage Tanks	14	per pad
Sand Separator Tank	1	per pad
Line Heaters	13	per pad
TEGs	5	per pad
Dehy Reboiler	0	per pad
Glycol Dehy	0	per pad
Dehy Drip Tank	0	per pad
Dehy Combustor	0	per pad
Compressor	0	per pad
High Pressure Separator	13	per pad
Low Pressure Separator	0	per pad
Vapor Recovery Unit	0	per pad
Tank Combustor - 11.66 MMBtu/hr	2	per pad
Tank Combustor - 18.75 MMBtu/hr	0	per pad
Length of lease road	2,820	feet

Carbon equivalent emissions (CO_2e) are based on the following Global Warming Potentials (GWP) from 40 CFR Part 98, Table A-1:

CO_2	1
CH_4	25
N_2O	298

Emission Point ID #	Emission Source ID#s	Emission Source Description	NO_X		CO		VOC		SO_2		PM_{10}		$PM_{2.5}$		CO_2e	
			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
C001-C002	S001-S010, S022-S023, S026-S027	Storage Vessels	---	---	---	---	4.67	20.47	---	---	---	---	---	---	33.53	146.86
C001-C002	S034	Captured Liquid Loading	---	---	---	---	1.47	0.38	---	---	---	---	---	---	---	---
C001	C001	Tank Combustor	1.15	5.02	0.96	4.22	0.06	0.28	0.01	0.03	0.09	0.38	0.09	0.38	1,368.64	5,994.63
C002	C002	Tank Combustor	1.15	5.02	0.96	4.22	0.06	0.28	0.01	0.03	0.09	0.38	0.09	0.38	1,368.64	5,994.63
C001	**S001-S010, S022-S023, S026-S027, S034, C001**	**---**	**1.15**	**5.02**	**0.96**	**4.22**	**3.13**	**10.70**	**0.01**	**0.03**	**0.09**	**0.38**	**0.09**	**0.38**	**1,385.40**	**6,068.06**
C002	**S001-S010, S022-S023, S026-S027, S034, C002**	**---**	**1.15**	**5.02**	**0.96**	**4.22**	**3.13**	**10.70**	**0.01**	**0.03**	**0.09**	**0.38**	**0.09**	**0.38**	**1,385.40**	**6,068.06**
E011	S011	Line Heater	0.15	0.64	0.12	0.54	0.01	0.04	8.8E-04	3.9E-03	0.01	0.05	0.01	0.05	180.18	789.20
E012	S012	Line Heater	0.15	0.64	0.12	0.54	0.01	0.04	8.8E-04	3.9E-03	0.01	0.05	0.01	0.05	180.18	789.20
E013	S013	Line Heater	0.15	0.64	0.12	0.54	0.01	0.04	8.8E-04	3.9E-03	0.01	0.05	0.01	0.05	180.18	789.20
E014	S014	Line Heater	0.15	0.64	0.12	0.54	0.01	0.04	8.8E-04	3.9E-03	0.01	0.05	0.01	0.05	180.18	789.20
E015	S015	Line Heater	0.15	0.64	0.12	0.54	0.01	0.04	8.8E-04	3.9E-03	0.01	0.05	0.01	0.05	180.18	789.20
E016	S016	Line Heater	0.15	0.64	0.12	0.54	0.01	0.04	8.8E-04	3.9E-03	0.01	0.05	0.01	0.05	180.18	789.20
E017	S017	Line Heater	0.15	0.64	0.12	0.54	0.01	0.04	8.8E-04	3.9E-03	0.01	0.05	0.01	0.05	180.18	789.20
E018	S018	Line Heater	0.15	0.64	0.12	0.54	0.01	0.04	8.8E-04	3.9E-03	0.01	0.05	0.01	0.05	180.18	789.20
E019	S019	Line Heater	0.15	0.64	0.12	0.54	0.01	0.04	8.8E-04	3.9E-03	0.01	0.05	0.01	0.05	180.18	789.20
E024	S024	Line Heater	0.15	0.64	0.12	0.54	0.01	0.04	8.8E-04	3.9E-03	0.01	0.05	0.01	0.05	180.18	789.20
E025	S025	Line Heater	0.15	0.64	0.12	0.54	0.01	0.04	8.8E-04	3.9E-03	0.01	0.05	0.01	0.05	180.18	789.20
E028	S028	Line Heater	0.15	0.64	0.12	0.54	0.01	0.04	8.8E-04	3.9E-03	0.01	0.05	0.01	0.05	180.18	789.20
E029	S029	Line Heater	0.15	0.64	0.12	0.54	0.01	0.04	8.8E-04	3.9E-03	0.01	0.05	0.01	0.05	180.18	789.20
E020	S020	TEG	2.8E-03	1.2E-02	2.3E-03	1.0E-02	1.5E-04	6.7E-04	1.7E-05	7.3E-05	2.1E-04	9.2E-04	2.1E-04	9.2E-04	3.41	14.95
E021	S021	TEG	2.8E-03	1.2E-02	2.3E-03	1.0E-02	1.5E-04	6.7E-04	1.7E-05	7.3E-05	2.1E-04	9.2E-04	2.1E-04	9.2E-04	3.41	14.95
E031	S031	TEG	6.7E-03	2.9E-02	5.7E-03	2.5E-02	3.7E-04	1.6E-03	4.0E-05	1.8E-04	5.1E-04	2.2E-03	5.1E-04	2.2E-03	8.27	36.20
E032	S032	TEG	6.7E-03	2.9E-02	5.7E-03	2.5E-02	3.7E-04	1.6E-03	4.0E-05	1.8E-04	5.1E-04	2.2E-03	5.1E-04	2.2E-03	8.27	36.20
E033	S033	TEG	6.7E-03	2.9E-02	5.7E-03	2.5E-02	3.7E-04	1.6E-03	4.0E-05	1.8E-04	5.1E-04	2.2E-03	5.1E-04	2.2E-03	8.27	36.20
E030	S030	Sand Separator Tank	---	---	---	---	0.30	1.32	---	---	---	---	---	---	3.43	15.00
E034	S034	Uncaptured Liquid Loading	---	---	---	---	31.49	8.19	---	---	---	---	---	---	---	---
---	---	Fugitives	---	---	---	---	---	42.80	---	---	---	---	---	---	---	1,219.40
---	---	Haul Roads	---	---	---	---	---	---	---	---	---	10.64	---	1.06	---	---
Facility Total			4.22	18.49	3.55	15.53	38.16	74.19	0.03	0.11	0.32	12.04	0.32	2.47	5,148.22	23,768.58
Facility Total (excluding fugitive emissions)			4.22	18.49	3.55	15.53	6.68	23.20	0.03	0.11	0.32	1.41	0.32	1.41	5,148.22	22,549.18

1. Emissions routed to combustors are divided evenly by the total number of combustors (i.e., Combustor Point Emissions = [storage tanks emissions + captured loading emissions] / [number of combustors] + combustor emissions)

Emission Point ID #	Emission Source ID#s	Emission Source Description	Formaldehyde		Benzene		Toluene		Ethylbenzene		Xylenes		n-Hexane		Total HAP	
			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
C001-C002	S001-S010, S022-S023, S026-S027	Storage Vessels	---	---	0.00	0.02	0.01	0.05	0.00	0.00	0.01	0.03	0.18	0.80	0.43	1.90
C001-C002	S034	Captured Liquid Loading	---	---	9.4E-04	2.4E-04	2.0E-03	5.1E-04	1.7E-04	4.5E-05	1.4E-03	3.5E-04	0.05	0.01	0.11	0.03
C001	C001	Tank Combustor	---	---	---	---	---	---	---	---	---	---	---	---	---	---
C002	C002	Tank Combustor	---	---	---	---	---	---	---	---	---	---	---	---	---	---
C001	**S001-S010, S022-S023, S026-S027, S034, C001**	**---**	---	---	**2.9E-03**	**0.01**	**0.01**	**0.02**	**5.4E-04**	**2.0E-03**	**4.3E-03**	**0.02**	**0.12**	**0.41**	**0.27**	**0.96**
C002	**S001-S010, S022-S023, S026-S027, S034, C002**	**---**	---	---	**2.9E-03**	**0.01**	**0.01**	**0.02**	**5.4E-04**	**2.0E-03**	**4.3E-03**	**0.02**	**0.12**	**0.41**	**0.27**	**0.96**
E011	S011	Line Heater	1.1E-04	4.8E-04	3.1E-06	1.3E-05	5.0E-06	2.2E-05	---	---	---	---	2.6E-03	0.01	2.8E-03	0.01
E012	S012	Line Heater	1.1E-04	4.8E-04	3.1E-06	1.3E-05	5.0E-06	2.2E-05	---	---	---	---	2.6E-03	0.01	2.8E-03	0.01
E013	S013	Line Heater	1.1E-04	4.8E-04	3.1E-06	1.3E-05	5.0E-06	2.2E-05	---	---	---	---	2.6E-03	0.01	2.8E-03	0.01
E014	S014	Line Heater	1.1E-04	4.8E-04	3.1E-06	1.3E-05	5.0E-06	2.2E-05	---	---	---	---	2.6E-03	0.01	2.8E-03	0.01
E015	S015	Line Heater	1.1E-04	4.8E-04	3.1E-06	1.3E-05	5.0E-06	2.2E-05	---	---	---	---	2.6E-03	0.01	2.8E-03	0.01
E016	S016	Line Heater	1.1E-04	4.8E-04	3.1E-06	1.3E-05	5.0E-06	2.2E-05	---	---	---	---	2.6E-03	0.01	2.8E-03	0.01
E017	S017	Line Heater	1.1E-04	4.8E-04	3.1E-06	1.3E-05	5.0E-06	2.2E-05	---	---	---	---	2.6E-03	0.01	2.8E-03	0.01
E018	S018	Line Heater	1.1E-04	4.8E-04	3.1E-06	1.3E-05	5.0E-06	2.2E-05	---	---	---	---	2.6E-03	0.01	2.8E-03	0.01
E019	S019	Line Heater	1.1E-04	4.8E-04	3.1E-06	1.3E-05	5.0E-06	2.2E-05	---	---	---	---	2.6E-03	0.01	2.8E-03	0.01
E024	S024	Line Heater	1.1E-04	4.8E-04	3.1E-06	1.3E-05	5.0E-06	2.2E-05	---	---	---	---	2.6E-03	0.01	2.8E-03	0.01
E025	S025	Line Heater	1.1E-04	4.8E-04	3.1E-06	1.3E-05	5.0E-06	2.2E-05	---	---	---	---	2.6E-03	0.01	2.8E-03	0.01
E028	S028	Line Heater	1.1E-04	4.8E-04	3.1E-06	1.3E-05	5.0E-06	2.2E-05	---	---	---	---	2.6E-03	0.01	2.8E-03	0.01
E029	S029	Line Heater	1.1E-04	4.8E-04	3.1E-06	1.3E-05	5.0E-06	2.2E-05	---	---	---	---	2.6E-03	0.01	2.8E-03	0.01
E020	S020	TEG	2.1E-06	9.1E-06	5.8E-08	2.6E-07	9.4E-08	4.1E-07	---	---	---	---	5.0E-05	2.2E-04	5.2E-05	2.3E-04
E021	S021	TEG	2.1E-06	9.1E-06	5.8E-08	2.6E-07	9.4E-08	4.1E-07	---	---	---	---	5.0E-05	2.2E-04	5.2E-05	2.3E-04
E031	S031	TEG	5.0E-06	2.2E-05	1.4E-07	6.2E-07	2.3E-07	1.0E-06	---	---	---	---	1.2E-04	5.3E-04	1.3E-04	5.6E-04
E032	S032	TEG	5.0E-06	2.2E-05	1.4E-07	6.2E-07	2.3E-07	1.0E-06	---	---	---	---	1.2E-04	5.3E-04	1.3E-04	5.6E-04
E033	S033	TEG	5.0E-06	2.2E-05	1.4E-07	6.2E-07	2.3E-07	1.0E-06	---	---	---	---	1.2E-04	5.3E-04	1.3E-04	5.6E-04
E030	S030	Sand Separator Tank	---	---	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.0E-03	3.0E-03	2.0E-03	1.0E-02
E034	S034	Uncaptured Liquid Loading	---	---	0.02	0.01	0.04	0.01	3.7E-03	9.6E-04	0.03	7.5E-03	1.10	0.28	2.45	0.64
---	---	Fugitives	---	---	---	0.04	---	0.15	---	2.6E-02	---	0.28	---	1.20	---	1.85
---	---	Haul Roads	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Facility Total			0.00	0.01	0.03	0.07	0.05	0.21	0.00	0.03	0.04	0.32	1.37	2.45	3.04	4.58
Facility Total (excluding fugitive emissions)			0.00	0.01	0.01	0.02	0.01	0.05	0.00	0.00	0.01	0.03	0.27	0.97	0.59	2.10

1. Emissions routed to combustors are divided evenly by the total number of combustors (i.e., Combustor Point Emissions = [storage tanks emissions + captured loading emissions] / [number of combustors] + combustor emissions)

Company Name: EQT Production, LLC
Facility Name: SMI 28 Wellpad
Project Description: G70C Application

Storage Vessels

Potential Throughput

Operational Hours	8,760	hrs/yr
Maximum Condensate Throughput[1]	227	bbl/day
Maximum Produced Water Throughput[2]	2,135	bbl/day

[1] Based on the highest monthly throughput recorded at the site (August 2014).Includes a safety factor of 1.4
[2] Based on the highest monthly throughput recorded at the site (October 2014). Includes a safety factor of 1.4

