



February 7, 2011

**CERTIFIED MAIL NO. 70101870000335296073**

Director  
WVDEP  
Division of Air Quality  
601 57th Street SE  
Charleston WV 25304

**RE: Title V Permit Renewal Application  
Equitrans, LP - Comet Compressor Station  
Permit ID #R30-09100013-2006**

Dear Sir or Madam:

Equitrans, LP (Equitrans) is submitting this Title V Permit Renewal Application for its Comet Compressor Station (R30-09100013-2006) located on Meadland Road, Taylor County, West Virginia.

Included with this letter are the following required documents:

- Title V Permit Renewal Application (one hardcopy; two electronic)

If you have any questions or comments concerning the enclosed Application, please feel free to contact me.

Sincerely,

A handwritten signature in blue ink that reads "Jerry McGinnis".

Jerry McGinnis, CHMM  
Supervisor, Environmental  
Equitrans, LP

625 Liberty Ave, Suite 1700  
Pittsburgh PA 15222  
www.eqt.com

TEL: (412) 395-2548  
FAX: (412) 395-2156

Jerry L. McGinnis, CHMM  
Supervisor, Environmental

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## 1. INTRODUCTION

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Equitrans, LP (Equitrans) operates a natural gas transmission facility near Bridgeport, West Virginia referred to as the Comet Compressor Station #43 (Comet Station). The Comet Station is currently operating in accordance with West Virginia Department of Environmental Protection (WVDEP) Division of Air Quality Title V operating permit R30-09100013-2006, last issued on September 19, 2006.

The current Title V permit expires September 19, 2011. Equitrans is submitting this timely and complete permit renewal application by the renewal submission deadline of March 19, 2011, (i.e., six months before the expiration of the current permit) in accordance with Series 30, Section 4.1.a.3 of the WVDEP Division of Air Quality (DAQ) Code of State Rules (CSR) §45-30-4.1.a.3. Presuming WVDEP finds this application administratively complete, Equitrans may continue to operate the Comet Station under the terms of the existing Title V permit until the renewed permit is issued, even if this issuance would occur after the current permit's expiration date.

### 1.1 FACILITY DESCRIPTION

The Comet Station is a natural gas gathering facility covered under Standard Industrial Classification (SIC) Code 4922. The station has the potential to operate twenty-four (24) hours per day, seven (7) days per week. The station consists of two (2) 300-hp and two (2) 330-hp natural gas internal combustion reciprocating engines, one (1) 2.25 MMBtu/hr heating boiler, one (1) 600-hp natural gas internal combustion reciprocating engine, one (1) 12-hp compressor, one (1) 251-hp electric generator, and three (3) tanks of various sizes.

A description of each source category is included below. A process flow diagram is included as Appendix C.

#### 1.1.1 COMPRESSOR ENGINES

The Comet Station includes five (5) natural gas-fired reciprocating engines used to power reciprocating compressors that move the compressed natural gas through pipelines. One of these engines (C-005) is a 2-stroke, lean-burn engine rated for 600 hp. Two of the other engines (C-007 and C-008) are 2-stroke, lean-burn engines rated for 330 hp each. The remaining two engines (C-006 and C-009) are 2-stroke, lean-burn engines rated for 300 hp each. The function of the reciprocating compressors is to raise the discharge pressure of the gas in the pipeline to overcome the effect of frictional losses in the pipeline upstream of the station, in order to maintain the required suction pressure at the next station downstream or at various downstream delivery points.

#### 1.1.2 STORAGE TANKS

The Comet Station operates one (1) storage tank with a capacity of 4,000 gallons and two (2) storage tanks each with a capacity of 1,500 gallons. The 4,000 gallon tank (Tank1) contains

pipeline condensate. One of the 1,500 gallon tanks contains triethylene glycol (Tank2) and the other contains new oil (Tank3).

### **1.1.3 MISCELLANEOUS SOURCES**

Additional combustion sources at the station include a natural gas-fired generator (four-stroke rich-burn engine, rated at 251 hp), a small natural gas-fired boiler for comfort heating (rated at 2.25 MMBtu/hr), and a small natural gas-fired hot water heater (rated at 0.03 MMBtu/hr).

## **1.2 TITLE V RENEWAL APPLICATION ORGANIZATION**

This Title V permit renewal application is organized as follows:

- Section 2 contains an overview of regulatory applicability for the Comet Station;
- Section 3 contains sample emission source calculations;
- Section 4 contains the required WVDEP application forms;
- Attachment A contains an area map;
- Attachment B contains a plot plan;
- Attachment C contains a process flow diagram;
- Attachment D contains the WVDEP Title V equipment table;
- Attachment E contains a WVDEP emission unit form for each emission unit at the Comet Station;
- Attachment F contains site-wide emission calculations.

## 2. REGULATORY APPLICABILITY

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A key objective of a Title V operating permit application is to compile all applicable Clean Air Act-derived requirements into one document. The requirements can be categorized as (1) emission limits and work practice standards, and (2) testing, monitoring, recordkeeping, and reporting requirements. To compile a list of the requirements applicable to a facility, it is first necessary to determine which Federal and State air regulations apply to the facility as a whole, or to individual emission units. This section documents the applicability determinations made for Federal and State air quality regulations. Regulations potentially applicable to Comet are detailed in the “*Applicable Requirements*” sections of forms provided by the WVDEP contained in Section 4 of this report.

Additional details on applicability for several regulations are presented in this section. Specifically, the remainder of this section summarizes the air permitting requirements and key air quality regulations that apply to the operation of the Comet Station. Applicability or non-applicability of the following regulatory programs is addressed:

- Prevention of Significant Deterioration (PSD) permitting;
- Title V of the 1990 Clean Air Act Amendments;
- New Source Performance Standards (NSPS);
- National Emission Standards for Hazardous Air Pollutants (NESHAP);
- Compliance Assurance Monitoring (CAM);
- Risk Management Plan (RMP); 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 Title V application forms, which fulfill the requirement to include citations and descriptions of applicable statutory and administrative code requirements.

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 Comet Station. 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 Comet Station. Regulations that are categorically non-applicable are not discussed (e.g., NSPS Subpart J, *Standards of Performance for Petroleum Refineries*).

### 2.1 PREVENTION OF SIGNIFICANT DETERIORATION (PSD) SOURCE CLASSIFICATION

Federal construction permitting programs regulate new sources of attainment pollutants under Prevention of Significant Deterioration (PSD) and new sources of non-attainment pollutants under Non-Attainment New Source Review (NNSR). PSD and NNSR 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 Comet Station is a major source with respect to the NSR program, and as such when undertaking modifications may be subject to NSR permit requirements. Because the Title V permit renewal process is not intended to accommodate any changes or modifications to the facility that are not currently permitted at the facility, NSR/PSD permitting is not triggered by this activity but could be by future activities at the site.

## **2.2 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 45 CSR 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. The potential emissions of at least one regulated pollutant exceed the corresponding threshold(s) at this facility. Therefore, the Comet Station is classified as a major source for Title V purposes. The Comet Station currently operates under Title V operating permit No. R30-09100013-2006. This renewal application is being submitted to meet the requirements of the Title V program.

## **2.3 NEW SOURCE PERFORMANCE STANDARDS**

New Source Performance Standards (NSPS), 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. 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 Comet Station.

### **2.3.1 NSPS SUBPARTS D, DA, DB, AND DC**

These subparts apply to steam generating units of various sizes, all greater than 10 MMBtu/hr. The Comet Station does not have any steam generating units greater than 10 MMBtu/hr, therefore the requirements of these subparts do not apply.

### **2.3.2 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<sup>3</sup> (~19,813 gallons). All three tanks at the Comet Station were installed in 1996 and have a capacity of 4,000 gallons or less. As such, Subparts K, Ka, and Kb do not apply to the storage tanks at the Comet Station.

### **2.3.3 NSPS SUBPART KKK – EQUIPMENT LEAKS OF VOC FROM ONSHORE NATURAL GAS PROCESSING PLANTS**

A natural gas processing plant is defined as any processing site engaged in the extraction of natural gas liquids from field gas, fractionation of mixed natural gas liquids to natural gas products, or both. Although this subpart includes requirements for compressors and storage tanks, it only applies to those units located at a processing plant. The operations at the Comet Station do not meet the definition of a processing plant. Therefore, the requirements of this subpart do not apply to the emission units at the Comet Station.

### **2.3.4 NSPS SUBPART LLL – ONSHORE NATURAL GAS PROCESSING: SO<sub>2</sub> EMISSIONS**

This subpart applies to each sweetening unit, and each sweetening unit followed by a sulfur recovery unit, at a natural gas processing plant. The Comet Station does not meet the definition of a natural gas processing facility, nor does the station include a sweetening unit. Therefore, the requirements of this subpart do not apply.

### **2.3.5 NSPS SUBPART IIII – STATIONARY COMPRESSION IGNITION INTERNAL COMBUSTION ENGINES**

This Subpart applies to manufacturers, owners, and operators of stationary compression ignition internal combustion engines (ICE) that have been constructed, reconstructed, or modified after various dates, the earliest of which is July 11, 2005. All of the engines at the Comet Station, including emergency generators, are spark ignition IC engines, and therefore the requirements of this subpart do not apply.