Overall Control Efficiency of Combustor 98%

Storage Tanks - Uncontrolled

	Breathing		Working		Flashing		Total Emissions	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Methane	0.000	0.000	0.000	0.000	67.060	293.723	67.060	293.723
Ethane	0.000	0.000	0.000	0.000	71.524	313.274	71.524	313.274
Propane	5.5E-01	2.4E+00	7.9E-01	3.5E+00	73.470	321.800	74.809	327.665
Isobutane	1.5E-01	6.7E-01	2.2E-01	9.6E-01	22.811	99.910	23.182	101.537
n-Butane	2.8E-01	1.2E+00	4.0E-01	1.8E+00	42.900	187.900	43.584	190.899
Isopentane	1.3E-01	5.5E-01	1.8E-01	8.0E-01	20.043	87.790	20.351	89.139
n-Pentane	9.8E-02	4.3E-01	1.4E-01	6.2E-01	15.909	69.680	16.149	70.731
n-Hexane	5.3E-02	2.3E-01	7.6E-02	3.3E-01	9.016	39.490	9.145	40.053
Cyclohexane	6.6E-03	2.9E-02	9.5E-03	4.2E-02	1.322	5.792	1.339	5.863
Methylcyclopentane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.000	0.000	0.000	0.000
n-Heptane	5.7E-02	2.5E-01	8.2E-02	3.6E-01	10.516	46.060	10.654	46.665
n-Octane	4.7E-03	2.1E-02	6.8E-03	3.0E-02	0.912	3.995	0.924	4.045
n-Nonane	5.3E-03	2.3E-02	7.7E-03	3.4E-02	1.086	4.757	1.099	4.814
n-Decane	3.5E-03	1.5E-02	5.0E-03	2.2E-02	0.747	3.271	0.755	3.308
n-Undecane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.000	0.000	0.000	0.000
Dodecane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.000	0.000	0.000	0.000
Triethylene Glycol	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.000	0.000	0.000	0.000
Cyclopentane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.000	0.000	0.000	0.000
Isohexane	1.1E-01	5.0E-01	1.6E-01	7.1E-01	18.947	82.990	19.223	84.198
3-Methylpentane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.000	0.000	0.000	0.000
Neohexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.000	0.000	0.000	0.000
2,3-Dimethylbutane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.000	0.000	0.000	0.000
Methylcyclohexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.000	0.000	0.000	0.000
Decane, 2-Methyl-	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.000	0.000	0.000	0.000
Benzene	9.6E-04	4.2E-03	1.4E-03	6.1E-03	0.241	1.054	0.243	1.064
Toluene	2.0E-03	8.8E-03	2.9E-03	1.3E-02	0.542	2.373	0.547	2.394
Ethylbenzene	1.8E-04	7.8E-04	2.6E-04	1.1E-03	0.045	0.197	0.045	0.199
m-Xylene	1.4E-03	6.1E-03	2.0E-03	8.8E-03	0.356	1.559	0.359	1.574
Isooctane	6.1E-02	2.7E-01	8.7E-02	3.8E-01	11.174	48.940	11.322	49.589
Total VOC Emissions:	1.51	6.63	2.18	9.55	230.04	1007.56	233.73	1023.74
Total HAP Emissions:	0.24	0.52	0.35	0.74	42.15	93.61	42.74	94.87

[1] Uncontrolled emissions calculation using Promax (sum of produced water and condensate). Non-methane emissions are taken from the tank emissions stencil. Methane emissions are taken from the flash stream composition.
[2] Composition of condensate from SMI 28 sample from 12/17/2014.

Storage Tanks - Controlled

	Breathing		Working		Flashing		Total Emissions	
	lb/hr	tpy			lb/hr	tpy	lb/hr	tpy
Methane	0.000	0.000	0.000	0.000	1.341	5.874	1.341	5.874
Ethane	0.000	0.000	0.000	0.000	1.430	6.265	1.430	6.265
Propane	1.1E-02	4.8E-02	1.6E-02	6.9E-02	1.469	6.436	1.496	6.553
Isobutane	3.0E-03	1.3E-02	4.4E-03	1.9E-02	0.456	1.998	0.464	2.031
n-Butane	5.6E-03	2.5E-02	8.1E-03	3.5E-02	0.858	3.758	0.872	3.818
Isopentane	2.5E-03	1.1E-02	3.6E-03	1.6E-02	0.401	1.756	0.407	1.783
n-Pentane	2.0E-03	8.6E-03	2.8E-03	1.2E-02	0.318	1.394	0.323	1.415
n-Hexane	1.1E-03	4.6E-03	1.5E-03	6.6E-03	0.180	0.790	0.183	0.801
Cyclohexane	1.3E-04	5.8E-04	1.9E-04	8.3E-04	0.026	0.116	0.027	0.117
Methylcyclopentane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.000	0.000	0.000	0.000
n-Heptane	1.1E-03	5.0E-03	1.6E-03	7.1E-03	0.210	0.921	0.213	0.933
n-Octane	9.4E-05	4.1E-04	1.4E-04	5.9E-04	0.018	0.080	0.018	0.081
n-Nonane	1.1E-04	4.7E-04	1.5E-04	6.7E-04	0.022	0.095	0.022	0.096
n-Decane	6.9E-05	3.0E-04	1.0E-04	4.4E-04	0.015	0.065	0.015	0.066
n-Undecane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.000	0.000	0.000	0.000
Dodecane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.000	0.000	0.000	0.000
Triethylene Glycol	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.000	0.000	0.000	0.000
Cyclopentane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.000	0.000	0.000	0.000
Isohexane	2.3E-03	9.9E-03	3.3E-03	1.4E-02	0.379	1.660	0.384	1.684
3-Methylpentane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.000	0.000	0.000	0.000
Neohexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.000	0.000	0.000	0.000
2,3-Dimethylbutane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.000	0.000	0.000	0.000
Methylcyclohexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.000	0.000	0.000	0.000
Decane, 2-Methyl-	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.000	0.000	0.000	0.000
Benzene	1.9E-05	8.5E-05	2.8E-05	1.2E-04	0.005	0.021	0.005	0.021
Toluene	4.0E-05	1.8E-04	5.8E-05	2.5E-04	0.011	0.047	0.011	0.048
Ethylbenzene	3.6E-06	1.6E-05	5.1E-06	2.2E-05	0.001	0.004	0.001	0.004
m-Xylene	2.8E-05	1.2E-04	4.0E-05	1.8E-04	0.007	0.031	0.007	0.031
Isooctane	1.2E-03	5.3E-03	1.7E-03	7.7E-03	0.223	0.979	0.226	0.992
Total VOC Emissions:	0.030	0.133	0.044	0.191	4.601	20.151	4.675	20.475
Total HAP Emissions:	2.4E-03	1.0E-02	3.4E-03	1.5E-02	0.427	1.872	0.433	1.897

Company Name: EQT Production, LLC
Facility Name: SMI 28 Wellpad
Project Description: G70C Application

Sand Separator Tank

Throughput Parameter	Value	Units
Tank Capacity	5,880	gallons
Operational Hours	8,760	hrs/yr
Throughput	280	bbl/month
Percent Produced Water	50%	
Total Produced Water Throughput	140	bbl/month

[1] Conservatively assumes 2 turnovers/month of sand and produced water.

Description	Potential Throughput (gal/yr)
Produced Water and Sand	141,120

Sand Separator Tank (140 bbl) - Uncontrolled *(Per tank)*

Constituent	Total Emissions [1] lb/hr	tpy
Methane	0.137	0.600
Ethane	0.182	0.799
Propane	0.175	0.765
Isobutane	0.043	0.189
n-Butane	0.063	0.276
Isopentane	0.010	0.045
n-Pentane	0.006	0.027
Hexanes	0.002	0.008
Heptanes	0.001	0.003
Octane	<0.001	<0.001
Nonane	<0.001	<0.001
Decane	<0.001	0.001
Benzene	<0.001	<0.001
Toluene	<0.001	<0.001
Ethylbenzene	<0.001	<0.001
Xylenes	<0.001	<0.001
n-Hexane	0.001	0.003
2,2,4-Trimethylpentane	0.001	0.003
Total HC Emissions:	0.621	2.722
Total VOC Emissions:	0.302	1.323
Total HAP Emissions:	0.002	0.010

[1] E&P TANK 2.0 calculates working, breathing and flashing losses and reports the sum as one total.

Company Name: EQT Production, LLC
Facility Name: SMI 28 Wellpad
Project Description: G70C Application

Sand Separator Tank

Sand Separator Tank (140 bbl) - Controlled *(Per tank)*

Constituent	Total Emissions lb/hr	tpy
Methane	0.137	0.600
Ethane	0.182	0.799
Propane	0.175	0.765
Isobutane	0.043	0.189
n-Butane	0.063	0.276
Isopentane	0.010	0.045
n-Pentane	0.006	0.027
Hexanes	0.002	0.008
Heptanes	0.001	0.003
Octane	<0.001	<0.001
Nonane	<0.001	<0.001
Decane	<0.001	0.001
Benzene	<0.001	<0.001
Toluene	<0.001	<0.001
Ethylbenzene	<0.001	<0.001
Xylenes	<0.001	<0.001
n-Hexane	0.001	0.003
2,2,4-Trimethylpentane	0.001	0.003
Total Emissions:	0.623	2.727
Total VOC Emissions:	0.302	1.323
Total HAP Emissions:	0.002	0.010

Company Name: EQT Production, LLC
Facility Name: SMI 28 Wellpad
Project Description: G70C Application

Tank Combustor

Source Designation:	**C001-C002**
Pilot Fuel Used:	Natural Gas
Higher Heating Value (HHV) (Btu/scf):	1,050
Pilot Rating (MMBtu/hr)	0.03
Combustor Rating (MMBtu/hr)[1]	11.66
Pilot Fuel Consumption (scf/hr):	24.72
Potential Annual Hours of Operation (hr/yr):	8,760

[1] Maximum heat input for 48" model from Leed Enclosed Combustor Operations Manual

Enclosed Combustor Emissions

Pollutant	Emission Factors[1] (lb/MMBtu)	Combustor (lb/hr)	Combustor (tpy)	Pilot (lb/hr)	Pilot (tpy)	Total (lb/hr)	Total (tpy)
NO_x	0.10	1.14	5.01	2.5E-03	0.01	1.15	5.02
CO	0.08	0.96	4.21	2.1E-03	0.01	0.96	4.22
VOC	5.4E-03	0.06	0.28	1.4E-04	6.1E-04	0.06	0.28
SO_2	5.9E-04	0.01	0.03	1.5E-05	6.7E-05	0.01	0.03
PM/PM_{10}	0.01	0.09	0.38	1.9E-04	8.5E-04	0.09	0.38
CO_2[2]	116.997	1364.189	5975.146	3.04	13.30	1367.23	5988.45
CH_4[2]	2.2E-03	0.03	0.11	5.7E-05	2.5E-04	0.03	0.11
N_2O[2]	2.2E-04	2.6E-03	0.01	5.7E-06	2.5E-05	2.6E-03	0.01

[1] Emission factors from AP-42 Ch. 1.4 for natural gas combustion were used as they were determined to be most representative of the process. Ch. 5.3 (Natural Gas Processing) was consulted, however, factors contained there are appropriate for amine gas sweetening processes, which is not the case at the CPT-11 Pad. Also, Ch. 13.5 (Industrial Flares) was consulted, but since the control device in this case is an enclosed combustor vs. an elevated flare, these factors were also determined to be inappropriate.

Company Name: EQT Production, LLC
Facility Name: SMI 28 Wellpad
Project Description: G70C Application

Line Heaters

Source Designation:	**S011-S019,S024-S025, S028-S029**
Fuel Used:	Natural Gas
Higher Heating Value (HHV) (Btu/scf):	1,050
Heat Input (MMBtu/hr)	1.54
Fuel Consumption (mmscf/hr):	1.47E-03
Potential Annual Hours of Operation (hr/yr):	8,760

Criteria and Manufacturer Specific Pollutant Emission Rates:

Pollutant	**Emission Factor (lb/MMscf)[1]**	**Potential Emissions (lb/hr)[2]**	**(tons/yr)[3]**
NO_x	100	0.15	0.64
CO	84	0.12	0.54
VOC	5.5	0.01	0.04
SO_2	0.6	8.8E-04	3.9E-03
PM Total	7.6	0.01	0.05
PM Condensable	5.7	0.01	0.04
PM_{10} (Filterable)	1.9	0.00	0.01
$PM_{2.5}$ (Filterable)	1.9	0.00	0.01
Lead	5.00E-04	7.3E-07	3.2E-06
CO_2[4]	117.0	180.00	788.38
CH_4[4]	2.21E-03	3.4E-03	1.5E-02
N_2O[4]	2.21E-04	3.4E-04	1.5E-03

Hazardous Air Pollutant (HAP) Potential Emissions:

Pollutant	Emission Factor (lb/MMscf)[1]	Potential Emissions	
		(lb/hr)[2]	(tons/yr)[3]
HAPs:			
Methylnaphthalene (2-)	2.4E-05	3.5E-08	1.5E-07
3-Methylchloranthrene	1.8E-06	2.6E-09	1.2E-08
7,12-Dimethylbenz(a)anthracene	1.6E-05	2.3E-08	1.0E-07
Acenaphthene	1.8E-06	2.6E-09	1.2E-08
Acenaphthylene	1.8E-06	2.6E-09	1.2E-08
Anthracene	2.4E-06	3.5E-09	1.5E-08
Benz(a)anthracene	1.8E-06	2.6E-09	1.2E-08
Benzene	2.1E-03	3.1E-06	1.3E-05
Benzo(a)pyrene	1.2E-06	1.8E-09	7.7E-09
Benzo(b)fluoranthene	1.8E-06	2.6E-09	1.2E-08
Benzo(g,h,i)perylene	1.2E-06	1.8E-09	7.7E-09
Benzo(k)fluoranthene	1.8E-06	2.6E-09	1.2E-08
Chrysene	1.8E-06	2.6E-09	1.2E-08
Dibenzo(a,h) anthracene	1.2E-06	1.8E-09	7.7E-09
Dichlorobenzene	1.2E-03	1.8E-06	7.7E-06
Fluoranthene	3.0E-06	4.4E-09	1.9E-08
Fluorene	2.8E-06	4.1E-09	1.8E-08
Formaldehyde	7.5E-02	1.1E-04	4.8E-04
Hexane	1.8E+00	2.6E-03	1.2E-02
Indo(1,2,3-cd)pyrene	1.8E-06	2.6E-09	1.2E-08
Naphthalene	6.1E-04	8.9E-07	3.9E-06
Phenanthrene	1.7E-05	2.5E-08	1.1E-07
Pyrene	5.0E-06	7.3E-09	3.2E-08
Toluene	3.4E-03	5.0E-06	2.2E-05
Arsenic	2.0E-04	2.9E-07	1.3E-06
Beryllium	1.2E-05	1.8E-08	7.7E-08
Cadmium	1.1E-03	1.6E-06	7.1E-06
Chromium	1.4E-03	2.1E-06	9.0E-06
Cobalt	8.4E-05	1.2E-07	5.4E-07
Manganese	3.8E-04	5.6E-07	2.4E-06
Mercury	2.6E-04	3.8E-07	1.7E-06
Nickel	2.1E-03	3.1E-06	1.3E-05
Selenium	2.4E-05	3.5E-08	1.5E-07
Total HAP		**2.8E-03**	**1.2E-02**

[1] Emission factors from AP-42 Section 1.4 "Natural Gas Combustion" Tables 1.4-1, 1.4-2, & 1.4-3

[2] Emission Rate (lb/hr) = Rated Capacity (MMscf/hr) × Emission Factor (lb/MMscf).

[3] Annual Emissions $(tons/yr)_{Potential}$ = $(lb/hr)_{Emissions}$ × (Maximum Allowable Operating Hours, 8760 hr/yr) × (1 ton/2000 lb).

[4] GHG Emission factors from Tables C-1 and C-2, 40 CFR 98, Subpart C.

Company Name: **EQT Production, LLC**
Facility Name: **SMI 28 Wellpad**
Project Description: **G70C Application**

Thermoelectric Generator

Source Designation:	**S020-S021**
Fuel Used:	Natural Gas
Higher Heating Value (HHV) (Btu/scf):	1,050
Heat Input (MMBtu/hr)[1]	0.029
Fuel Consumption (mmscf/hr):	2.78E-05
Potential Annual Hours of Operation (hr/yr):	8,760

1. Global Themorelectric specification sheet states 700 ft^3/day at 1000 BTU/ft^3.

Criteria and Manufacturer Specific Pollutant Emission Rates:

Pollutant	**Emission Factor (lb/MMscf)[1]**	**Potential Emissions (lb/hr)[2]**	**Potential Emissions (tons/yr)[3]**
NO_x	100	2.8E-03	0.01
CO	84	2.3E-03	1.0E-02
VOC	5.5	1.5E-04	6.7E-04
SO_2	0.6	1.7E-05	7.3E-05
PM Total	7.6	2.1E-04	9.2E-04
PM Condensable	5.7	1.6E-04	6.9E-04
PM_{10} (Filterable)	1.9	5.3E-05	2.3E-04
$PM_{2.5}$ (Filterable)	1.9	5.3E-05	2.3E-04
Lead	5.00E-04	1.4E-08	6.1E-08
CO_2[4]	116.9	3.41	14.94
CH_4[4]	2.21E-03	6.4E-05	2.8E-04
N_2O[4]	2.21E-04	6.4E-06	2.8E-05

Hazardous Air Pollutant (HAP) Potential Emissions:

Pollutant	Emission Factor (lb/MMscf)[1]	Potential Emissions	
		(lb/hr)[2]	(tons/yr)[3]
HAPs:			
Methylnaphthalene (2-)	2.4E-05	6.7E-10	2.9E-09
3-Methylchloranthrene	1.8E-06	5.0E-11	2.2E-10
7,12-Dimethylbenz(a)anthracene	1.6E-05	4.4E-10	1.9E-09
Acenaphthene	1.8E-06	5.0E-11	2.2E-10
Acenaphthylene	1.8E-06	5.0E-11	2.2E-10
Anthracene	2.4E-06	6.7E-11	2.9E-10
Benz(a)anthracene	1.8E-06	5.0E-11	2.2E-10
Benzene	2.1E-03	5.8E-08	2.6E-07
Benzo(a)pyrene	1.2E-06	3.3E-11	1.5E-10
Benzo(b)fluoranthene	1.8E-06	5.0E-11	2.2E-10
Benzo(g,h,i)perylene	1.2E-06	3.3E-11	1.5E-10
Benzo(k)fluoranthene	1.8E-06	5.0E-11	2.2E-10
Chrysene	1.8E-06	5.0E-11	2.2E-10
Dibenzo(a,h) anthracene	1.2E-06	3.3E-11	1.5E-10
Dichlorobenzene	1.2E-03	3.3E-08	1.5E-07
Fluoranthene	3.0E-06	8.3E-11	3.7E-10
Fluorene	2.8E-06	7.8E-11	3.4E-10
Formaldehyde	7.5E-02	2.1E-06	9.1E-06
Hexane	1.8E+00	5.0E-05	2.2E-04
Indo(1,2,3-cd)pyrene	1.8E-06	5.0E-11	2.2E-10
Naphthalene	6.1E-04	1.7E-08	7.4E-08
Phenanthrene	1.7E-05	4.7E-10	2.1E-09
Pyrene	5.0E-06	1.4E-10	6.1E-10
Toluene	3.4E-03	9.4E-08	4.1E-07
Arsenic	2.0E-04	5.6E-09	2.4E-08
Beryllium	1.2E-05	3.3E-10	1.5E-09
Cadmium	1.1E-03	3.1E-08	1.3E-07
Chromium	1.4E-03	3.9E-08	1.7E-07
Cobalt	8.4E-05	2.3E-09	1.0E-08
Manganese	3.8E-04	1.1E-08	4.6E-08
Mercury	2.6E-04	7.2E-09	3.2E-08
Nickel	2.1E-03	5.8E-08	2.6E-07
Selenium	2.4E-05	6.7E-10	2.9E-09
Total HAP		**5.2E-05**	**2.3E-04**

[1] Emission factors from AP-42 Section 1.4 "Natural Gas Combustion" Tables 1.4-1, 1.4-2, & 1.4-3

[2] Emission Rate (lb/hr) = Rated Capacity (MMscf/hr) × Emission Factor (lb/MMscf).

[3] Annual Emissions $(tons/yr)_{Potential}$ = $(lb/hr)_{Emissions}$ × (Maximum Allowable Operating Hours, 8760 hr/yr) × (1 ton/2000 lb).

[4] GHG Emission factors from Tables C-1 and C-2, 40 CFR 98, Subpart C.

Company Name: EQT Production, LLC
Facility Name: SMI 28 Wellpad
Project Description: G70C Application

Thermoelectric Generator

Source Designation:	**S031-S033**
Fuel Used:	Natural Gas
Higher Heating Value (HHV) (Btu/scf):	1,050
Heat Input (MMBtu/hr)[1]	0.07
Fuel Consumption (mmscf/hr):	6.73E-05
Potential Annual Hours of Operation (hr/yr):	8,760

1. Global Themorelectric specification sheet states 1695 ft^3/day at 1000 BTU/ft^3.

Criteria and Manufacturer Specific Pollutant Emission Rates:

Pollutant	Emission Factor (lb/MMscf)[1]	Potential Emissions (lb/hr)[2]	Potential Emissions (tons/yr)[3]
NO_x	100	6.7E-03	0.03
CO	84	5.7E-03	2.5E-02
VOC	5.5	3.7E-04	1.6E-03
SO_2	0.6	4.0E-05	1.8E-04
PM Total	7.6	5.1E-04	2.2E-03
PM Condensable	5.7	3.8E-04	1.7E-03
PM_{10} (Filterable)	1.9	1.3E-04	5.6E-04
$PM_{2.5}$ (Filterable)	1.9	1.3E-04	5.6E-04
Lead	5.00E-04	3.4E-08	1.5E-07
CO_2[4]	116.9	8.26	36.16
CH_4[4]	2.21E-03	1.6E-04	6.8E-04
N_2O[4]	2.21E-04	1.6E-05	6.8E-05

Hazardous Air Pollutant (HAP) Potential Emissions:

Pollutant	Emission Factor (lb/MMscf)[1]	Potential Emissions	
		(lb/hr)[2]	(tons/yr)[3]
HAPs:			
Methylnaphthalene (2-)	2.4E-05	1.6E-09	7.1E-09
3-Methylchloranthrene	1.8E-06	1.2E-10	5.3E-10
7,12-Dimethylbenz(a)anthracene	1.6E-05	1.1E-09	4.7E-09
Acenaphthene	1.8E-06	1.2E-10	5.3E-10
Acenaphthylene	1.8E-06	1.2E-10	5.3E-10
Anthracene	2.4E-06	1.6E-10	7.1E-10
Benz(a)anthracene	1.8E-06	1.2E-10	5.3E-10
Benzene	2.1E-03	1.4E-07	6.2E-07
Benzo(a)pyrene	1.2E-06	8.1E-11	3.5E-10
Benzo(b)fluoranthene	1.8E-06	1.2E-10	5.3E-10
Benzo(g,h,i)perylene	1.2E-06	8.1E-11	3.5E-10
Benzo(k)fluoranthene	1.8E-06	1.2E-10	5.3E-10
Chrysene	1.8E-06	1.2E-10	5.3E-10
Dibenzo(a,h) anthracene	1.2E-06	8.1E-11	3.5E-10
Dichlorobenzene	1.2E-03	8.1E-08	3.5E-07
Fluoranthene	3.0E-06	2.0E-10	8.8E-10
Fluorene	2.8E-06	1.9E-10	8.2E-10
Formaldehyde	7.5E-02	5.0E-06	2.2E-05
Hexane	1.8E+00	1.2E-04	5.3E-04
Indo(1,2,3-cd)pyrene	1.8E-06	1.2E-10	5.3E-10
Naphthalene	6.1E-04	4.1E-08	1.8E-07
Phenanthrene	1.7E-05	1.1E-09	5.0E-09
Pyrene	5.0E-06	3.4E-10	1.5E-09
Toluene	3.4E-03	2.3E-07	1.0E-06
Arsenic	2.0E-04	1.3E-08	5.9E-08
Beryllium	1.2E-05	8.1E-10	3.5E-09
Cadmium	1.1E-03	7.4E-08	3.2E-07
Chromium	1.4E-03	9.4E-08	4.1E-07
Cobalt	8.4E-05	5.7E-09	2.5E-08
Manganese	3.8E-04	2.6E-08	1.1E-07
Mercury	2.6E-04	1.7E-08	7.7E-08
Nickel	2.1E-03	1.4E-07	6.2E-07
Selenium	2.4E-05	1.6E-09	7.1E-09
Total HAP		**1.3E-04**	**5.6E-04**

[1] Emission factors from AP-42 Section 1.4 "Natural Gas Combustion" Tables 1.4-1, 1.4-2, & 1.4-3

[2] Emission Rate (lb/hr) = Rated Capacity (MMscf/hr) × Emission Factor (lb/MMscf).

[3] Annual Emissions $(tons/yr)_{Potential}$ = $(lb/hr)_{Emissions}$ × (Maximum Allowable Operating Hours, 8760 hr/yr) × (1 ton/2000 lb).

[4] GHG Emission factors from Tables C-1 and C-2, 40 CFR 98, Subpart C.

Company Name: EQT Production, LLC
Facility Name: SMI 28 Wellpad
Project Description: G70C Application

Liquid Loading

Throughput 36,209,460 gal/yr
Capture Efficiency 70% non-tested tanker trucks
Control Efficiency 98% Combustor destruction efficiency

Liquid Loading Emissions

	Uncontrolled Emissions		Uncaptured Emissions		Controlled Emissions	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Propane	38.04	9.89	11.41	2.97	0.53	0.14
Isobutane	10.55	2.74	3.17	0.82	0.15	0.04
n-Butane	19.45	5.06	5.84	1.52	0.27	0.07
Isopentane	8.75	2.28	2.63	0.68	0.12	0.03
n-Pentane	6.82	1.77	2.05	0.53	0.10	0.02
n-Hexane	3.65	0.95	1.10	0.28	0.05	0.01
Cyclohexane	0.46	0.12	0.14	0.04	0.01	0.00
Methylcyclopentane	0.00	0.00	0.00	0.00	0.00	0.00
n-Heptane	3.93	1.02	1.18	0.31	0.05	0.01
n-Octane	0.33	0.08	0.10	0.03	0.00	0.00
n-Nonane	0.37	0.10	0.11	0.03	0.01	0.00
n-Decane	0.24	0.06	0.07	0.02	0.00	0.00
n-Undecane	0.00	0.00	0.00	0.00	0.00	0.00
Dodecane	0.00	0.00	0.00	0.00	0.00	0.00
Triethylene Glycol	0.00	0.00	0.00	0.00	0.00	0.00
Cyclopentane	0.00	0.00	0.00	0.00	0.00	0.00
Isohexane	7.83	2.04	2.35	0.61	0.11	0.03
3-Methylpentane	0.00	0.00	0.00	0.00	0.00	0.00
Neohexane	0.00	0.00	0.00	0.00	0.00	0.00
2,3-Dimethylbutane	0.00	0.00	0.00	0.00	0.00	0.00
Methylcyclohexane	0.00	0.00	0.00	0.00	0.00	0.00
Decane, 2-Methyl-	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	0.07	0.02	0.02	0.01	0.00	0.00
Toluene	0.14	0.04	0.04	0.01	0.00	0.00
Ethylbenzene	0.01	0.00	0.00	0.00	0.00	0.00
m-Xylene	0.10	0.03	0.03	0.01	0.00	0.00
Isooctane	4.21	1.10	1.26	0.33	0.06	0.02
Total VOC Emissions:	104.95	27.29	31.49	8.19	1.47	0.38
Total HAP Emissions:	8.18	2.13	2.45	0.64	0.11	0.03

[1] Uncontrolled emissions calculation using Promax (sum of produced water and condensate).
[2] Hourly emissions assume two hours of loading per day, five days per week.

Company Name: EQT Production, LLC
Facility Name: SMI 28 Wellpad
Project Description: G70C Application

Fugitive Emissions

Fugitive Emissions from Component Leaks

Facility Equipment Type[1]	Valves	Connectors	Open-Ended Lines	Pressure Relief Devices
Wellhead	8	38	0.5	0
Separators	1	6	0	0
Meters/Piping	12	45	0	0
Compressors	12	57	0	0
In-line heaters	14	65	2	1
Dehydrators	24	90	2	2

[1] Table W-1B to Subpart W of Part 98 —Default Average Component Counts for Major Onshore Natural Gas Production

Fugitive VOC/Total Emissions from Component Leaks

Equipment Type	Service	Emission Factors[1] (kg/hr/source)	Facility Equipment Count[2] (units)	TOC Annual Fugitive Emissions (tpy)	Weight Fraction VOC	Weight Fraction HAP	VOC Emissions[3] (tpy)	HAP Emissions[3] (tpy)
Pumps	Light Liquid	0.01990	23	4.32	1.000	0.043	4.32	0.19
Valves	Gas	0.00597	683	39.34	0.181	0.008	7.11	0.31
Pressure Relief Valves	Gas	0.10400	50	49.71	0.181	0.008	8.99	0.39
Open-Ended Lines	All	0.00170	50	0.81	0.181	0.008	0.15	0.01
Connectors	All	0.00183	3,003	53.07	0.181	0.008	9.59	0.41
Intermittent Pneumatic Devices[4]	Gas	13.5	65				12.64	0.55
			Emission Totals:	**147.26**			**42.80**	**1.85**

[1] U.S. EPA. Office of Air Quality Planning and Standards. *Protocol for Equipment Leak Emission Estimates.* Table 2-1. (Research Triangle Park, NC: U.S. EPA EPA-453/R-95-017, 1995). SOCMI factors were used as it was representative of natural gas liquids extraction. The pneumatic controller value is equal to Subpart W value for intermittent controlled (scf/hr). Intermittent devices assume operation 1/3 of the time.