### **2.3.6 NSPS SUBPART JJJJ – STATIONARY SPARK IGNITION INTERNAL COMBUSTION ENGINES**

This subpart applies to manufacturers, owners, and operators of stationary spark ignition internal combustion engines (ICE) that have been constructed, reconstructed, or modified after various dates, the earliest of which is June 12, 2006. All of the engines at the Comet Station, including emergency generators, were installed prior to 2006 (latest installation date is 1995) and have not been modified or reconstructed, and therefore the requirements of this subpart do not apply.

### **2.3.7 NON-APPLICABILITY OF ALL OTHER NSPS**

NSPS are developed for particular industrial source categories. Other than NSPS developed for natural gas processing plants (Subparts KKK and LLL) and associated equipment (Subparts D-Dc and K-Kb), the applicability of a particular NSPS to the Comet Station can be

readily ascertained based on the industrial source category covered. All other NSPS are categorically not applicable to natural gas processing facilities.

## **2.4 NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP)**

National Emissions Standards for Hazardous Air Pollutants (NESHAP) are generally only applicable to major sources of HAP. 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. 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 Comet Station:

40 CFR Part 63 Subpart HH – Oil and Natural Gas Production Facilities  
40 CFR Part 63 Subpart HHH – Natural Gas Transmission and Storage Facilities  
40 CFR Part 63 Subpart ZZZZ – Stationary Reciprocating Internal Combustion Engines (RICE)  
40 CFR Part 63 Subpart DDDDD – Industrial, Commercial, and Institutional Boilers and Process Heaters

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

### **2.4.1 40 CFR 63 SUBPART HH – OIL AND NATURAL GAS PRODUCTION FACILITIES**

This MACT standard contains requirements for dehydration units, located at natural gas production facilities. Because the Comet Station does not meet the definition of a natural gas production facility per 40 CFR §63.761 and does not have dehydration unit, the requirements of this subpart do not apply.

### **2.4.2 40 CFR 63 SUBPART HHH – NATURAL GAS TRANSMISSION AND STORAGE FACILITIES**

This MACT subpart applies to facilities which are major sources of HAP that transport or store natural gas prior to entering the transmission pipeline to end users as defined by 40 CFR §63.1271. Specifically, each dehydration unit at these facilities is subject to this subpart. The Comet Station does not have a dehydration unit and is a minor source of HAP. Therefore, the requirements of this subpart do not apply to the Comet Station.

### **2.4.3 40 CFR 63 SUBPART ZZZZ – STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES**

This NESHAP applies to stationary reciprocating combustion engines (RICE) at major and minor sources. The Comet Station is a minor source of HAP. The five compressor engines at the Comet Station were installed between 1947 and 1980 and have not been reconstructed or modified. The units are classified as 2-stroke, lean-burn, non-emergency units. As such, these units are subject to the requirements for existing, 2-stroke, lean-burn, non-emergency, spark ignition (SI) units at area sources. The generator at the Comet Station was installed in 1995 and is rated for 251-hp. The generator is subject to the regulations pertaining to existing, 4-stroke, rich-burn, non-emergency, spark ignition engines rated for less than 500 horsepower at area sources.

Per 40 CFR §63.6625(h), Equitrans will minimize the engines' time spent at idle and minimize the engines' startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes. Equitrans will also comply with the appropriate work practice standards in 40 CFR §63.6603 for the correct classification of engine and maintain records to show these standards have been met. The compressor engines and the generator are operated and maintained in accordance with manufacturer's recommendations, fulfilling the requirements of Table 6 of Subpart ZZZZ.

### **2.4.4 40 CFR 63 SUBPART DDDDD – INDUSTRIAL, COMMERCIAL, AND INSTITUTIONAL BOILERS AND PROCESS HEATERS**

This MACT standard applies to industrial, commercial, and institutional boilers and process heaters of various sizes and fuel types. The only heaters and boilers at the Comet Station are a hot water heater and a heating boiler used for comfort heating. Units used for comfort heat or space heat, as well as hot water heaters, are specifically exempt from this subpart. Therefore, no sources at the Comet Station are subject to any requirements under 40 CFR 63 Subpart DDDDD.

## **2.5 COMPLIANCE ASSURANCE MONITORING**

Under 40 CFR 64, the Compliance Assurance Monitoring (CAM) regulations, facilities are required to prepare and submit monitoring plans for certain emissions units with the initial or renewal Title V operating permit application. CAM Plans are intended to provide an on-going and reasonable assurance of compliance with emission limits for sources that utilize active control devices where existing Title V permit requirements may not be considered sufficient.

Under the general applicability criteria, this regulation only applies to emission units that use a control device to achieve compliance with an emission limit and whose pre-controlled emission levels exceed the major source thresholds under the Title V operating permit program. Because CAM has not been triggered through prior permitting of the facility, CAM is subject for review during this Title V permit renewal. Accordingly, for a subject unit whose pre-controlled emissions are more than the corresponding Title V major source threshold and is not otherwise exempt, a CAM plan must be submitted with this renewal application.

There are no units at the Comet Compressor Station which utilize active control devices. All units comply with the Title V major source threshold without the use of control devices. As such, the Comet Station is not subject to CAM regulations. The R30-09100013-2006 Fact Sheet also states that CAM is not applicable to the engines at the Comet Station.

## **2.6 RISK MANAGEMENT PLAN REGULATIONS**

Subpart B of 40 CFR 68 outlines requirements for risk management prevention plans pursuant to Section 112(r) of the Clean Air Act. Applicability of the subpart is determined based on the type and quantity of chemicals stored at a facility. Equitrans has evaluated the amount of Section 112(r) substances stored at the Comet Station and has determined that there are no listed substances stored at quantities greater than the corresponding threshold.

## **2.7 STRATOSPHERIC OZONE PROTECTION REGULATIONS**

The requirements originating from Title VI of the Clean Air Act, entitled *Protection of Stratospheric Ozone*, are contained in 40 CFR 82. Subparts A through E and Subparts G and H of 40 CFR Part 82 are not applicable to the Comet Station. 40 CFR 82 Subpart F, *Recycling and Emissions Reduction*, potentially applies if the facility operates, maintains, repairs, services, or disposes of appliances that utilize Class I or Class II ozone depleting substances. Subpart F generally requires person completing all repairs, service, or disposal to be properly certified. Certified technician complete all repairs, service, and disposal of any ozone depleting substances at the Comet Station.

## **2.8 WEST VIRGINIA SIP REGULATIONS**

The Comet Station is currently permitted under the regulations contained in West Virginia's Title 45 Legislative Rule Department of Environmental Protection Office of Air Quality (WVDEP regulations). A federal operating permit must be issued by the agency upon determination that the facility can reasonably be expected to comply with the WVDEP regulations and all applicable federal requirements. This section of the application highlights applicability of specific West Virginia State Implementation Plan (SIP) regulations that may apply to the Comet Station. The following information has been retrieved directly from the WDEP Fact Sheet (R30-09100013-2006) and verified through review of the associated regulations.

### **2.8.1 45 CSR 2: TO PREVENT AND CONTROL PARTICULATE AIR POLLUTION FROM COMBUSTION OF FUEL IN INDIRECT HEAT EXCHANGERS**

According to 45 CSR 2-3:

*No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any fuel burning unit which is greater than ten (10) percent opacity based on a six minute block average.*

Compliance with this requirement shall be determined in keeping with 40 CFR Part 60, Appendix A, Method 9 or by using approved measurements from continuous opacity monitoring systems.

In addition, according to 45 CSR 2-4:

*No person shall cause, suffer, allow or permit the discharge of particulate matter into the open air from all fuel burning units located at one plant, measured in terms of pounds per hour in excess of the amount determined [according to fuel burning unit type].*

Visible emissions are not expected since only natural gas is combusted in the applicable units, and emissions from sources that burn natural gas have low variability. Therefore, monthly visual emissions checks and recordkeeping will be adequate to demonstrate compliance. However, as stated by the R30-09100013-2006 Fact Sheet, since the boiler (BLR01) has a maximum design heat input less than 10 MMBtu/hr, the unit is exempt from these monitoring, recordkeeping, and reporting (MRR) requirements in accordance with 45 CSR 2-11.

### **2.8.2 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.*

As stated in the R30-09100013-2006 Fact Sheet, the Comet Station is subject to this requirement. Equitrans will monitor odor by walking the perimeter of the facility on a regular basis to ensure there is no odor being emitted from the facility.

### **2.8.3 45 CSR 6: TO PREVENT AND CONTROL AIR POLLUTION FROM COMBUSTION OF REFUSE**

According to 45 CSR 6-3.1:

*The open burning of refuse by any person is prohibited except for [the exemptions listed in this section].*

As stated in the R30-09100013-2006 Fact Sheet, the Comet Station does not meet any of the exemptions in 45 CSR 6-3.1 and is therefore subject to the requirements of this section. The Comet Station will adhere to the prohibition of open burning.