[2] Assumes one pump for each tank and one meter per wellhead. Pressure relief valves count includes one Emergency Pressure Relief valve and one lock-down hatch for each storage tank. Pneumatic devices assume 5 per well. A 50% compliance margin is added to the component counts based on Subpart W counts.

[3] Potential emissions VOC/HAP (tpy) = Emission factor (kg/hr/source) * Number of Sources * Weight % VOC/HAP x 2.2046 (lb/kg) x 8,760 (hr/yr) ÷ 2,000 (lb/ton)
Potential emissions VOC/HAP from pneuamtics (tpy) = Gas volume vented (scf/yr) * Molar weight of natural gas (lb/lb-mol) * Weight % VOC/HAP ÷ 100 ÷ 379 (scf/lb-mol) ÷ 2,000 (lb/ton)

Fugitive Specific HAP Emissions from Component Leaks

Equipment Type	Service	Emission Factors[1] (kg/hr/source)	Facility Equipment Count[2] (units)	TOC Annual Fugitive Emissions (tpy)	Benzene Emissions[3] (tpy)	Toluene Emissions[3] (tpy)	Ethylbenzene Emissions[3] (tpy)	Xylene Emissions[3] (tpy)	n-Hexane Emissions[4] (tpy)
Pumps	Light Liquid	0.01990	23	4.32	0.001	0.003	0.00	0.01	0.02
Valves	Gas	0.00597	683	39.34	0.007	0.027	0.00	0.05	0.22
Pressure Relief Valves	Gas	0.10400	50	49.71	0.009	0.034	0.01	0.06	0.27
Open-Ended Lines	All	0.00170	50	0.81	0.000	0.001	0.00	0.00	0.00
Connectors	All	0.00183	3003	53.07	0.010	0.036	0.01	0.07	0.29
Intermitted Pneumatic Devices[4]	Gas	13.5	65	---	0.01	0.048	0.01	0.09	0.39
			Emission Totals:	**147.26**	**0.04**	**0.15**	**0.03**	**0.28**	**1.20**

[1] U.S. EPA. Office of Air Quality Planning and Standards. *Protocol for Equipment Leak Emission Estimates.* Table 2-1. (Research Triangle Park, NC: U.S. EPA EPA-453/R-95-017, 1995). SOCMI factors were used as it was representative of natural gas liquids extraction. The pneumatic controller value is equal to Subpart W value for intermittent controlled (scf/hr). Intermittent devices assume operation 1/3 of the time.

[2] Assumes one pump for each tank and one meter per wellhead. Pressure relief valves count includes one Emergency Pressure Relief valve and one lock-down hatch for each storage tank. Pneumatic devices assume 5 per well. A 50% compliance margin is added to the component counts based on Subpart W counts.

[3] Potential emissions HAP (tpy) = Emission factor (kg/hr/source) * Number of Sources * Weight % HAP x 2.2046 (lb/kg) x 8,760 (hr/yr) ÷ 2,000 (lb/ton)
Potential emissions VOC/HAP from pneuamtics (tpy) = Gas volume vented (scf/yr) * Molar weight of natural gas (lb/lb-mol) * Weight % VOC/HAP ÷ 100 ÷ 379 (scf/lb-mol) ÷ 2,000 (lb/ton)

GHG Fugitive Emissions from Component Leaks

Component	Component Count	GHG Emission Factor[1] scf/hr/component	CH_4 Emissions[2,3] (tpy)	CO_2 Emissions[2,3] (tpy)	CO_2e Emissions[4] (tpy)
Pumps	23	0.01	0.03	0.00	0.84
Valves	683	0.027	2.76	0.02	69.11
Pressure Relief Devices	50	0.04	0.30	0.00	7.43
Open-Ended Lines	50	0.061	0.45	0.00	11.32
Connectors	3,003	0.003	1.35	0.01	33.79
Intermittent Pneumatic Devices	65	13.5	43.86	0.29	1096.92
Total			**48.76**	**0.33**	**1219.40**

[1] Population emission factors for gas service in the Eastern U.S. from *Table W-1A of Subpart W - Default Whole Gas Emission Factors for Onshore Production* , 40 CFR 98, Subpart W. The pneumatic controller value is equal to Subpart W value for intermittent controlled (scf/hr). Intermittent devices assume operation 1/3 of the time.
[2] Calculated in accordance with Equations W-32a, W-35 and W-36 in Subpart W of 40 CFR 98. See footnote 4 above for sample calculation.
[3] Mole fractions of CH_4 and CO_2 based on gas analysis:

CH_4: 81% CO_2: 0.20%

[4] Carbon equivalent emissions (CO_2e) are based on the following Global Warming Potentials (GWP) from 40 CFR Part 98, Table A-1:

Carbon Dioxide (CO_2): 1
Methane (CH_4): 25

Company Name: EQT Production, LLC
Facility Name: SMI 28 Wellpad
Project Description: G70C Application

Haul Roads

Estimated Potential Road Fugitive Emissions

Unpaved Road Emissions

Unpaved Roads: $E\ (lb/VMT) = k(s/12)^a(W/3)^b)*[(365-p)/365]$

	PM	PM_{10}	$PM_{2.5}$	
k Factor (lb/VMT)	4.9	1.5	0.15	AP-42 Table 13.2.2-2 (Final, 11/06)
Silt content, s	4.8 %			AP-42 Table 13.2.2-1 (11/06), for Sand and Gravel Processing
Number of Rain Days, p	150			AP-42 Figure 13.2.1-2
a	0.7	0.9	0.9	AP-42 Table 13.2.2-2 (Final, 11/06)
b	0.45	0.45	0.45	AP-42 Table 13.2.2-2 (Final, 11/06)

Description	Weight of Empty Truck (tons)	Weight of Truck w/ Max Load (tons)	Mean Vehicle Weight (tons)	Length of Unpaved Road Traveled (mile)	Trips Per Year	Mileage Per Year	Control (%)	Emissions (tpy) PM	PM_{10}	$PM_{2.5}$
Liquids Hauling	20	40	30	1.07	9,052	19,339	0	41.42	10.56	1.06
Employee Vehicles	3	3	3	1.07	200	427	0	0.32	0.08	0.01
Total Potential Emissions								**41.74**	**10.64**	**1.06**

Company Name: **EQT Production, LLC**
Facility Name: **SMI 28 Wellpad**
Project Description: **G70C Application**

Gas Analysis

Sample Location: SMI 27 Dehy Inlet Gas Analysis
Sample Date: 12/3/2014
HHV (Btu/scf): 1,254 Note: A conservatively low BTU content of 1,050 was used for calculations.

Constituent	Natural Gas Stream Speciation (Mole %)	Molecular Weight	Molar Weight	Average Weight Fraction	Natural Gas Stream Speciation (Wt. %)
Carbon Dioxide	0.198	44.01	0.09	0.00	0.422
Nitrogen	0.374	28.01	0.10	0.01	0.507
Methane	80.889	16.04	12.97	0.63	62.812
Ethane	12.491	30.07	3.76	0.18	18.180
Propane	3.282	44.10	1.45	0.07	7.005
Isobutane	0.442	58.12	0.26	0.01	1.243
n-Butane	0.684	58.12	0.40	0.02	1.924
Isopentane	0.194	72.15	0.14	0.01	0.678
n-Pentane	0.144	72.15	0.10	0.01	0.503
n-Hexane	0.133	86.18	0.11	0.01	0.551
Cyclohexane	0.021	84.16	0.02	0.00	0.083
Other Hexanes	0.241	86.18	0.21	0.01	0.993
Heptanes	0.313	100.21	0.31	0.02	1.501
2,2,4-Trimethylpentane	0.001	114.23	0.00	0.00	0.002
Benzene*	0.006	78.11	0.00	0.00	0.019
Toluene*	0.015	92.14	0.01	0.00	0.068
Ethylbenzene*	0.003	106.17	0.00	0.00	0.012
Xylenes*	0.025	106.16	0.03	0.00	0.129
C8 + Heavies	0.545	130.80	0.71	0.03	3.368
Totals	100.00		20.68	1.00	100.00

TOC (Total)	99.43	99.07
VOC (Total)	6.05	18.08
HAP (Total)	0.18	0.78

****
* Project Setup Information *
****
Project File : Z:\Client\EQT Corporation\West Virginia\WV Production Wells\143901.0023\SMI 28\03 Draft\2014-1013 SMI 28 - G70 Draft\Attach I - Emission Calcs\E&P TANK\2014-1029_EQT_SMI-28_SandTrapTank.ept
Flowsheet Selection : Oil Tank with Separator
Calculation Method : RVP Distillation
Control Efficiency : 98.0%
Known Separator Stream : Low Pressure Oil
Entering Air Composition : No

Filed Name : EQT - SMI-28 Sand Separator Tank
Well Name : PTE for G-70C
Date Application : 2014.10.20

****
* Data Input *
****

Separator Pressure : 1000.00[psig]
Separator Temperature : 60.00[F]
Ambient Pressure : 14.70[psia]
Ambient Temperature : 55.00[F]
C10+ SG : 0.7498
C10+ MW : 122.375

-- Low Pressure Oil ----------

No.	Component	mol %
1	H2S	0.0000
2	O2	0.0000
3	CO2	0.1260
4	N2	0.0000
5	C1	27.1290
6	C2	19.2910
7	C3	12.6670
8	i-C4	3.0470
9	n-C4	6.5440
10	i-C5	3.2910
11	n-C5	3.1030
12	C6	3.0460
13	C7	4.3100
14	C8	0.8600
15	C9	2.9760
16	C10+	6.9020
17	Benzene	0.0450
18	Toluene	0.2900
19	E-Benzene	0.0500
20	Xylenes	0.6010
21	n-C6	1.6660
22	224Trimethylp	4.0560

-- Sales Oil ----------
Production Rate : 0.1[bbl/day]
Days of Annual Operation : 365 [days/year]
API Gravity : 59.11
Reid Vapor Pressure : 10.60[psia]

****
* Calculation Results *
****

-- Emission Summary ----------

Item	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]	Controlled [ton/yr]	Controlled [lb/hr]
Total HAPs	0.010	0.002	0.000	0.000
Page 1----------				E&P TANK
Total HC	2.722	0.621	0.054	0.012
VOCs, C2+	2.122	0.484	0.042	0.010
VOCs, C3+	1.323	0.302	0.026	0.006

Uncontrolled Recovery Info.
Vapor 188.3600 x1E-3 [MSCFD]
HC Vapor 188.0000 x1E-3 [MSCFD]
GOR 1883.60 [SCF/bbl]

-- Emission Composition ----------

No	Component	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]	Controlled [ton/yr]	Controlled [lb/hr]
1	H2S	0.000	0.000	0.000	0.000
2	O2	0.000	0.000	0.000	0.000
3	CO2	0.008	0.002	0.008	0.002
4	N2	0.000	0.000	0.000	0.000
5	C1	0.600	0.137	0.012	0.003
6	C2	0.799	0.182	0.016	0.004
7	C3	0.765	0.175	0.015	0.003
8	i-C4	0.189	0.043	0.004	0.001
9	n-C4	0.276	0.063	0.006	0.001
10	i-C5	0.045	0.010	0.001	0.000
11	n-C5	0.027	0.006	0.001	0.000
12	C6	0.008	0.002	0.000	0.000
13	C7	0.003	0.001	0.000	0.000
14	C8	0.000	0.000	0.000	0.000
15	C9	0.000	0.000	0.000	0.000
16	C10+	0.001	0.000	0.000	0.000
17	Benzene	0.000	0.000	0.000	0.000
18	Toluene	0.000	0.000	0.000	0.000
19	E-Benzene	0.000	0.000	0.000	0.000
20	Xylenes	0.000	0.000	0.000	0.000
21	n-C6	0.003	0.001	0.000	0.000
22	224Trimethylp	0.003	0.001	0.000	0.000
	Total	2.727	0.623	0.055	0.012

-- Stream Data ----------

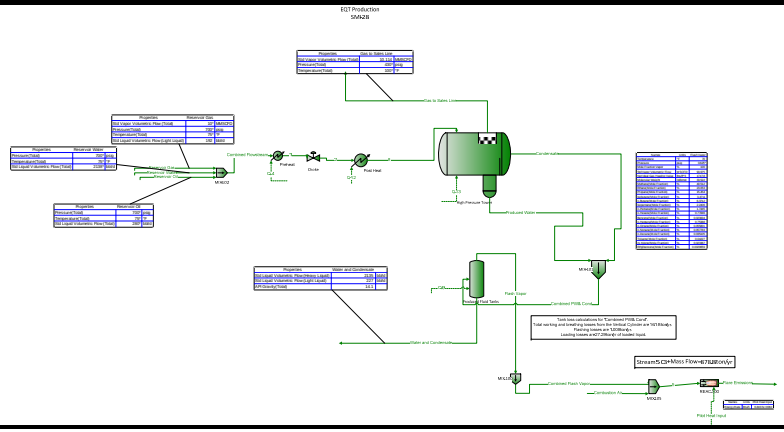
No.	Component	MW	LP Oil	Flash Oil	Sale Oil	Flash Gas	W&S Gas	Total Emissions
			mol %	mol %	mol %	mol %	mol %	mol %
1	H2S	34.80	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	O2	32.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	CO2	44.01	0.1260	0.0124	0.0000	0.2244	0.0471	0.1914
4	N2	28.01	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	C1	16.04	27.1290	0.5415	0.0000	50.1673	2.0509	41.2089
6	C2	30.07	19.2910	4.4518	0.0005	32.1493	16.8599	29.3027
7	C3	44.10	12.6670	11.8139	0.2195	13.4062	44.1345	19.1272
8	i-C4	58.12	3.0470	4.8888	2.0109	1.4511	12.9112	3.5847
9	n-C4	58.12	6.5440	11.7497	9.0588	2.0332	19.2516	5.2389
10	i-C5	72.15	3.2910	6.7355	8.3102	0.3063	2.3461	0.6861
11	n-C5	72.15	3.1030	6.4764	8.2777	0.1800	1.4549	0.4173
12	C6	86.16	3.0460	6.5128	8.7011	0.0420	0.4125	0.1110
13	C7	100.20	4.3100	9.2702	12.5378	0.0120	0.1612	0.0398
14	C8	114.23	0.8600	1.8520	2.5133	0.0004	0.0085	0.0019
15	C9	128.28	2.9760	6.4101	8.7063	0.0003	0.0092	0.0020
16	C10+	122.38	6.9020	14.8646	20.1780	0.0024	0.0527	0.0117
17	Benzene	78.11	0.0450	0.0965	0.1295	0.0004	0.0043	0.0011
18	Toluene	92.13	0.2900	0.6242	0.8458	0.0004	0.0064	0.0015
19	E-Benzene	106.17	0.0500	0.1077	0.1462	0.0000	0.0003	0.0001
20	Xylenes	106.17	0.6010	1.2944	1.7576	0.0001	0.0031	0.0007
21	n-C6	86.18	1.6660	3.5710	4.7923	0.0153	0.1662	0.0434
22	224Trimethylp	114.24	4.0560	8.7266	11.8143	0.0089	0.1192	0.0294

MW	52.82	83.57	96.61	26.18	47.20	30.09
Stream Mole Ratio	1.0000	0.4642	0.3417	0.5358	0.1226	0.6583
Heating Value [BTU/SCF]				1551.58	2680.24	1761.71
Gas Gravity [Gas/Air]				0.90	1.63	1.04
Bubble Pt. @ 100F [psia]	1042.54	75.56	11.11			
RVP @ 100F [psia]	325.00	49.02	10.61			

Spec. Gravity @ 100F	0.546	0.658	0.684

SMI-28
Plant Schematic

Client Name:	EQT Production	Job: V1.0
Location:	SMI-28 Wellpad	
Flowsheet:	SMI-28	



Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	EQT Production	Job: V1.0
Location:	SMI-28 Wellpad	
Flowsheet:	SMI-28	

Connections

	Combined PW & Cond	Flare Emissions	Flash Vapor	Gas to Sales Line	Reservoir Gas
From Block	MIX-101	REAC-100	Produced Fluid Tanks	High Pressure Tower	--
To Block	Produced Fluid Tanks	--	MIX-100	--	MIX-102

Stream Composition

Mole Fraction	Combined PW & Cond	Flare Emissions	Flash Vapor	Gas to Sales Line	Reservoir Gas
Nitrogen	4.42649E-06	0.758473	0.000751061	0.00369097	0.00374 *
Methane	0.00241162	0	0.405123	0.806054	0.80889 *
CO2	2.93341E-05	0.0397833	0.00445829	0.00195805	0.00198 *
Ethane	0.00145312	0	0.230528	0.128367	0.12491 *
Propane	0.00115839	0	0.15454	0.0353188	0.03282 *
Isobutane	0.000348102	0	0.0347109	0.00495	0.00442 *
n-Butane	0.000756119	0	0.063712	0.0079946	0.00684 *
Isopentane	0.000494923	0	0.0224062	0.00235573	0.00194 *
n-Pentane	0.000482726	0	0.0174447	0.00181087	0.00144 *
n-Hexane	0.000632842	0	0.00778459	0.000861323	0.00126 *
Methylcyclopentane	0	0	0	0	0 *
Benzene	2.00728E-05	0	0.00023004	2.44418E-05	4E-05 *
Cyclohexane	0.000119231	0	0.00116694	0.000126835	0.0002 *
n-Heptane	0.00188396	0	0.00753878	0.00101675	0.00243 *
n-Octane	0.000460558	0	0.000558008	9.35528E-05	0.00051 *
n-Nonane	0.00153844	0	0.00057783	0.000119874	0.00147 *
n-Decane	0.00301099	0	0.000351054	9.38304E-05	0.00233 *
n-Undecane	0	0	0	0	0 *
Dodecane	0	0	0	0	0 *
Water	0.982165	0.0571502	0.0237641	0.00237163	0 *
Triethylene Glycol	0	0	0	0	0 *
Oxygen	0	0.135639	0	0	0 *
Argon	0	0.00889518	0	0	0 *
Carbon Monoxide	0	5.90531E-05	0	0	0 *
Cyclopentane	0	0	0	0	0 *
Isohexane	0.000991114	0	0.0165973	0.00176551	0.00235 *
3-Methylpentane	0	0	0	0	0 *
Neohexane	0	0	0	0	0 *
2,3-Dimethylbutane	0	0	0	0	0 *
Methylcyclohexane	0	0	0	0	0 *
Isooctane	0.00163041	0	0.00707091	0.000928841	0.00203 *
Decane, 2-Methyl-	0	0	0	0	0 *
Toluene	0.000121145	0	0.0004227	5.40777E-05	0.00014 *
m-Xylene	0.000259967	0	0.000233666	3.8495E-05	0.00023 *
Ethylbenzene	2.74609E-05	0	2.96591E-05	4.69932E-06	3E-05 *

Molar Flow	Combined PW & Cond lbmol/h	Flare Emissions lbmol/h	Flash Vapor lbmol/h	Gas to Sales Line lbmol/h	Reservoir Gas lbmol/h
Nitrogen	0.00779183	437.516	0.00774964	4.09866	4.10645 *
Methane	4.24511	0	4.18016	895.087	888.146 *
CO2	0.0516359	22.9485	0.0460018	2.17432	2.174 *
Ethane	2.55789	0	2.37865	142.546	137.149 *
Propane	2.03908	0	1.59458	39.2199	36.0357 *
Isobutane	0.612754	0	0.358156	5.49676	4.85307 *
n-Butane	1.33097	0	0.657397	8.87764	7.51019 *
Isopentane	0.871198	0	0.231193	2.61593	2.13008 *
n-Pentane	0.849728	0	0.179999	2.01089	1.58109 *
n-Hexane	1.11397	0	0.0803234	0.95646	1.38346 *
Methylcyclopentane	0	0	0	0	0 *

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	EQT Production	Job: V1.0
Location:	SMI-28 Wellpad	
Flowsheet:	SMI-28	

Molar Flow	Combined PW & Cond lbmol/h	Flare Emissions lbmol/h	Flash Vapor lbmol/h	Gas to Sales Line lbmol/h	Reservoir Gas lbmol/h	
Benzene	0.0353335	0	0.00237361	0.0271415	0.0439192	*
Cyclohexane	0.20988	0	0.0120408	0.140844	0.219596	*
n-Heptane	3.31628	0	0.0777871	1.12905	2.66809	*
n-Octane	0.810706	0	0.00575767	0.103886	0.55997	*
n-Nonane	2.70808	0	0.0059622	0.133115	1.61403	*
n-Decane	5.30015	0	0.00362226	0.104194	2.5583	*
n-Undecane	0	0	0	0	0	*
Dodecane	0	0	0	0	0	*
Water	1728.88	32.9664	0.245204	2.63358	0	*
Triethylene Glycol	0	0	0	0	0	*
Oxygen	0	78.2417	0	0	0	*
Argon	0	5.13108	0	0	0	*
Carbon Monoxide	0	0.0340641	0	0	0	*
Cyclopentane	0	0	0	0	0	*
Isohexane	1.74463	0	0.171255	1.96052	2.58025	*
3-Methylpentane	0	0	0	0	0	*
Neohexane	0	0	0	0	0	*
2,3-Dimethylbutane	0	0	0	0	0	*
Methylcyclohexane	0	0	0	0	0	*
Isooctane	2.86996	0	0.0729594	1.03144	2.2289	*
Decane, 2-Methyl-	0	0	0	0	0	*
Toluene	0.213248	0	0.00436153	0.0600509	0.153717	*
m-Xylene	0.457612	0	0.00241102	0.0427469	0.252536	*
Ethylbenzene	0.0483386	0	0.00030603	0.00521839	0.0329394	*

Mass Fraction	Combined PW & Cond	Flare Emissions	Flash Vapor	Gas to Sales Line	Reservoir Gas	
Nitrogen	6.45498E-06	0.739681	0.000627646	0.00513656	0.00506253	*
Methane	0.00201395	0	0.19388	0.642394	0.627034	*
CO2	6.7203E-05	0.0609517	0.00585314	0.0042809	0.00421058	*
Ethane	0.00227453	0	0.206785	0.191751	0.181488	*
Propane	0.00265901	0	0.203287	0.077369	0.0699302	*
Isobutane	0.00105322	0	0.0601841	0.0142927	0.0124135	*
n-Butane	0.00228771	0	0.110468	0.0230837	0.0192101	*
Isopentane	0.00185881	0	0.048225	0.00844346	0.00676334	*
n-Pentane	0.001813	0	0.0375462	0.00649056	0.00502021	*
n-Hexane	0.00283889	0	0.0200121	0.00368735	0.00524668	*
Methylcyclopentane	0	0	0	0	0	*
Benzene	8.16195E-05	0	0.000536036	9.48453E-05	0.000150976	*
Cyclohexane	0.000522352	0	0.00292971	0.000530283	0.000813324	*
n-Heptane	0.00982691	0	0.0225347	0.00506121	0.0117656	*
n-Octane	0.0027386	0	0.00190147	0.000530881	0.00281498	*
n-Nonane	0.0102713	0	0.0022108	0.000763775	0.00911009	*
n-Decane	0.0223011	0	0.00149004	0.000663221	0.016019	*
n-Undecane	0	0	0	0	0	*
Dodecane	0	0	0	0	0	*
Water	0.921075	0.0358424	0.0127713	0.00212253	0	*
Triethylene Glycol	0	0	0	0	0	*
Oxygen	0	0.151097	0	0	0	*
Argon	0	0.0123705	0	0	0	*
Carbon Monoxide	0	5.75832E-05	0	0	0	*
Cyclopentane	0	0	0	0	0	*
Isohexane	0.00444607	0	0.0426673	0.00755822	0.00978547	*
3-Methylpentane	0	0	0	0	0	*
Neohexane	0	0	0	0	0	*
2,3-Dimethylbutane	0	0	0	0	0	*
Methylcyclohexane	0	0	0	0	0	*
Isooctane	0.00969484	0	0.0240948	0.00527086	0.0112047	*
Decane, 2-Methyl-	0	0	0	0	0	*

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	EQT Production	Job: V1.0
Location:	SMI-28 Wellpad	
Flowsheet:	SMI-28	

Mass Fraction	Combined PW & Cond	Flare Emissions	Flash Vapor	Gas to Sales Line	Reservoir Gas
Toluene	0.000581054	0	0.00116184	0.000247528	0.000623303 *
m-Xylene	0.00143671	0	0.000740032	0.000203026	0.00117989 *
Ethylbenzene	0.000151763	0	9.3932E-05	2.47846E-05	0.000153898 *

Mass Flow	Combined PW & Cond lb/h	Flare Emissions lb/h	Flash Vapor lb/h	Gas to Sales Line lb/h	Reservoir Gas lb/h
Nitrogen	0.218276	12256.3	0.217094	114.817	115.036 *
Methane	68.102	0	67.0601	14359.4	14248 *
CO2	2.27247	1009.95	2.02452	95.6908	95.6767 *
Ethane	76.9133	0	71.5237	4286.21	4123.93 *
Propane	89.9146	0	70.3142	1729.43	1589.02 *
Isobutane	35.6146	0	20.8168	319.484	282.071 *
n-Butane	77.3591	0	38.2093	515.988	436.509 *
Isopentane	62.8559	0	16.6803	188.736	153.683 *
n-Pentane	61.3068	0	12.9867	145.083	114.074 *
n-Hexane	95.997	0	6.9219	82.4233	119.22 *
Methylcyclopentane	0	0	0	0	0 *
Benzene	2.75997	0	0.185407	2.12007	3.43061 *
Cyclohexane	17.6634	0	1.01334	11.8534	18.4811 *
n-Heptane	332.298	0	7.79442	113.133	267.348 *
n-Octane	92.6058	0	0.65769	11.8668	63.9646 *
n-Nonane	347.324	0	0.764683	17.0726	207.008 *
n-Decane	754.114	0	0.515381	14.825	363.999 *
n-Undecane	0	0	0	0	0 *
Dodecane	0	0	0	0	0 *
Water	31146.2	593.899	4.41742	47.4448	0 *
Triethylene Glycol	0	0	0	0	0 *
Oxygen	0	2503.64	0	0	0 *
Argon	0	204.976	0	0	0 *
Carbon Monoxide	0	0.954139	0	0	0 *
Cyclopentane	0	0	0	0	0 *
Isohexane	150.344	0	14.758	168.949	222.354 *
3-Methylpentane	0	0	0	0	0 *
Neohexane	0	0	0	0	0 *
2,3-Dimethylbutane	0	0	0	0	0 *
Methylcyclohexane	0	0	0	0	0 *
Isooctane	327.832	0	8.33405	117.819	254.604 *
Decane, 2-Methyl-	0	0	0	0	0 *
Toluene	19.6484	0	0.401864	5.53299	14.1633 *
m-Xylene	48.5824	0	0.255966	4.53823	26.8104 *
Ethylbenzene	5.13187	0	0.0324897	0.55401	3.49701 *

Volumetric Flow	Combined PW & Cond gpm	Flare Emissions ft^3/h	Flash Vapor ft^3/h	Gas to Sales Line ft^3/h	Reservoir Gas ft^3/h
Nitrogen	0.00079759	1.09115E+06	2.89072	57.4696	35.3423
Methane	0.446402	0	1552.11	11635.9	6595.34
CO2	0.00362006	57232.7	17.0188	26.4032	13.8808
Ethane	0.344122	0	875.168	1571.82	704.779
Propane	0.349811	0	582.287	371.74	121.418
Isobutane	0.128874	0	129.979	45.9955	10.7335
n-Butane	0.271085	0	238.169	69.7417	12.6229
Isopentane	0.206076	0	83.2386	17.296	1.62646
n-Pentane	0.199345	0	64.7212	12.8552	1.06994
n-Hexane	0.295194	0	28.6407	4.65096	0.748109
Methylcyclopentane	0	0	0	0	0
Benzene	0.00617648	0	0.851775	0.155791	0.0240903
Cyclohexane	0.0455037	0	4.30769	0.735162	0.137211
n-Heptane	0.984127	0	27.529	3.72679	2.71506