### **2.8.4 45 CSR 10: TO PREVENT AND CONTROL AIR POLLUTION FROM THE EMISSION OF SULFUR OXIDES**

According 45 CSR 10-3:

*No person shall cause, suffer, allow or permit the discharge of sulfur dioxide into the open air from all stacks located at one plant, measured in terms of pounds per hour, in excess...of the*

*product of 3.2 and the total design heat inputs for such units discharging through those stacks in million BTU's per hour.*

As stated by the R30-09100013-2006 Fact Sheet, the engines at the Comet Station have been determined to be exempt from the requirements of 45 CSR 10 by WVDEP. This means that the engines are exempt from the sulfur dioxide (SO<sub>2</sub>) weight emission standards for fuel burning units and the associated permits and testing, monitoring, recordkeeping, and reporting requirements. Furthermore, the R30-09100013-2006 Fact Sheet states that the boiler at the Comet Station is exempt from the MRR requirements of this section. Other emission units at the facility are not subject to 45 CSR 10 Section 3 because they do not produce heat or power by indirect heat transfer and are not, by definition, “fuel burning units”.

### **2.8.5 45 CSR 11: PREVENTION OF AIR POLLUTION EMERGENCY EPISODES**

According to 45 CSR 11-5.1:

*Any person responsible for the operation of a source of air pollutants emitting 100 tons per year or more in a region classified Priority I or II for any pollutant, shall prepare standby plans for reducing the emission of air pollutants during periods of an Air Pollution Alert, Air Pollution Warning, and Air Pollution Emergency.*

As stated in the R30-09100013-2006 Fact Sheet, the Comet Station is subject to this rule. The Comet Station is located in West Virginia Air Quality Control Region 6 (USEPA AQCR 235). According to Table A of 45 CSR 11, this region is classified as Priority I for particulates and Priority III for all other pollutants. Since the Comet Station does not have the potential to emit 100 tpy or more of particulate emissions, the station is not required to develop a standby plan unless requested to do so by the Secretary.

### **2.8.6 45 CSR 13: PERMITS FOR CONSTRUCTION, MODIFICATION, RELOCATION AND OPERATION OF STATIONARY SOURCES OF AIR POLLUTANTS, NOTIFICATION REQUIREMENTS, ADMINISTRATIVE UPDATES, TEMPORARY PERMITS, GENERAL PERMITS, PERMISSION TO COMMENCE CONSTRUCTION, AND PROCEDURES FOR EVALUATION**

According to 45 CSR 13-5:

*No person shall cause, suffer, allow or permit the construction, modification, relocation and operation of any stationary source to be commenced without notifying the Secretary of such intent and obtaining a permit to construct, modify, relocate and operate the stationary source as required in this rule or any other applicable rule promulgated by the Secretary.*

As stated in the R30-09100013-2006 Fact Sheet, the provisions for construction permits under 45 CSR 13 apply to the Comet Station. In the event that Equitrans would propose the construction of an additional unit at the Comet Station, the proper R13 operating permit application procedures would be followed. The existing units at the Comet Station were installed prior to the promulgation of this requirement. As such, the Comet Station does not currently have any permits under this requirement.

### **2.8.7 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.*

As stated in the R30-09100013-2006 Fact Sheet, the Comet Station is subject to this requirement. Due to the nature of the activities at the Comet Station, it is unlikely that fugitive particulate matter emissions will be emitted. However, Equitrans will take measures to ensure fugitive particulate matter emissions do not cross the property boundary should any such emissions be emitted.

### **2.8.8 45 CSR 30: REQUIREMENTS FOR OPERATING PERMITS**

According to 45 CSR 30-3:

*On and after the effective date of the operating program, no person shall violate any requirement of a permit issued under this rule nor shall any person operate any of the following sources, except in compliance with a permit issued under this rule.*

As stated in the R30-09100013-2006 Fact Sheet, the Comet Station is subject to the requirement for an operating permit. The station's Title V permit (R30-09100013-2006) was issued under this rule and this renewal application satisfies the application requirements of 45 CSR 30. Also under this rule, the Comet Station is subject to operating under the requirements set forth in the issued Title V permit.

### **2.8.9 NON-APPLICABILITY OF OTHER SIP RULES**

A thorough examination of the West Virginia SIP rule applicability to the Comet Station 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 Comet Station.

### 3. SAMPLE EMISSION SOURCE CALCULATIONS

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This section of the application provides a discussion of emission calculation methodology used for the emission sources at the Comet Station.

#### 3.1 COMBUSTION SOURCES

For the combustion sources (compressors, generators, hot water heater, and heating boiler) appropriate AP-42 emission factors were chosen and were then multiplied by heat input (MMBtu/hr) in order to determine the tpy and lb/hr emissions of CO, PM, PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, SO<sub>2</sub>, VOC, and HAPs.

As an example, PM<sub>10</sub> emissions for Compressor Engine Number 5 (C-005):

Rated Horsepower = 600 hp  
Specific Fuel Consumption = 8,500 BTU/hp-hr  
Potential Hours per year = 8,760 hours

Heat Input = Rated Horsepower \* Specific Fuel Consumption \* (1/1,000,000 MMBtu/BTU)  
= 5.10 MMBtu/hr

AP-42 Table 3.2-3 Uncontrolled Emission Factor for 2-stroke Lean-Burn Engines for PM<sub>10</sub> (filterable plus condensable) = 0.0483 lb/MMBtu

Emissions = Heat Input \* Emission Factor \* Permitted Hours \* 1 ton/2000 lbs = 1.08 tpy

## **4. WVDEP APPLICATION FORMS**

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The WVDEP permit application forms contained in this renewal application include facility-wide and emission source specific forms for the renewal of the Comet Station Title V permit. The completed Title V permit forms are included in this section.

**TITLE V PERMIT RENEWAL APPLICATION  
EQUITRANS, LP  
COMET COMPRESSOR STATION #43**

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**PERMIT NO. R30-09100013-2006**

**BRIDGEPORT, WEST VIRGINIA**

**TRINITY CONSULTANTS**  
5320 Spectrum Drive  
Suite A  
Frederick, MD 21703  
(240) 379-7490

February 2011

**Project 102101.0103**

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**Trinity**   
**Consultants**



WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

601 57th Street SE
Charleston, WV 25304
Phone: (304) 926-0475

www.dep.wv.gov/daq

INITIAL/RENEWAL TITLE V PERMIT APPLICATION - GENERAL FORMS

Section 1: General Information

Form with 10 numbered sections: 1. Name of Applicant, 2. Facility Name or Location, 3. DAQ Plant ID No., 4. Federal Employer ID No., 5. Permit Application Type, 6. Type of Business Entity, 7. Is the Applicant the, 8. Number of onsite employees, 9. Governmental Code, 10. Business Confidentiality Claims.

<b>11. Mailing Address</b>		
<b>Street or P.O. Box:</b> Route 3, Box 165		
<b>City:</b> Bridgeport	<b>State:</b> WV	<b>Zip:</b> 26330
<b>Telephone Number:</b> (304) 842-4228	<b>Fax Number:</b> (412) 395-2150	

<b>12. Facility Location</b>		
<b>Street:</b> Route 3, Meadland Road	<b>City:</b> Bridgeport	<b>County:</b> Taylor
<b>UTM Easting:</b> 572.56 km	<b>UTM Northing:</b> 4352.11 km	<b>Zone:</b> <input checked="" type="checkbox"/> 17 or <input type="checkbox"/> 18
<b>Directions:</b> Interstate 79 North to the Burnsville exit (Number 79). Take Route 5 North towards Glenville. Station is on left very near the intersection of Routes 5 and 19 (approximately 16 miles on Route 5).		
<b>Portable Source?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
<b>Is facility located within a nonattainment area?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>If yes, for what air pollutants?</b>	
<b>Is facility located within 50 miles of another state?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>If yes, name the affected state(s).</b>	
<b>Is facility located within 100 km of a Class I Area<sup>1</sup>?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <b>If no, do emissions impact a Class I Area<sup>1</sup>?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>If yes, name the area(s).</b> Otter Creek Wilderness Area	
<sup>1</sup> Class I areas include Dolly Sods and Otter Creek Wilderness Areas in West Virginia, and Shenandoah National Park and James River Face Wilderness Area in Virginia.		