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	EQT Production
Location:	SMI-28 Wellpad
Flowsheet:	SMI-28

Job: V1.0

Volumetric Flow	Combined PW & Cond gpm	Flare Emissions ft^3/h	Flash Vapor ft^3/h	Gas to Sales Line ft^3/h	Reservoir Gas ft^3/h
n-Octane	0.264187	0	2.02142	0.203921	0.991937
n-Nonane	0.962842	0	2.07478	0.048833	3.79071
n-Decane	2.05085	0	1.25052	-0.118902	7.09872
n-Undecane	0	0	0	0	0
Dodecane	0	0	0	0	0
Water	62.6602	82211.4	90.8464	32.7063	0
Triethylene Glycol	0	0	0	0	0
Oxygen	0	195132	0	0	0
Argon	0	12796.4	0	0	0
Carbon Monoxide	0	84.9555	0	0	0
Cyclopentane	0	0	0	0	0
Isohexane	0.467562	0	61.1665	10.2317	1.30791
3-Methylpentane	0	0	0	0	0
Neohexane	0	0	0	0	0
2,3-Dimethylbutane	0	0	0	0	0
Methylcyclohexane	0	0	0	0	0
Isooctane	0.949293	0	25.7892	3.41103	2.57039
Decane, 2-Methyl-	0	0	0	0	0
Toluene	0.044479	0	1.55186	0.250083	0.127842
m-Xylene	0.11018	0	0.850985	0.119407	0.357574
Ethylbenzene	0.0116047	0	0.108133	0.0155962	0.045011

Std. Liquid Volumetric Fraction	Combined PW & Cond	Flare Emissions	Flash Vapor	Gas to Sales Line	Reservoir Gas	
Nitrogen	7.67685E-06	0.784612	0.000344505	0.00214235	0.00214774	*
Methane	0.00644504	0	0.286353	0.720954	0.7158	*
CO2	7.89173E-05	0.0638399	0.00317224	0.00176299	0.00176381	*
Ethane	0.00612622	0	0.257047	0.181121	0.174371	*
Propane	0.00503095	0	0.177514	0.0513365	0.0471975	*
Isobutane	0.00179569	0	0.0473572	0.00854585	0.00754973	*
n-Butane	0.00375781	0	0.083746	0.0132974	0.0112561	*
Isopentane	0.0028533	0	0.0341646	0.0045453	0.00370337	*
n-Pentane	0.00275842	0	0.0263646	0.00346318	0.00272464	*
n-Hexane	0.00410238	0	0.0133467	0.00186867	0.00270457	*
Methylcyclopentane	0	0	0	0	0	*
Benzene	8.85429E-05	0	0.000268378	3.60833E-05	5.84241E-05	*
Cyclohexane	0.000639774	0	0.00165608	0.000227772	0.000355346	*
n-Heptane	0.0137019	0	0.0145013	0.00247484	0.00585195	*
n-Octane	0.00371944	0	0.00119188	0.000252858	0.0013638	*
n-Nonane	0.013647	0	0.00135567	0.000355883	0.00431776	*
n-Decane	0.0291326	0	0.000898343	0.000303837	0.00746471	*
n-Undecane	0	0	0	0	0	*
Dodecane	0	0	0	0	0	*
Water	0.883875	0.0306771	0.00565621	0.000714297	0	*
Triethylene Glycol	0	0	0	0	0	*
Oxygen	0	0.11321	0	0	0	*
Argon	0	0.00759921	0	0	0	*
Carbon Monoxide	0	6.21772E-05	0	0	0	*
Cyclopentane	0	0	0	0	0	*
Isohexane	0.00648473	0	0.0287213	0.00386603	0.00509122	*
3-Methylpentane	0	0	0	0	0	*
Neohexane	0	0	0	0	0	*
2,3-Dimethylbutane	0	0	0	0	0	*
Methylcyclohexane	0	0	0	0	0	*
Isooctane	0.0133615	0	0.0153261	0.00254757	0.00550858	*
Decane, 2-Methyl-	0	0	0	0	0	*
Toluene	0.000639561	0	0.000590208	9.55477E-05	0.000244731	*
m-Xylene	0.00158685	0	0.000377234	7.86409E-05	0.000464871	*
Ethylbenzene	0.000167072	0	4.77247E-05	9.56863E-06	6.04359E-05	*

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	EQT Production	Job: V1.0
Location:	SMI-28 Wellpad	
Flowsheet:	SMI-28	

Stream Properties

Property	Units	Combined PW & Cond	Flare Emissions	Flash Vapor	Gas to Sales Line	Reservoir Gas
Temperature	°F	100	2962.95	70	100 *	75 *
Pressure	psig	430	0.0340512	0.625 *	430 *	700 *
Mole Fraction Vapor		0	1	1	1	0.977949
Mole Fraction Light Liquid		0.017278	0	0	0	0.022051
Mole Fraction Heavy Liquid		0.982722	0	0	0	0
Molecular Weight	lb/lbmol	19.2101	28.7251	33.5217	20.1296	20.6952
Mass Density	lb/ft^3	59.5447	0.0115179	0.0912008	1.61215	3.02298
Molar Flow	lbmol/h	1760.27	576.838	10.3183	1110.46	1097.98
Mass Flow	lb/h	33815	16569.7	345.885	22353	22722.9
Vapor Volumetric Flow	ft^3/h	567.894	1.43861E+06	3792.57	13865.3	7516.73
Liquid Volumetric Flow	gpm	70.8023	179359	472.84	1728.66	937.15
Std Vapor Volumetric Flow	MMSCFD	16.0319	5.25363	0.0939749	10.1136	10 *
Std Liquid Volumetric Flow	sgpm	70.4438	38.7013	1.56125	132.782	132.7
Specific Gravity		0.954716	0.9918	1.15741	0.695019	
API Gravity		15.4185				
Net Ideal Gas Heating Value	Btu/ft^3	77.1623	0.0189265	1747.79	1102.13	1132.3
Net Liquid Heating Value	Btu/lb	536.228	-42.2936	19649.1	20721.6	20706.6

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	EQT Production	Job: V1.0
Location:	SMI-28 Wellpad	
Flowsheet:	SMI-28	

Connections

	Reservoir Oil	Reservoir Water	Water and Condensate		
From Block	--	--	Produced Fluid Tanks		
To Block	MIX-102	MIX-102	--		

Stream Composition

Mole Fraction	Reservoir Oil	Reservoir Water	Water and Condensate		
Nitrogen	0 *	0 *	2.41096E-08		
Methane	0.27129 *	0 *	3.71121E-05		
CO2	0.00126 *	0 *	3.21959E-06		
Ethane	0.19291 *	0 *	0.000102426		
Propane	0.12667 *	0 *	0.000254007		
Isobutane	0.03047 *	0 *	0.000145489		
n-Butane	0.06544 *	0 *	0.000384912		
Isopentane	0.03291 *	0 *	0.000365727		
n-Pentane	0.03103 *	0 *	0.000382713		
n-Hexane	0.01666 *	0 *	0.000590673		
Methylcyclopentane	0 *	0 *	0		
Benzene	0.00045 *	0 *	1.88348E-05		
Cyclohexane	0.00318 *	0 *	0.000113054		
n-Heptane	0.0431 *	0 *	0.00185062		
n-Octane	0.0086 *	0 *	0.000459983		
n-Nonane	0.02976 *	0 *	0.00154411		
n-Decane	0.06902 *	0 *	0.00302667		
n-Undecane	0 *	0 *	0		
Dodecane	0 *	0 *	0		
Water	0 *	1 *	0.987816		
Triethylene Glycol	0 *	0 *	0		
Oxygen	0 *	0 *	0		
Argon	0 *	0 *	0		
Carbon Monoxide	0 *	0 *	0		
Cyclopentane	0 *	0 *	0		
Isohexane	0.02728 *	0 *	0.000899095		
3-Methylpentane	0 *	0 *	0		
Neohexane	0 *	0 *	0		
2,3-Dimethylbutane	0 *	0 *	0		
Methylcyclohexane	0 *	0 *	0		
Isooctane	0.04056 *	0 *	0.00159833		
Decane, 2-Methyl-	0 *	0 *	0		
Toluene	0.0029 *	0 *	0.000119367		
m-Xylene	0.00601 *	0 *	0.000260122		
Ethylbenzene	0.0005 *	0 *	2.74479E-05		

Molar Flow	Reservoir Oil lbmol/h	Reservoir Water lbmol/h	Water and Condensate lbmol/h		
Nitrogen	0 *	0 *	4.21907E-05		
Methane	11.1867 *	0 *	0.0649443		
CO2	0.0519563 *	0 *	0.00563412		
Ethane	7.95467 *	0 *	0.17924		
Propane	5.22326 *	0 *	0.4445		
Isobutane	1.25644 *	0 *	0.254599		
n-Butane	2.69843 *	0 *	0.673578		
Isopentane	1.35705 *	0 *	0.640005		
n-Pentane	1.27953 *	0 *	0.669729		
n-Hexane	0.686978 *	0 *	1.03365		
Methylcyclopentane	0 *	0 *	0		
Benzene	0.0185558 *	0 *	0.0329599		

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	EQT Production	Job: V1.0
Location:	SMI-28 Wellpad	
Flowsheet:	SMI-28	

Molar Flow	Reservoir Oil lbmol/h	Reservoir Water lbmol/h	Water and Condensate lbmol/h		
Cyclohexane	0.131128 *	0 *	0.197839		
n-Heptane	1.77724 *	0 *	3.23849		
n-Octane	0.354622 *	0 *	0.804949		
n-Nonane	1.22716 *	0 *	2.70211		
n-Decane	2.84605 *	0 *	5.29653		
n-Undecane	0 *	0 *	0		
Dodecane	0 *	0 *	0		
Water	0 *	1731.51 *	1728.63		
Triethylene Glycol	0 *	0 *	0		
Oxygen	0 *	0 *	0		
Argon	0 *	0 *	0		
Carbon Monoxide	0 *	0 *	0		
Cyclopentane	0 *	0 *	0		
Isohexane	1.12489 *	0 *	1.57337		
3-Methylpentane	0 *	0 *	0		
Neohexane	0 *	0 *	0		
2,3-Dimethylbutane	0 *	0 *	0		
Methylcyclohexane	0 *	0 *	0		
Isooctane	1.6725 *	0 *	2.797		
Decane, 2-Methyl-	0 *	0 *	0		
Toluene	0.119582 *	0 *	0.208887		
m-Xylene	0.247823 *	0 *	0.455201		
Ethylbenzene	0.0206176 *	0 *	0.0480326		

Mass Fraction	Reservoir Oil	Reservoir Water	Water and Condensate		
Nitrogen	0 *	0 *	3.53132E-08		
Methane	0.0797091 *	0 *	3.11292E-05		
CO2	0.00101559 *	0 *	7.40846E-06		
Ethane	0.106237 *	0 *	0.000161031		
Propane	0.102299 *	0 *	0.000585628		
Isobutane	0.0324353 *	0 *	0.000442134		
n-Butane	0.0696608 *	0 *	0.00116973		
Isopentane	0.0434871 *	0 *	0.00137965		
n-Pentane	0.0410029 *	0 *	0.00144372		
n-Hexane	0.0262943 *	0 *	0.00266141		
Methylcyclopentane	0 *	0 *	0		
Benzene	0.000643773 *	0 *	7.69234E-05		
Cyclohexane	0.00490155 *	0 *	0.000497473		
n-Heptane	0.0790964 *	0 *	0.00969559		
n-Octane	0.0179919 *	0 *	0.00274725		
n-Nonane	0.0699054 *	0 *	0.0103546		
n-Decane	0.179857 *	0 *	0.0225162		
n-Undecane	0 *	0 *	0		
Dodecane	0 *	0 *	0		
Water	0 *	1 *	0.930462		
Triethylene Glycol	0 *	0 *	0		
Oxygen	0 *	0 *	0		
Argon	0 *	0 *	0		
Carbon Monoxide	0 *	0 *	0		
Cyclopentane	0 *	0 *	0		
Isohexane	0.0430557 *	0 *	0.00405108		
3-Methylpentane	0 *	0 *	0		
Neohexane	0 *	0 *	0		
2,3-Dimethylbutane	0 *	0 *	0		
Methylcyclohexane	0 *	0 *	0		
Isooctane	0.0848547 *	0 *	0.00954603		
Decane, 2-Methyl-	0 *	0 *	0		
Toluene	0.00489375 *	0 *	0.000575052		

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	EQT Production	Job: V1.0
Location:	SMI-28 Wellpad	
Flowsheet:	SMI-28	

Mass Fraction	Reservoir Oil	Reservoir Water	Water and Condensate		
m-Xylene	0.0116858 *	0 *	0.00144391		
Ethylbenzene	0.000972198 *	0 *	0.000152361		

Mass Flow	Reservoir Oil lb/h	Reservoir Water lb/h	Water and Condensate lb/h		
Nitrogen	0 *	0 *	0.0011819		
Methane	179.462 *	0 *	1.04187		
CO2	2.28657 *	0 *	0.247955		
Ethane	239.189 *	0 *	5.38958		
Propane	230.323 *	0 *	19.6005		
Isobutane	73.0268 *	0 *	14.7978		
n-Butane	156.839 *	0 *	39.1498		
Isopentane	97.9094 *	0 *	46.1756		
n-Pentane	92.3163 *	0 *	48.3201		
n-Hexane	59.2005 *	0 *	89.0751		
Methylcyclopentane	0 *	0 *	0		
Benzene	1.44943 *	0 *	2.57456		
Cyclohexane	11.0356 *	0 *	16.65		
n-Heptane	178.082 *	0 *	324.503		
n-Octane	40.508 *	0 *	91.9481		
n-Nonane	157.389 *	0 *	346.56		
n-Decane	404.941 *	0 *	753.599		
n-Undecane	0 *	0 *	0		
Dodecane	0 *	0 *	0		
Water	0 *	31193.6 *	31141.8		
Triethylene Glycol	0 *	0 *	0		
Oxygen	0 *	0 *	0		
Argon	0 *	0 *	0		
Carbon Monoxide	0 *	0 *	0		
Cyclopentane	0 *	0 *	0		
Isohexane	96.9382 *	0 *	135.586		
3-Methylpentane	0 *	0 *	0		
Neohexane	0 *	0 *	0		
2,3-Dimethylbutane	0 *	0 *	0		
Methylcyclohexane	0 *	0 *	0		
Isooctane	191.047 *	0 *	319.498		
Decane, 2-Methyl-	0 *	0 *	0		
Toluene	11.0181 *	0 *	19.2465		
m-Xylene	26.3102 *	0 *	48.3264		
Ethylbenzene	2.18887 *	0 *	5.09938		

Volumetric Flow	Reservoir Oil ft^3/h	Reservoir Water gpm	Water and Condensate gpm		
Nitrogen	0	0	3.42485E-06		
Methane	40.9996	0	0.00560444		
CO2	0.106998	0	0.000358108		
Ethane	13.493	0	0.0211578		
Propane	7.72397	0	0.0702747		
Isobutane	2.07252	0	0.0508334		
n-Butane	4.2618	0	0.130433		
Isopentane	2.43235	0	0.146622		
n-Pentane	2.27435	0	0.152189		
n-Hexane	1.37128	0	0.268574		
Methylcyclopentane	0	0	0		
Benzene	0.023985	0	0.00565439		
Cyclohexane	0.209487	0	0.0425135		
n-Heptane	3.95578	0	0.950622		
n-Octane	0.864503	0	0.261017		

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	EQT Production	Job: V1.0
Location:	SMI-28 Wellpad	
Flowsheet:	SMI-28	

Volumetric Flow	Reservoir Oil ft^3/h	Reservoir Water gpm	Water and Condensate gpm		
n-Nonane	3.25691	0	0.960246		
n-Decane	8.20812	0	2.05545		
n-Undecane	0	0	0		
Dodecane	0	0	0		
Water	0	62.4584	62.3445		
Triethylene Glycol	0	0	0		
Oxygen	0	0	0		
Argon	0	0	0		
Carbon Monoxide	0	0	0		
Cyclopentane	0	0	0		
Isohexane	2.27195	0	0.413342		
3-Methylpentane	0	0	0		
Neohexane	0	0	0		
2,3-Dimethylbutane	0	0	0		
Methylcyclohexane	0	0	0		
Isooctane	4.13849	0	0.921291		
Decane, 2-Methyl-	0	0	0		
Toluene	0.182462	0	0.0433774		
m-Xylene	0.435196	0	0.109948		
Ethylbenzene	0.0360326	0	0.0115871		

Std. Liquid Volumetric Fraction	Reservoir Oil	Reservoir Water	Water and Condensate		
Nitrogen	0 *	0 *	4.25103E-08		
Methane	0.1465 *	0 *	0.000100835		
CO2	0.000684946 *	0 *	8.80603E-06		
Ethane	0.164335 *	0 *	0.000439016		
Propane	0.111162 *	0 *	0.00112155		
Isobutane	0.0317601 *	0 *	0.000763016		
n-Butane	0.0657165 *	0 *	0.00194485		
Isopentane	0.0383375 *	0 *	0.00214362		
n-Pentane	0.0358285 *	0 *	0.00222338		
n-Hexane	0.0218224 *	0 *	0.00389286		
Methylcyclopentane	0 *	0 *	0		
Benzene	0.000401093 *	0 *	8.44669E-05		
Cyclohexane	0.00344785 *	0 *	0.000616739		
n-Heptane	0.0633391 *	0 *	0.0136838		
n-Octane	0.0140339 *	0 *	0.00377672		
n-Nonane	0.0533426 *	0 *	0.0139256		
n-Decane	0.134937 *	0 *	0.0297726		
n-Undecane	0 *	0 *	0		
Dodecane	0 *	0 *	0		
Water	0 *	1 *	0.90378		
Triethylene Glycol	0 *	0 *	0		
Oxygen	0 *	0 *	0		
Argon	0 *	0 *	0		
Carbon Monoxide	0 *	0 *	0		
Cyclopentane	0 *	0 *	0		
Isohexane	0.0360661 *	0 *	0.00598073		
3-Methylpentane	0 *	0 *	0		
Neohexane	0 *	0 *	0		
2,3-Dimethylbutane	0 *	0 *	0		
Methylcyclohexane	0 *	0 *	0		
Isooctane	0.0671648 *	0 *	0.013317		
Decane, 2-Methyl-	0 *	0 *	0		
Toluene	0.00309357 *	0 *	0.000640679		
m-Xylene	0.00741274 *	0 *	0.00161427		
Ethylbenzene	0.000614673 *	0 *	0.000169777		

* User Specified Values
? Extrapolated or Approximate Values

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	EQT Production	Job: V1.0
Location:	SMI-28 Wellpad	
Flowsheet:	SMI-28	

Stream Properties

Property	Units	Reservoir Oil	Reservoir Water	Water and Condensate		
Temperature	°F	75 *	75 *	70 *		
Pressure	psig	700 *	700 *	0.625		
Mole Fraction Vapor		0.148106	0	0		
Mole Fraction Light Liquid		0.851894	1	0.0121569		
Mole Fraction Heavy Liquid		0	0	0.987843		
Molecular Weight	lb/lbmol	54.6005	18.0153	19.1258		
Mass Density	lb/ft^3	22.8996	62.2667	60.5052		
Molar Flow	lbmol/h	41.2352	1731.51	1749.95		
Mass Flow	lb/h	2251.46	31193.6	33469.2		
Vapor Volumetric Flow	ft^3/h	98.3189	500.968	553.162		
Liquid Volumetric Flow	gpm	12.2579	62.4584	68.9656		
Std Vapor Volumetric Flow	MMSCFD	0.375554	15.7699	15.9379		
Std Liquid Volumetric Flow	sgpm	8.16667 *	62.3583 *	68.8826		
Specific Gravity			0.998359	0.970117		
API Gravity			9.92704	14.1		
Net Ideal Gas Heating Value	Btu/ft^3	2823.86	0	67.3118		
Net Liquid Heating Value	Btu/lb	19483.2	-1059.76	338.707		

Remarks

Energy Stream Report

Client Name:	EQT Production	Job: V1.0
Location:	SMI-28 Wellpad	
Flowsheet:	SMI-28	

Energy Streams

Energy Stream	Energy Rate	Power	From Block	To Block
Pilot Heat Input	6.84367E+06 * Btu/h	2689.66 * hp	--	REAC-100

Remarks

Flowsheet Environment
SRK Environment

Client Name:	EQT Production	Job: V1.0
Location:	SMI-28 Wellpad	
Flowsheet:	SMI-28	

Environment Settings

Number of Poynting Intervals	0	Freeze Out Temperature Threshold Difference	10 °F
Gibbs Excess Model Evaluation Temperature	77 °F	Phase Tolerance	0.01

Components

Component Name	Henry`s Law Component	Phase Initiator	Component Name	Henry`s Law Component	Phase Initiator
Nitrogen	False	False	Dodecane	False	False
Methane	False	False	Water	False	True
CO2	False	False	Triethylene Glycol	False	True
Ethane	False	False	Oxygen	False	False
Propane	False	False	Argon	False	False
Isobutane	False	False	Carbon Monoxide	False	False
n-Butane	False	False	Cyclopentane	False	False
Isopentane	False	False	Isohexane	False	False
n-Pentane	False	False	3-Methylpentane	False	False
n-Hexane	False	False	Neohexane	False	False
Methylcyclopentane	False	False	2,3-Dimethylbutane	False	False
Benzene	False	False	Methylcyclohexane	False	False
Cyclohexane	False	False	Isooctane	False	False
n-Heptane	False	False	Decane, 2-Methyl-	False	False
n-Octane	False	False	Toluene	False	False
n-Nonane	False	False	m-Xylene	False	False
n-Decane	False	False	Ethylbenzene	False	False
n-Undecane	False	False			

Physical Property Method Sets

Liquid Molar Volume	COSTALD	Overall Package	SRK
Stability Calculation	SRK	Vapor Package	SRK
Light Liquid Package	SRK	Heavy Liquid Package	SRK

Remarks

Environments Report

Client Name:	EQT Production	Job: V1.0
Location:	SMI-28 Wellpad	

Project-Wide Constants

Atmospheric Pressure	14.6959 psia	IG Ref Pressure	14.6959 psia
IG Ref Temperature	60 °F	IG Ref Volume	379.485 ft^3/lbmol
Liq Ref Temperature	60 °F		

Environment [SRK Environment]

Environment Settings

Number of Poynting Intervals	0	Freeze Out Temperature Threshold Difference	10 °F
Gibbs Excess Model Evaluation Temperature	77 °F	Phase Tolerance	0.01

Components

Component Name	Henry`s Law Component	Phase Initiator	Component Name	Henry`s Law Component	Phase Initiator
Nitrogen	False	False	Dodecane	False	False
Methane	False	False	Water	False	True
CO2	False	False	Triethylene Glycol	False	True
Ethane	False	False	Oxygen	False	False
Propane	False	False	Argon	False	False
Isobutane	False	False	Carbon Monoxide	False	False
n-Butane	False	False	Cyclopentane	False	False
Isopentane	False	False	Isohexane	False	False
n-Pentane	False	False	3-Methylpentane	False	False
n-Hexane	False	False	Neohexane	False	False
Methylcyclopentane	False	False	2,3-Dimethylbutane	False	False
Benzene	False	False	Methylcyclohexane	False	False
Cyclohexane	False	False	Isooctane	False	False
n-Heptane	False	False	Decane, 2-Methyl-	False	False
n-Octane	False	False	Toluene	False	False
n-Nonane	False	False	m-Xylene	False	False
n-Decane	False	False	Ethylbenzene	False	False
n-Undecane	False	False			

Physical Property Method Sets

Liquid Molar Volume	COSTALD	Overall Package	SRK
Stability Calculation	SRK	Vapor Package	SRK
Light Liquid Package	SRK	Heavy Liquid Package	SRK

Remarks

Calculator Report

Client Name:	EQT Production	Job: V1.0
Location:	SMI-28 Wellpad	

Simple Specifier 1

Source Code

CV1 = O2Reqd * 3.0 / O2Frac

Calculated Variable [CV1]

SourceMoniker	ProMax:ProMax!Project!Flowsheets!SMI-28!PStreams!Combustion Air!Phases!Total!Properties!Molar Flow
Value	560.161
Unit	lbmol/h

Measured Variable [O2Reqd]

SourceMoniker	ProMax:ProMax!Project!Flowsheets!SMI-28!PStreams!Combined Flash Vapor!Analyses!Combustion Analysis 1!Properties!Required Combustion Oxygen
Value	39.1123
Unit	lbmol/h

Measured Variable [O2Frac]

SourceMoniker	ProMax:ProMax!Project!Flowsheets!SMI-28!PStreams!Combustion Air!Phases!Total!Composition!Mole Fraction!Oxygen
Value	0.20947
Unit	

Remarks

Simple Specifier 2

Source Code

CV1 = FV*HV

Calculated Variable [CV1]

SourceMoniker	ProMax:ProMax!Project!Flowsheets!SMI-28!QStreams!Pilot Heat Input!Energy Rate
Value	6.84367E+06
Unit	Btu/h

Measured Variable [FV]

SourceMoniker	ProMax:ProMax!Project!Flowsheets!SMI-28!PStreams!Flash Vapor!Phases!Total!Properties!Std Vapor Volumetric Flow
Value	3915.62
Unit	scf/h

Measured Variable [HV]

SourceMoniker	ProMax:ProMax!Project!Flowsheets!SMI-28!PStreams!Flash Vapor!Phases!Total!Properties!Net IG HV
Value	1747.79
Unit	Btu/ft^3

Remarks

User Value Sets Report

Client Name:	EQT Production	Job: V1.0
Location:	SMI-28 Wellpad	

Tank Losses.53

User Value [ShellLength]

* Parameter	20	ft	Upper Bound	ft
* Lower Bound	0	ft	* Enforce Bounds	False

User Value [ShellDiam]

* Parameter	12	ft	Upper Bound	ft
* Lower Bound	0	ft	* Enforce Bounds	False

User Value [BreatherVP]

* Parameter	0.875	psig	Upper Bound	psig
Lower Bound		psig	* Enforce Bounds	False

User Value [BreatherVacP]

* Parameter	-0.03125	psig	Upper Bound	psig
Lower Bound		psig	* Enforce Bounds	False

User Value [DomeRadius]

Parameter		ft	Upper Bound	ft
Lower Bound		ft	* Enforce Bounds	False

User Value [OpPress]

* Parameter	0	psig	Upper Bound	psig
Lower Bound		psig	* Enforce Bounds	False

User Value [AvgPercentLiq]

* Parameter	50	%	Upper Bound	%
Lower Bound		%	* Enforce Bounds	False

User Value [MaxPercentLiq]

* Parameter	90	%	Upper Bound	%
Lower Bound		%	* Enforce Bounds	False

User Value [AnnNetTP]

* Parameter	2427.51	bbl/day	Upper Bound	bbl/day
* Lower Bound	0	bbl/day	* Enforce Bounds	False

User Value [OREff]

* Parameter	0	%	Upper Bound	%
Lower Bound		%	* Enforce Bounds	False

User Value [AtmPressure]

* Parameter	14.2535	psia	Upper Bound	psia
Lower Bound		psia	* Enforce Bounds	False

User Value [MaxLiqSurfaceT]

* Parameter	75.9425	°F	Upper Bound	°F
Lower Bound		°F	* Enforce Bounds	False

User Value [TotalLosses]

* Parameter	16.1801	ton/yr	Upper Bound	ton/yr
Lower Bound		ton/yr	* Enforce Bounds	False

User Value [WorkingLosses]

* Parameter	0.681949	ton/yr	Upper Bound	ton/yr
Lower Bound		ton/yr	* Enforce Bounds	False

User Value Sets Report

Client Name:	EQT Production	Job: V1.0
Location:	SMI-28 Wellpad	

User Value [StandingLosses]

* Parameter	0.473771	ton/yr	Upper Bound	ton/yr
Lower Bound		ton/yr	* Enforce Bounds	False

User Value [RimSealLosses]

* Parameter	0	ton/yr	Upper Bound	ton/yr
Lower Bound		ton/yr	* Enforce Bounds	False

User Value [WithdrawalLoss]

* Parameter	0	ton/yr	Upper Bound	ton/yr
Lower Bound		ton/yr	* Enforce Bounds	False

User Value [LoadingLosses]

* Parameter	27.2875	ton/yr	Upper Bound	ton/yr
Lower Bound		ton/yr	* Enforce Bounds	False

User Value [DeckFittingLosses]

* Parameter	0	ton/yr	Upper Bound	ton/yr
Lower Bound		ton/yr	* Enforce Bounds	False

User Value [DeckSeamLosses]

* Parameter	0	ton/yr	Upper Bound	ton/yr
Lower Bound		ton/yr	* Enforce Bounds	False

User Value [FlashingLosses]

* Parameter	1007.61	ton/yr	Upper Bound	ton/yr
Lower Bound		ton/yr	* Enforce Bounds	False

User Value [GasMoleWeight]

* Parameter	0.0576527	kg/mol	Upper Bound	kg/mol
Lower Bound		kg/mol	* Enforce Bounds	False

Remarks
This User Value Set was programmatically generated. GUID={5524AB8C-40B1-4354-9DD7-EED65770BF87}

Cn+ Flow/Frac.55

User Value [CnPlusSum]

* Parameter	878.814	ton/yr	Upper Bound	ton/yr
Lower Bound		ton/yr	* Enforce Bounds	False

Remarks
This User Value Set was programmatically generated. GUID={6F8309F1-C05A-4942-A867-311E1532159F}

ATTACHMENT T

Emission Summary Sheet

ATTACHMENT T – FACILITY-WIDE CONTROLLED EMISSIONS SUMMARY SHEET

List all sources of emissions in this table. Use extra pages if necessary.