<b>13. Contact Information</b>		
<b>Responsible Official:</b> Christopher Akers		<b>Title:</b> Senior Vice President – Midstream Operations
<b>Street or P.O. Box:</b> 1700 Pennsylvania Ave		
<b>City:</b> Charleston	<b>State:</b> WV	<b>Zip:</b> 25302
<b>Telephone Number:</b> (304) 348-3804	<b>Fax Number:</b> (412) 395-3166	
<b>E-mail address:</b> cakers@eqt.com		
<b>Environmental Contact:</b> Jerry McGinnis, CHMM		<b>Title:</b> Supervisor, Environmental
<b>Street or P.O. Box:</b> 625 Liberty Avenue, Suite 1700		
<b>City:</b> Pittsburgh	<b>State:</b> PA	<b>Zip:</b> 15222
<b>Telephone Number:</b> (412) 395-2548	<b>Fax Number:</b> (412) 395-2150	
<b>E-mail address:</b> jmcginnis@eqt.com		
<b>Application Preparer:</b> Ms. Christi Wilson		<b>Title:</b> Managing Consultant
<b>Company:</b> Trinity Consultants		
<b>Street or P.O. Box:</b> 5320 Spectrum Drive, Suite A		
<b>City:</b> Frederick	<b>State:</b> MD	<b>Zip:</b> 21703
<b>Telephone Number:</b> (724) 360-8148	<b>Fax Number:</b> (240) 379-7491	
<b>E-mail address:</b> cwilson@trinityconsultants.com		

**14. Facility Description**

List all processes, products, NAICS and SIC codes for normal operation, in order of priority. Also list any process, products, NAICS and SIC codes associated with any alternative operating scenarios if different from those listed for normal operation.

Process	Products	NAICS	SIC
Natural Gas Transmission Facility	Natural gas storage and transmission	48621	4922

**Provide a general description of operations.**

The Comet Compressor Station #43 is a natural gas transmission facility covered by Standard Industrial Classification (SIC) 4922. The station has the potential to operate seven (7) days per week, twenty-four (24) hours per day. The station consists of two (2) 300-hp and two (2) 330-hp natural gas internal combustion reciprocating engines, one (1) 2.25 MMBtu/hr heating boiler, one (1) 600-hp natural gas internal combustion reciprocating engine, one (1) 12-hp compressor, one (1) 251-hp electric generator, and three (3) tanks of various sizes.

15. Provide an **Area Map** showing plant location as **ATTACHMENT A**.

16. Provide a **Plot Plan(s)**, e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is located as **ATTACHMENT B**. For instructions, refer to "Plot Plan - Guidelines."

17. Provide a detailed **Process Flow Diagram(s)** showing each process or emissions unit as **ATTACHMENT C**. Process Flow Diagrams should show all emission units, control equipment, emission points, and their relationships.

**Section 2: Applicable Requirements**

<b>18. Applicable Requirements Summary</b>	
Instructions: Mark all applicable requirements.	
<input checked="" type="checkbox"/> SIP	<input type="checkbox"/> FIP
<input type="checkbox"/> Minor source NSR (45CSR13)	<input type="checkbox"/> PSD (45CSR14)
<input type="checkbox"/> NESHAP (45CSR15)	<input type="checkbox"/> Nonattainment NSR (45CSR19)
<input type="checkbox"/> Section 111 NSPS	<input type="checkbox"/> Section 112(d) MACT standards
<input type="checkbox"/> Section 112(g) Case-by-case MACT	<input type="checkbox"/> 112(r) RMP
<input type="checkbox"/> Section 112(i) Early reduction of HAP	<input type="checkbox"/> Consumer/commercial prod. reqts., section 183(e)
<input type="checkbox"/> Section 129 Standards/Reqts.	<input type="checkbox"/> Stratospheric ozone (Title VI)
<input type="checkbox"/> Tank vessel reqt., section 183(f)	<input type="checkbox"/> Emissions cap 45CSR§30-2.6.1
<input type="checkbox"/> NAAQS, increments or visibility (temp. sources)	<input type="checkbox"/> 45CSR27 State enforceable only rule
<input checked="" type="checkbox"/> 45CSR4 State enforceable only rule	<input type="checkbox"/> Acid Rain (Title IV, 45CSR33)
<input type="checkbox"/> Emissions Trading and Banking (45CSR28)	<input type="checkbox"/> Compliance Assurance Monitoring (40CFR64)
<input type="checkbox"/> CAIR NO <sub>x</sub> Annual Trading Program (45CSR39)	<input type="checkbox"/> CAIR NO <sub>x</sub> Ozone Season Trading Program (45CSR40)
<input type="checkbox"/> CAIR SO <sub>2</sub> Trading Program (45CSR41)	

<b>19. Non Applicability Determinations</b>
<p><b>List all requirements which the source has determined not applicable and for which a permit shield is requested. The listing shall also include the rule citation and the reason why the shield applies.</b></p> <p>40 CFR Part 60 Subpart D: The boilers is below the 250 MMBtu/hr threshold (exempt per 40 CFR 60.40(a))</p> <p>40 CFR Part 60 Subpart Da: The boiler is below the 250 MMBtu/hr threshold (exempt per 40 CFR 60.40Da(a))</p> <p>40 CFR Part 60 Subpart Db: The boiler is below the 100 MMBtu/hr threshold (exempt per 40 CFR 60.40b(a))</p> <p>40 CFR Part 60 Subpart Dc: The boiler is below the 10 MMBtu/hr threshold (exempt per 40 CFR 60.40c(a))</p> <p>40 CFR Part 60 Subpart K: Total tank capacity is less than 40,000 gallons (exempt per 40 CFR 60.110(c))</p> <p>40 CFR Part 60 Subpart Ka: No tanks greater than 40,000 gallons (exempt per 40 CFR 60.110a(a))</p>
<input checked="" type="checkbox"/> Permit Shield

**19. Non Applicability Determinations (Continued)** - Attach additional pages as necessary.

**List all requirements which the source has determined not applicable and for which a permit shield is requested. The listing shall also include the rule citation and the reason why the shield applies.**

40 CFR Part 60 Subpart Kb: No tanks greater than 75 m<sup>3</sup> (exempt per 40 CFR 60.110b(a))

40 CFR Part 60 Subpart KKK: Operations and units at the Comet Station do not meet the definition of applicable process units given in 40 CFR 60.631

40 CFR Part 60 Subpart LLL: No sweetening units on site (exempt per 40 CFR 60.640(a))

40 CFR Part 60 Subpart IIII: No CI engines (exempt per 40 CFR 60.4200(a))

40 CFR Part 63 Subpart HH: Station does not meet the definition of a natural gas production facility given in 40 CFR 63.761

40 CFR Part 63 Subpart HHH: No glycol dehydration units (exempt per 40 CFR 63.1270(b))

40 CFR Part 63 Subpart DDDDD: Hot water heater is specifically exempt per 40 CFR 63.7491(h) and heating boiler is exempt per 40 CFR 63.7491(o) for meeting the definition of a process heater given in 40 CFR 63.7575

40 CFR 64: Exempt from CAM, no units utilize control devices (exempt per 40 CFR 64.2(a)(2))

45 CSR 10: Not applicable to engines or boiler per R30-09100013-2006 Fact Sheet

45 CSR 2: Boiler is exempt from testing and monitoring for being less than 10 MMBtu/hr per 45 CSR 2-11.1

Permit Shield

## 20. Facility-Wide Applicable Requirements

List all facility-wide applicable requirements. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements).

All references to a TV Permit Condition in section 20 refer to Permit Number R30-09100013-2006 condition numbers.

<b>Open Burning:</b> 45CSR§6-3.1	(TV Permit Condition 3.1.1)
<b>Open Burning Exemptions:</b> 45CSR§6-3.2	(TV Permit Condition 3.1.2)
<b>Asbestos:</b> 40 CFR 61 and 45 CSR 15	(TV Permit Condition 3.1.3)
<b>Odor:</b> 45CSR§4-3.1	(TV Permit Condition 3.1.4)
<b>Standby Plan for Reducing Emissions:</b> 45CSR§11-5.2	(TV Permit Condition 3.1.5)
<b>Emission Inventory:</b> W. Va. Code §22-5-4(a)(14)	(TV Permit Condition 3.1.6)
<b>Ozone-depleting Substances:</b> 40CFR 82, Subpart F	(TV Permit Condition 3.1.7)
<b>Risk Management Plan:</b> 40CFR68	(TV Permit Condition 3.1.8)
<b>Fugitive Particulate Matter:</b> 45CSR§17-3.1	(TV Permit Condition 3.1.9)

Permit Shield

For all facility-wide applicable requirements listed above, provide monitoring/testing / recordkeeping / reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number and/or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

**Open Burning:** Open burning shall be prohibited (45CSR§6-3.1, TV Permit Condition 3.1.1).  
**Open Burning Exemptions:** Notification will be sent if open burning occurs (45CSR§6-3.2, TV Permit Condition 3.1.2)  
**Asbestos:** Must notify the Secretary at least ten working days prior to the commencement of any asbestos removal on the forms prescribed by the Secretary per notification requirements of 40 CFR §61.145(b)(3)(i). Prior to demolition or construction, buildings will be inspected for asbestos (TV Permit Condition 3.1.3)  
**Odor:** Permittee shall prohibit the emission any pollutant(s) which may cause objectionable odor in a public location (45CSR§4-3.1, TV Permit Condition 3.1.4).  
**Standby Plan for Reducing Emissions:** If requested by the Supervisor, permittee shall prepare a standby plan (45CSR§11.5-2, TV Permit Condition 3.1.5).  
**Emission Inventory:** Permittee shall submit, on an annual basis, an emission inventory in accordance with the submittal requirements of the Division of Air Quality (W. Va. Code §22-5-4(a)(14), TV Permit Condition 3.1.6).  
**Ozone-Depleting Substances:** Permittee will prohibit the maintenance, service, repair, or disposal of appliance containing ozone-depleting substances (40 CFR §§82.154 and 82.156, TV Permit Condition 3.1.7.a).  
**Risk Management Plan:** Should the facility become subject 40 CFR 68, the owner/operator will submit a risk management plan (40 CFR 68, TV Permit Condition 3.1.8).  
**Fugitive Particulate Matter:** Fugitive particulate matter is not permitted to be emitted over the property boundary (45CSR§17-3.1, TV Permit Condition 3.1.9). Any request for variance (less than 10 days) shall be submitted to the Director (45CSR§17-5.1). Any violation greater than 10 days will require the submission of a control program to the Director (45CSR§17-4.1).

Are you in compliance with all facility-wide applicable requirements?  Yes  No

If no, complete the **Schedule of Compliance Form** as ATTACHMENT F.

**20. Facility-Wide Applicable Requirements (Continued) - Attach additional pages as necessary.**

List all facility-wide applicable requirements. For each applicable requirement, include the rule citation and/or permit with the condition number.

<b>Stack Testing:</b> WV Code §22-5-4(a)(15) and 45CSR13	(TV Permit Condition 3.3.1)
<b>Monitoring Information:</b> 45CSR§30-5.1.c.2.A	(TV Permit Condition 3.4.1)
<b>Retention of Records:</b> 45CSR§5.1.c.2.B	(TV Permit Condition 3.4.2)
<b>Odors:</b> 45CSR§30-5.1.c	(TV Permit Condition 3.4.3)
<b>Responsible Official:</b> 45CSR§§30-4.4	(TV Permit Condition 3.5.1)
<b>Confidential Treatment:</b> 45CSR§30-5.1.c.3.E	(TV Permit Condition 3.5.2)
<b>Certified Emissions Statement:</b> 45CSR§30-8	(TV Permit Condition 3.5.4)
<b>Compliance Certification:</b> 45CSR§30-5.3.e	(TV Permit Condition 3.5.5)
<b>Semi-Annual Monitoring Reports:</b> 45CSR§30-5.1.c.3.A	(TV Permit Condition 3.5.6)

Permit Shield

For all facility-wide applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number and/or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

**Stack Testing:** Stack testing is conducted in accordance with the 2006 Title V permit and the Secretary may option to witness any stack testing (TV Permit Condition 3.3.1). The Secretary may approve or specific additional or alternative testing (TV Permit Conditions 3.3.1.a and 3.3.1.b). All stack testing shall be conducted in accordance with approved test protocols. Protocols shall be submitted to the Secretary in writing at least 30 days prior to testing for approval. The Secretary must be notified 15 days prior to testing (TV Permit Condition 3.3.1.c). WV Code §22-5-4(a)(15) and 45CSR13

**Monitoring Information:** Permittee shall keep records of monitoring information including: date and place of sampling, date of analyses, company performing analyses, analytical techniques or methods, and operating conditions at time of sampling (45CSR§30-5.1.c.2.A, TV Permit Condition 3.4.1).

**Retention of Records:** Permittee shall retain records of all required monitoring data and support information for at least 5 years (45CSR§30.5.1.c.2.B, TV Permit Condition 3.4.2).

**Odors:** Permittee shall maintain a record of all odor complaints received, any investigation performed in response, and any responsive actions taken (45CSR§30-5.1.c, TV Permit Condition 3.4.3).

**Responsible Official:** Any application form, report, or compliance certification required by permit to be submitted to the DAQ or USEPA shall contain a certification by the responsible official (45CSR§30-4.4, 45CSR§5.1.c.3.D, TV Permit Condition 3.5.1).

**Confidential Treatment:** Permittee may request confidential treatment for the submission of reporting (45CSR§30-5.1.c.3.E, TV Permit Condition 3.5.2).

**Certified Emissions Statement:** Permittee shall submit a certified emissions statement and pay fees on an annual basis (45CSR§30-8, TV Permit Condition 3.5.4).

**Compliance Certification:** The permittee shall certify compliance with the conditions of this permit annually on the forms provided by the DAQ (45CSR§30-5.3.e, TV Permit Condition 3.5.5)

**Semi-Annual Monitoring Reports:** Permittee shall submit semi-annual reports of any required monitoring (45CSR§30-5.1.c.3.A, TV Permit Condition 3.5.6).

Are you in compliance with all facility-wide applicable requirements?  Yes  No

If no, complete the **Schedule of Compliance Form** as ATTACHMENT F.

**20. Facility-Wide Applicable Requirements (Continued) - Attach additional pages as necessary.**

**List all facility-wide applicable requirements. For each applicable requirement, include the rule citation and/or permit with the condition number.**

**Supplemental Reports:** 45CSR§30-5.1.c.3.C (TV Permit Condition 3.5.8.a)  
**Reporting Deviations:** 45CSR§30-5.1.c.3.B (TV Permit Condition 3.5.8.b)  
**New Applicable Requirements:** 45CSR§30-4.3.h.1.B (TV Permit Condition 3.5.9)  
**Emergency Operating Scenario:** 45CSR§30-12.7 (TV Permit Condition 3.8)

Permit Shield

**For all facility-wide applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number and/or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)**

**Supplemental Reports:** Any deviation resulting in an emergency or upset condition shall be reported by telephone or fax within one working day. A written report of such deviation shall be submitted and certified within 10 days of deviation (TV Permit Condition 3.5.8.a.1). Any deviation posing an imminent and substantial danger to public health, safety, or the environment shall be reported to the Secretary immediately by telephone or fax. A written report of such deviation shall be submitted and certified within 10 days of deviation (TV Permit Condition 3.5.8.a.2). (45CSR§30-5.1.c.3.C).

**Reporting Deviations:** In reporting deviations, permittee shall include probable cause for deviation and any corrective action or preventative measures taken (45CSR30-5.1.c.3.B).

**New Applicable Requirements:** If any applicable requirement is promulgated during the term of the permit, the permittee will meet such requirements on a timely basis (45CSR§30-4.3.h.1.B).

**Emergency Operating Scenario:** Provide written notification of engine replacement due to emergency to the Director within 5 days of replacement (45CSR§30-12.7, TV Permit Condition 3.8.e).

**Are you in compliance with all facility-wide applicable requirements?**  Yes  No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.





**Section 3: Facility-Wide Emissions**

<b>23. Facility-Wide Emissions Summary [Tons per Year]</b>	
Criteria Pollutants	Potential Emissions
Carbon Monoxide (CO)	41.0
Nitrogen Oxides (NO <sub>x</sub> )	253
Lead (Pb)	4.87 E -06
Particulate Matter (PM <sub>2.5</sub> ) <sup>1</sup>	3.87
Particulate Matter (PM <sub>10</sub> ) <sup>1</sup>	3.87
Total Particulate Matter (TSP)	3.87
Sulfur Dioxide (SO <sub>2</sub> )	5.30 E -02
Volatile Organic Compounds (VOC)	9.44
Hazardous Air Pollutants <sup>2</sup>	Potential Emissions
Total HAP	6.26
For individual HAPs, see Attachment F – Emission Calculations	
Regulated Pollutants other than Criteria and HAP	Potential Emissions
CO <sub>2</sub> e	10,613
<sup>1</sup> PM <sub>2.5</sub> and PM <sub>10</sub> are components of TSP. <sup>2</sup> For HAPs that are also considered PM or VOCs, emissions should be included in both the HAPs section and the Criteria Pollutants section.	