Emission Point ID# (Emission Source ID)	NO_x		CO		VOC		SO_2		PM_{10}		$PM_{2.5}$		GHG (CO_2e)	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
C001 (S001-S010, S022-S023, S026-S027, S034, C001)	**1.15**	**5.02**	**0.96**	**4.22**	**3.13**	**10.70**	**0.01**	**0.03**	**0.09**	**0.38**	**0.09**	**0.38**	**1,385.40**	**6,068.06**
C002 (S001-S010, S022-S023, S026-S027, S034, C002)	**1.15**	**5.02**	**0.96**	**4.22**	**3.13**	**10.70**	**0.01**	**0.03**	**0.09**	**0.38**	**0.09**	**0.38**	**1,385.40**	**6,068.06**
E011 (S011)	0.15	0.64	0.12	0.54	0.01	0.04	8.8 E-04	3.9 E-03	0.01	0.05	0.01	0.05	180.18	789.20
E012 (S012)	0.15	0.64	0.12	0.54	0.01	0.04	8.8 E-04	3.9 E-03	0.01	0.05	0.01	0.05	180.18	789.20
E013 (S013)	0.15	0.64	0.12	0.54	0.01	0.04	8.8 E-04	3.9 E-03	0.01	0.05	0.01	0.05	180.18	789.20
E014 (S014)	0.15	0.64	0.12	0.54	0.01	0.04	8.8 E-04	3.9 E-03	0.01	0.05	0.01	0.05	180.18	789.20
E015 (S015)	0.15	0.64	0.12	0.54	0.01	0.04	8.8 E-04	3.9 E-03	0.01	0.05	0.01	0.05	180.18	789.20
E016 (S016)	0.15	0.64	0.12	0.54	0.01	0.04	8.8 E-04	3.9 E-03	0.01	0.05	0.01	0.05	180.18	789.20
E017 (S017)	0.15	0.64	0.12	0.54	0.01	0.04	8.8 E-04	3.9 E-03	0.01	0.05	0.01	0.05	180.18	789.20
E018 (S018)	0.15	0.64	0.12	0.54	0.01	0.04	8.8 E-04	3.9 E-03	0.01	0.05	0.01	0.05	180.18	789.20
E019 (S019)	0.15	0.64	0.12	0.54	0.01	0.04	8.8 E-04	3.9 E-03	0.01	0.05	0.01	0.05	180.18	789.20
E024 (S024)	0.15	0.64	0.12	0.54	0.01	0.04	8.8 E-04	3.9 E-03	0.01	0.05	0.01	0.05	180.18	789.20
E025 (S025)	0.15	0.64	0.12	0.54	0.01	0.04	8.8 E-04	3.9 E-03	0.01	0.05	0.01	0.05	180.18	789.20
E028 (S028)	0.15	0.64	0.12	0.54	0.01	0.04	8.8 E-04	3.9 E-03	0.01	0.05	0.01	0.05	180.18	789.20
E029 (S029)	0.15	0.64	0.12	0.54	0.01	0.04	8.8 E-04	3.9 E-03	0.01	0.05	0.01	0.05	180.18	789.20
E020 (S020)	2.8 E-03	1.2 E-02	2.3 E-03	1.0 E-02	1.5 E-04	6.7 E-04	1.7 E-05	7.3 E-05	2.1 E-04	9.2 E-04	2.1 E-04	9.2 E-04	3.41	14.95

E021 (S021)	2.8 E-03	1.2 E-02	2.3 E-03	1.0 E-02	1.5 E-04	6.7 E-04	1.7 E-05	7.3 E-05	2.1 E-04	9.2 E-04	2.1 E-04	9.2 E-04	3.41	14.95
E031 (S031)	6.7 E-03	2.9 E-02	5.7 E-03	2.5 E-02	3.7 E-04	1.6 E-03	4.0 E-05	1.8 E-04	5.1 E-04	2.2 E-03	5.1 E-04	2.2 E-03	8.27	36.20
E032 (S032)	6.7 E-03	2.9 E-02	5.7 E-03	2.5 E-02	3.7 E-04	1.6 E-03	4.0 E-05	1.8 E-04	5.1 E-04	2.2 E-03	5.1 E-04	2.2 E-03	8.27	36.20
E033 (S033)	6.7 E-03	2.9 E-02	5.7 E-03	2.5 E-02	3.7 E-04	1.6 E-03	4.0 E-05	1.8 E-04	5.1 E-04	2.2 E-03	5.1 E-04	2.2 E-03	8.27	36.20
E030 (S030)	---	---	---	---	0.30	1.32	---	---	---	---	---	---	3.43	15.00
E034 (S034)	---	---	---	---	31.49	8.19	---	---	---	---	---	---	---	---
Fugitives	---	---	---	---	---	42.80	---	---	---	---	---	---	---	1,219.40
Haul Roads	---	---	---	---	---	---	---	---	---	10.64	---	1.06	---	---
Facility Total	4.22	18.49	3.55	15.53	38.16	74.19	0.03	0.11	0.32	12.04	0.32	2.47	5,148.22	23,768.58
Facility Total (excl. fugitives)	4.22	18.49	3.55	15.53	6.68	23.20	0.03	0.11	0.32	1.41	0.32	1.41	5,148.22	22,549.18

Annual emissions shall be based on 8,760 hours per year of operation for all emission units except emergency generators.
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 in Table 1. Therefore, fugitive emissions shall not be included in the PTE above.

ATTACHMENT T – FACILITY-WIDE HAP CONTROLLED EMISSIONS SUMMARY SHEET

List all sources of emissions in this table. Use extra pages if necessary.

Emission Point ID#	Formaldehyde		Benzene		Toluene		Ethylbenzene		Xylenes		Hexane		Total HAPs	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
C001 (S001-S010, S022-S023, S026-S027, S034, C001)	---	---	**2.9 E-03**	**0.01**	**0.01**	**0.02**	**5.4 E-04**	**2.0 E-03**	**4.3 E-03**	**0.02**	**0.12**	**0.41**	**0.27**	**0.96**
C002 (S001-S010, S022-S023, S026-S027, S034, C002)	---	---	**2.9 E-03**	**0.01**	**0.01**	**0.02**	**5.4 E-04**	**2.0 E-03**	**4.3 E-03**	**0.02**	**0.12**	**0.41**	**0.27**	**0.96**
E011 (S011)	1.1 E-04	4.8 E-04	3.1 E-06	1.3 E-05	5.0 E-06	2.2 E-05	---	---	---	---	2.6 E-03	0.01	2.8 E-03	0.01
E012 (S012)	1.1 E-04	4.8 E-04	3.1 E-06	1.3 E-05	5.0 E-06	2.2 E-05	---	---	---	---	2.6 E-03	0.01	2.8 E-03	0.01
E013 (S013)	1.1 E-04	4.8 E-04	3.1 E-06	1.3 E-05	5.0 E-06	2.2 E-05	---	---	---	---	2.6 E-03	0.01	2.8 E-03	0.01
E014 (S014)	1.1 E-04	4.8 E-04	3.1 E-06	1.3 E-05	5.0 E-06	2.2 E-05	---	---	---	---	2.6 E-03	0.01	2.8 E-03	0.01
E015 (S015)	1.1 E-04	4.8 E-04	3.1 E-06	1.3 E-05	5.0 E-06	2.2 E-05	---	---	---	---	2.6 E-03	0.01	2.8 E-03	0.01
E016 (S016)	1.1 E-04	4.8 E-04	3.1 E-06	1.3 E-05	5.0 E-06	2.2 E-05	---	---	---	---	2.6 E-03	0.01	2.8 E-03	0.01
E017 (S017)	1.1 E-04	4.8 E-04	3.1 E-06	1.3 E-05	5.0 E-06	2.2 E-05	---	---	---	---	2.6 E-03	0.01	2.8 E-03	0.01
E018 (S018)	1.1 E-04	4.8 E-04	3.1 E-06	1.3 E-05	5.0 E-06	2.2 E-05	---	---	---	---	2.6 E-03	0.01	2.8 E-03	0.01
E019 (S019)	1.1 E-04	4.8 E-04	3.1 E-06	1.3 E-05	5.0 E-06	2.2 E-05	---	---	---	---	2.6 E-03	0.01	2.8 E-03	0.01
E024 (S024)	1.1 E-04	4.8 E-04	3.1 E-06	1.3 E-05	5.0 E-06	2.2 E-05	---	---	---	---	2.6 E-03	0.01	2.8 E-03	0.01
E025 (S025)	1.1 E-04	4.8 E-04	3.1 E-06	1.3 E-05	5.0 E-06	2.2 E-05	---	---	---	---	2.6 E-03	0.01	2.8 E-03	0.01
E028 (S028)	1.1 E-04	4.8 E-04	3.1 E-06	1.3 E-05	5.0 E-06	2.2 E-05	---	---	---	---	2.6 E-03	0.01	2.8 E-03	0.01
E029 (S029)	1.1 E-04	4.8 E-04	3.1 E-06	1.3 E-05	5.0 E-06	2.2 E-05	---	---	---	---	2.6 E-03	0.01	2.8 E-03	0.01
E020 (S020)	2.1 E-06	9.1 E-06	5.8 E-08	2.6 E-07	9.4 E-08	4.1 E-07	---	---	---	---	5.0 E-05	2.2 E-04	5.2 E-05	2.3 E-04
E021 (S021)	2.1 E-06	9.1 E-06	5.8 E-08	2.6 E-07	9.4 E-08	4.1 E-07	---	---	---	---	5.0 E-05	2.2 E-04	5.2 E-05	2.3 E-04

E031 (S031)	5.0 E-06	2.2 E-05	1.4 E-07	6.2 E-07	2.3 E-07	1.0 E-06	---	---	---	---	1.2 E-04	5.3 E-04	1.3 E-04	5.6 E-04
E032 (S032)	5.0 E-06	2.2 E-05	1.4 E-07	6.2 E-07	2.3 E-07	1.0 E-06	---	---	---	---	1.2 E-04	5.3 E-04	1.3 E-04	5.6 E-04
E033 (S033)	5.0 E-06	2.2 E-05	1.4 E-07	6.2 E-07	2.3 E-07	1.0 E-06	---	---	---	---	1.2 E-04	5.3 E-04	1.3 E-04	5.6 E-04
E030 (S030)	---	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.0 E-03	3.0 E-03	2.0 E-03	1.0 E-02
E034 (S034)	---	---	0.02	0.01	0.04	0.01	3.7 E-03	9.6 E-04	0.03	7.5 E-03	1.10	0.28	2.45	0.64
Fugitives	---	---	---	0.04	---	0.15	---	2.6 E-02	---	0.28	---	1.20	---	1.85
Haul Roads	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Facility Total	**0.00**	**0.01**	**0.03**	**0.07**	**0.05**	**0.21**	**0.00**	**0.03**	**0.04**	**0.32**	**1.37**	**2.45**	**3.04**	**4.58**
Facility Total (excl. fugitives)	**0.00**	**0.01**	**0.01**	**0.02**	**0.01**	**0.05**	**0.00**	**0.00**	**0.01**	**0.03**	**0.27**	**0.97**	**0.59**	**2.10**

Annual emissions shall be based on 8,760 hours per year of operation for all emission units except emergency generators.
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 in Table 1. Therefore, fugitive emissions shall not be included in the PTE above.

ATTACHMENT U

Class I Legal Advertisement

RECOMMENDED PUBLIC NOTICE TEMPLATE

AIR QUALITY PERMIT NOTICE
Notice of Application

Notice is given that EQT Production Company has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Class II General Permit to convert the current G-70A General Permit Registration into a G70-C Permit Registration for the natural gas production facility SMI-28 located approximately 6.3 miles northwest of New Milton in Doddridge County, West Virginia. The latitude and longitude coordinates are: 39.26262 N, -80.73805 W. The project will also include the removal of two combustors currently permitted at the site.

The applicant estimates the potential to discharge the following Regulated Air Pollutants will be:

Pollutant	Emissions in tpy (tons per year)
NOx	18.49
CO	15.53
VOC	23.20
SO_2	0.11
PM	1.41
Total HAPs	4.58
Carbon Dioxide Equivalents (CO_2e)	22,549.18

Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1250, during normal business hours.
Dated this the **(Day)** day of **(Month)**, 2016.

By: EQT Production Company
Kenneth Kirk, Executive Vice President
625 Liberty Ave Suite 1700
Pittsburgh, PA 15222

ATTACHMENT V

General Permit Registration Application Fee