**Section 4: Insignificant Activities**

<b>24. Insignificant Activities (Check all that apply)</b>	
<input checked="" type="checkbox"/>	1. Air compressors and pneumatically operated equipment, including hand tools.
<input type="checkbox"/>	2. Air contaminant detectors or recorders, combustion controllers or shutoffs.
<input checked="" type="checkbox"/>	3. Any consumer product used in the same manner as in normal consumer use, provided the use results in a duration and frequency of exposure which are not greater than those experienced by consumer, and which may include, but not be limited to, personal use items; janitorial cleaning supplies, office supplies and supplies to maintain copying equipment.
<input checked="" type="checkbox"/>	4. Bathroom/toilet vent emissions.
<input checked="" type="checkbox"/>	5. Batteries and battery charging stations, except at battery manufacturing plants.
<input type="checkbox"/>	6. Bench-scale laboratory equipment used for physical or chemical analysis, but not lab fume hoods or vents. Many lab fume hoods or vents might qualify for treatment as insignificant (depending on the applicable SIP) or be grouped together for purposes of description.
<input type="checkbox"/>	7. Blacksmith forges.
<input checked="" type="checkbox"/>	8. Boiler water treatment operations, not including cooling towers.
<input checked="" type="checkbox"/>	9. Brazing, soldering or welding equipment used as an auxiliary to the principal equipment at the source.
<input type="checkbox"/>	10. CO <sub>2</sub> lasers, used only on metals and other materials which do not emit HAP in the process.
<input checked="" type="checkbox"/>	11. Combustion emissions from propulsion of mobile sources, except for vessel emissions from Outer Continental Shelf sources.
<input checked="" type="checkbox"/>	12. Combustion units designed and used exclusively for comfort heating that use liquid petroleum gas or natural gas as fuel.
<input checked="" type="checkbox"/>	13. Comfort air conditioning or ventilation systems not used to remove air contaminants generated by or released from specific units of equipment.
<input type="checkbox"/>	14. Demineralized water tanks and demineralizer vents.
<input type="checkbox"/>	15. Drop hammers or hydraulic presses for forging or metalworking.
<input type="checkbox"/>	16. Electric or steam-heated drying ovens and autoclaves, but not the emissions from the articles or substances being processed in the ovens or autoclaves or the boilers delivering the steam.
<input type="checkbox"/>	17. Emergency (backup) electrical generators at residential locations.
<input type="checkbox"/>	18. Emergency road flares.
<input checked="" type="checkbox"/>	<p>19. Emission units which do not have any applicable requirements and which emit criteria pollutants (CO, NO<sub>x</sub>, SO<sub>2</sub>, VOC and PM) into the atmosphere at a rate of less than 1 pound per hour and less than 10,000 pounds per year aggregate total for each criteria pollutant from all emission units.</p> <p>Please specify all emission units for which this exemption applies along with the quantity of criteria pollutants emitted on an hourly and annual basis:</p> <p><u>1 – 4,000 gallon pipeline condensate tank</u></p> <p><u>1 – 1,500 gallon triethylene glycol tank</u></p> <p><u>1 – 1,500 gallon new oil tank</u></p> <p><u>1 – 0.03 mmBtu/hr hot water heater</u></p> <p>Negligible emissions from tanks.</p> <p>Emissions from hot water heater: 2.46 E -03, 2.93 E -03, 1.76 E -05, 1.61 E -04 and 2.22 E -04 lb/hr of CO, NO<sub>x</sub>, SO<sub>2</sub>, VOC and PM, respectively. 1.08 E -02, 1.28 E -02, 7.69 E -05, 7.05 E -04, and 9.74 E -04 tpy of CO, NO<sub>x</sub>, SO<sub>2</sub>, VOC, and PM, respectively.</p>

<b>24. Insignificant Activities (Check all that apply)</b>	
<input checked="" type="checkbox"/>	<p>20. Emission units which do not have any applicable requirements and which emit hazardous air pollutants into the atmosphere at a rate of less than 0.1 pounds per hour and less than 1,000 pounds per year aggregate total for all HAPs from all emission sources. This limitation cannot be used for any source which emits dioxin/furans nor for toxic air pollutants as per 45CSR27.</p> <p>Please specify all emission units for which this exemption applies along with the quantity of hazardous air pollutants emitted on an hourly and annual basis:</p> <p><u>VOC emissions from leaking valves, compressors, and connectors</u></p>
<input type="checkbox"/>	21. Environmental chambers not using hazardous air pollutant (HAP) gases.
<input type="checkbox"/>	22. Equipment on the premises of industrial and manufacturing operations used solely for the purpose of preparing food for human consumption.
<input type="checkbox"/>	23. Equipment used exclusively to slaughter animals, but not including other equipment at slaughterhouses, such as rendering cookers, boilers, heating plants, incinerators, and electrical power generating equipment.
<input checked="" type="checkbox"/>	24. Equipment used for quality control/assurance or inspection purposes, including sampling equipment used to withdraw materials for analysis.
<input type="checkbox"/>	25. Equipment used for surface coating, painting, dipping or spray operations, except those that will emit VOC or HAP.
<input checked="" type="checkbox"/>	26. Fire suppression systems.
<input type="checkbox"/>	27. Firefighting equipment and the equipment used to train firefighters.
<input type="checkbox"/>	28. Flares used solely to indicate danger to the public.
<input checked="" type="checkbox"/>	29. Fugitive emission related to movement of passenger vehicle provided the emissions are not counted for applicability purposes and any required fugitive dust control plan or its equivalent is submitted.
<input type="checkbox"/>	30. Hand-held applicator equipment for hot melt adhesives with no VOC in the adhesive formulation.
<input type="checkbox"/>	31. Hand-held equipment for buffing, polishing, cutting, drilling, sawing, grinding, turning or machining wood, metal or plastic.
<input type="checkbox"/>	32. Humidity chambers.
<input type="checkbox"/>	33. Hydraulic and hydrostatic testing equipment.
<input type="checkbox"/>	34. Indoor or outdoor kerosene heaters.
<input checked="" type="checkbox"/>	35. Internal combustion engines used for landscaping purposes.
<input type="checkbox"/>	36. Laser trimmers using dust collection to prevent fugitive emissions.
<input type="checkbox"/>	37. Laundry activities, except for dry-cleaning and steam boilers.
<input checked="" type="checkbox"/>	38. Natural gas pressure regulator vents, excluding venting at oil and gas production facilities.
<input type="checkbox"/>	39. Oxygen scavenging (de-aeration) of water.
<input type="checkbox"/>	40. Ozone generators.
<input checked="" type="checkbox"/>	41. Plant maintenance and upkeep activities (e.g., grounds-keeping, general repairs, cleaning, painting, welding, plumbing, re-tarring roofs, installing insulation, and paving parking lots) provided these activities are not conducted as part of a manufacturing process, are not related to the source's primary business activity, and not otherwise triggering a permit modification. (Cleaning and painting activities qualify if they are not subject to VOC or HAP control requirements. Asphalt batch plant

<b>24. Insignificant Activities (Check all that apply)</b>	
	owners/operators must still get a permit if otherwise requested.)
<input type="checkbox"/>	42. Portable electrical generators that can be moved by hand from one location to another. "Moved by Hand" means that it can be moved without the assistance of any motorized or non-motorized vehicle, conveyance, or device.
<input checked="" type="checkbox"/>	43. Process water filtration systems and demineralizers.
<input type="checkbox"/>	44. Repair or maintenance shop activities not related to the source's primary business activity, not including emissions from surface coating or de-greasing (solvent metal cleaning) activities, and not otherwise triggering a permit modification.
<input checked="" type="checkbox"/>	45. Repairs or maintenance where no structural repairs are made and where no new air pollutant emitting facilities are installed or modified.
<input type="checkbox"/>	46. Routing calibration and maintenance of laboratory equipment or other analytical instruments.
<input type="checkbox"/>	47. Salt baths using nonvolatile salts that do not result in emissions of any regulated air pollutants. Shock chambers.
<input type="checkbox"/>	48. Shock chambers.
<input type="checkbox"/>	49. Solar simulators.
<input checked="" type="checkbox"/>	50. Space heaters operating by direct heat transfer.
<input type="checkbox"/>	51. Steam cleaning operations.
<input type="checkbox"/>	52. Steam leaks.
<input type="checkbox"/>	53. Steam sterilizers.
<input type="checkbox"/>	54. Steam vents and safety relief valves.
<input type="checkbox"/>	55. Storage tanks, reservoirs, and pumping and handling equipment of any size containing soaps, vegetable oil, grease, animal fat, and nonvolatile aqueous salt solutions, provided appropriate lids and covers are utilized.
<input checked="" type="checkbox"/>	56. Storage tanks, vessels, and containers holding or storing liquid substances that will not emit any VOC or HAP. Exemptions for storage tanks containing petroleum liquids or other volatile organic liquids should be based on size limits such as storage tank capacity and vapor pressure of liquids stored and are not appropriate for this list.
<input type="checkbox"/>	57. Such other sources or activities as the Director may determine.
<input type="checkbox"/>	58. Tobacco smoking rooms and areas.
<input checked="" type="checkbox"/>	59. Vents from continuous emissions monitors and other analyzers.

**Section 5: Emission Units, Control Devices, and Emission Points**

<b>25. Equipment Table</b>
Fill out the <b>Title V Equipment Table</b> and provide it as <b>ATTACHMENT D</b> .
<b>26. Emission Units</b>
For each emission unit listed in the <b>Title V Equipment Table</b> , fill out and provide an <b>Emission Unit Form</b> as <b>ATTACHMENT E</b> .
For each emission unit not in compliance with an applicable requirement, fill out a <b>Schedule of Compliance Form</b> as <b>ATTACHMENT F</b> .
<b>27. Control Devices</b>
For each control device listed in the <b>Title V Equipment Table</b> , fill out and provide an <b>Air Pollution Control Device Form</b> as <b>ATTACHMENT G</b> .
For any control device that is required on an emission unit in order to meet a standard or limitation for which the potential pre-control device emissions of an applicable regulated air pollutant is greater than or equal to the Title V Major Source Threshold Level, refer to the <b>Compliance Assurance Monitoring (CAM) Form(s)</b> for CAM applicability. Fill out and provide these forms, if applicable, for each Pollutant Specific Emission Unit (PSEU) as <b>ATTACHMENT H</b> .

**Section 6: Certification of Information**

**28. Certification of Truth, Accuracy and Completeness and Certification of Compliance**

*Note: This Certification must be signed by a responsible official. The **original**, signed in **blue ink**, must be submitted with the application. Applications without an **original** signed certification will be considered as incomplete.*

**a. Certification of Truth, Accuracy and Completeness**

I certify that I am a responsible official (as defined at 45CSR§30-2.38) and am accordingly authorized to make this submission on behalf of the owners or operators of the source described in this document and its attachments. I certify under penalty of law that I have personally examined and am familiar with the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine and/or imprisonment.

**b. Compliance Certification**

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

**Responsible official (type or print)**

Name: Christopher Akers

Title: Group Senior Vice President –  
Engineering and Operations

**Responsible official's signature:**

Signature: \_\_\_\_\_

Signature Date: \_\_\_\_\_

2/3/11

(Must be signed and dated in blue ink)

**Note: Please check all applicable attachments included with this permit application:**

ATTACHMENT A: Area Map

ATTACHMENT B: Plot Plan(s)

ATTACHMENT C: Process Flow Diagram(s)

ATTACHMENT D: Equipment Table

ATTACHMENT E: Emission Unit Form(s)

ATTACHMENT F: Schedule of Compliance Form(s)

ATTACHMENT G: Air Pollution Control Device Form(s)

ATTACHMENT H: Compliance Assurance Monitoring (CAM) Form(s)

*All of the required forms and additional information can be found and downloaded from, the DEP website at [www.dep.wv.gov/dag](http://www.dep.wv.gov/dag), requested by phone (304) 926-0475, and/or obtained through the mail.*

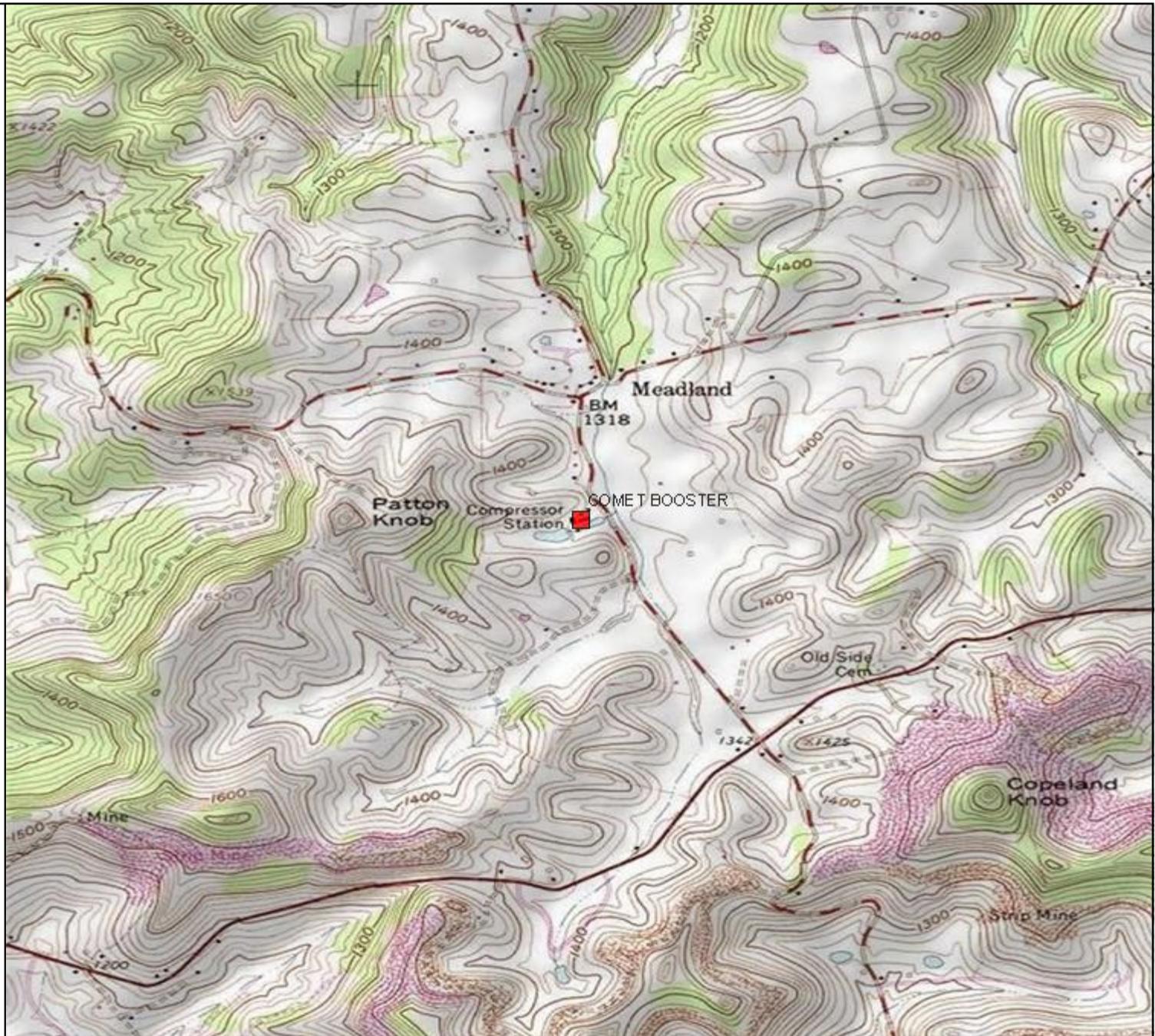
**APPENDIX A – AREA MAP**

---

# EQT

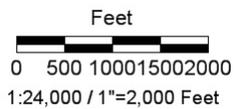
## Legend

 Compressor Stations



**Title: Comet - Area Map**

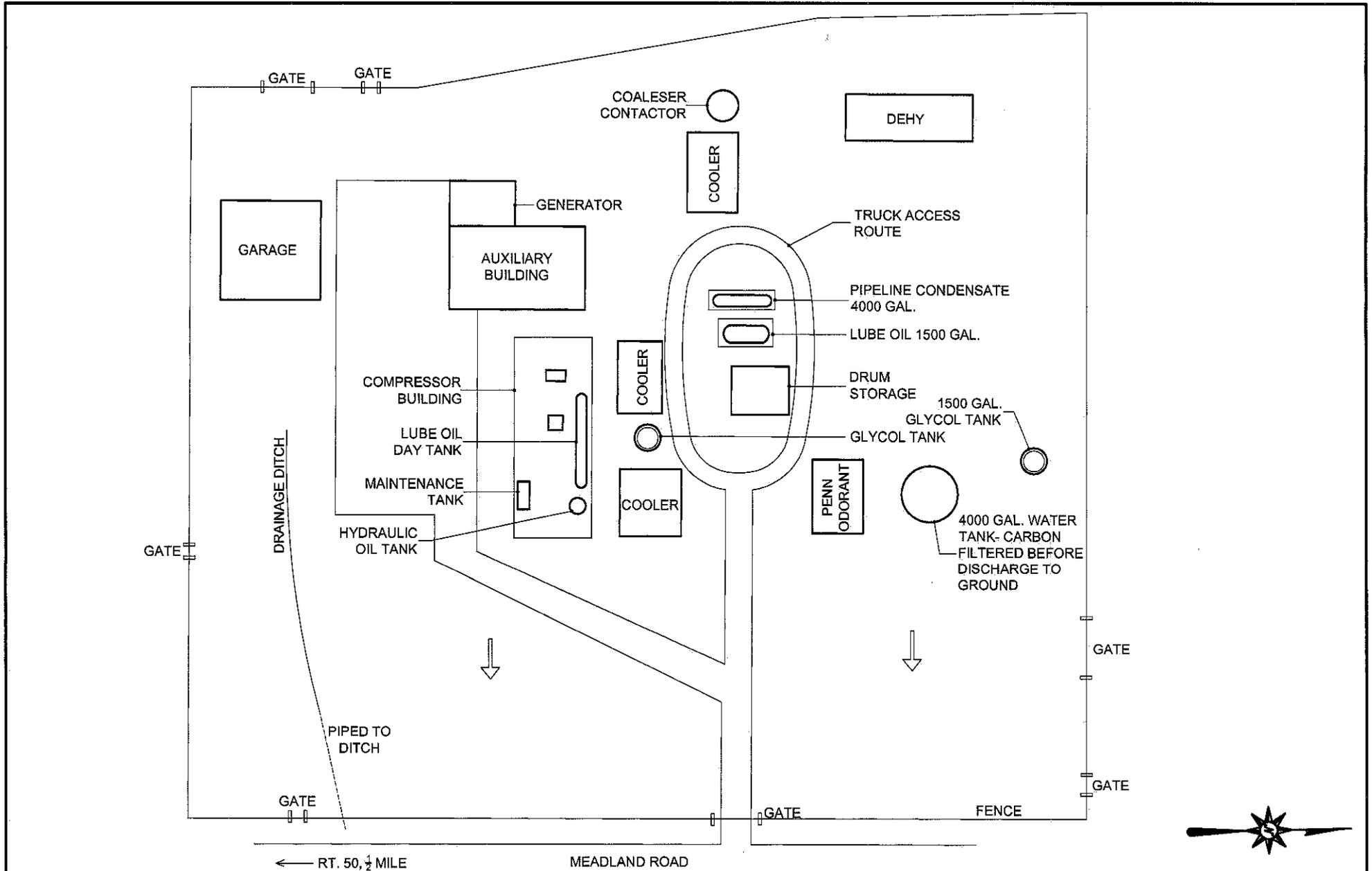
**Date: 10/21/2010**



DISCLAIMER: ALL INFORMATION DEPICTED ON THIS MAP PROVIDED BY EQT (SAID TERM SHALL MEAN EQT PRODUCTION OR EQT MIDSTREAM, DEPENDING ON WHICH EQT ENTITY PROVIDED THE MAP) IS FOR INFORMATION PURPOSES ONLY AND SHALL BE TREATED AS CONFIDENTIAL INFORMATION AND SHALL ONLY BE USED FOR THE SOLE PURPOSE FOR WHICH IT WAS PROVIDED. ANY OTHER USE OF THIS MAP, OR THE INFORMATION INCLUDED THEREON, IS STRICTLY PROHIBITED. THE EXACT LOCATION OF THE FACILITIES (INCLUDING BUT NOT LIMITED TO WELLS, PIPELINES, STRUCTURES, FACILITIES, LEASE BOUNDARIES OR ANY OTHER INFORMATION) SHOWN ON THIS MAP SHALL NOT BE RELIED UPON FOR THE SPECIFIC LOCATION OF THE FACILITIES; AND THE PARTIES AGREE THAT THE INFORMATION SHOWN ON THE MAP MAY NOT HAVE BEEN PLACED ON THE MAP USING SURVEY LINES OR GPS COORDINATES. EQT MAKES NO EXPRESS OR IMPLIED REPRESENTATION OR WARRANTY AS TO THE ACCURACY OF THE MAP, OR THE INFORMATION SHOWN THEREON. THE SPECIFIC LOCATION OF ANY OF THE INFORMATION, INCLUDING ANY WELL, PIPELINE, STRUCTURE, FACILITY OR LEASE BOUNDARY, SHOULD BE DETERMINED BY A FIELD SURVEY PERFORMED BY A LICENSED SURVEYOR UPON CONSULTATION WITH EQT. THIS MAP MAY NOT BE COPIED OR OTHERWISE MADE AVAILABLE TO ANY OTHER PARTY IN PAPER OR ELECTRONIC FORMAT WITHOUT WRITTEN CONSENT FROM EQT. RECIPIENT EXPRESSLY AGREES THAT ITS USE AND/OR RETAINER OF THIS MAP SHALL BE DEEMED ITS AGREEMENT TO THE TERMS SET FORTH ABOVE.

**APPENDIX B – PLOT PLAN**

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EQT EQUITRANS, L.P.  
 COMET COMPRESSOR STATION SITE LAYOUT  
 WESTON DISTRICT

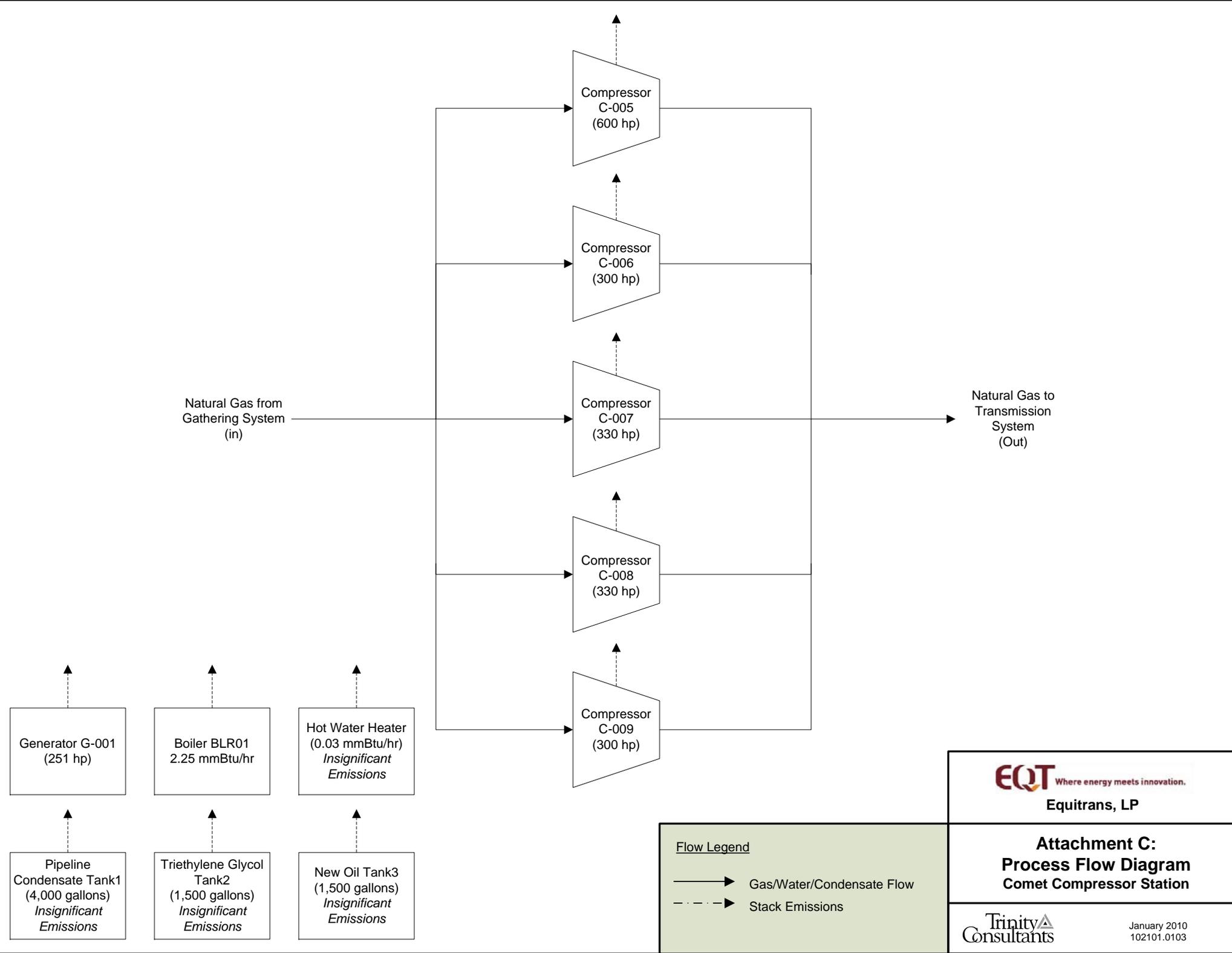
DRAWN: LA  
 CHECKED: BF  
 SCALE: N.T.S.

FIGURE NO.

1

## APPENDIX C – PROCESS FLOW DIAGRAM

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Natural Gas from Gathering System (in)

Compressor C-005 (600 hp)

Compressor C-006 (300 hp)

Compressor C-007 (330 hp)

Compressor C-008 (330 hp)

Compressor C-009 (300 hp)

Natural Gas to Transmission System (Out)

Generator G-001 (251 hp)

Boiler BLR01 2.25 mmBtu/hr

Hot Water Heater (0.03 mmBtu/hr)  
*Insignificant Emissions*

Pipeline Condensate Tank1 (4,000 gallons)  
*Insignificant Emissions*

Triethylene Glycol Tank2 (1,500 gallons)  
*Insignificant Emissions*

New Oil Tank3 (1,500 gallons)  
*Insignificant Emissions*

**Flow Legend**

- ▶ Gas/Water/Condensate Flow
- - - - -▶ Stack Emissions

**EQT** Where energy meets innovation.  
Equitrans, LP

**Attachment C:  
Process Flow Diagram  
Comet Compressor Station**

**APPENDIX D – WVDEP TITLE V EQUIPMENT TABLE**

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**APPENDIX E – WVDEP EMISSION UNIT FORMS**

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## ATTACHMENT E - Emission Unit Form

***Emission Unit Description***

<b>Emission unit ID number:</b> C-005	<b>Emission unit name:</b> C-005	<b>List any control devices associated with this emission unit:</b> N/A
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
Natural Gas Fired Reciprocating Engine; 600 hp

<b>Manufacturer:</b> Ajax	<b>Model number:</b> DPC-600	<b>Serial number:</b> 76441
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<b>Construction date:</b> 1980	<b>Installation date:</b> 1980	<b>Modification date(s):</b> N/A
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):**  
600 hp

<b>Maximum Hourly Throughput:</b> 0.00498 MMScf/hr	<b>Maximum Annual Throughput:</b> 43.6 MMScf/yr	<b>Maximum Operating Schedule:</b> 24 hours per day, 7 days per week, 8760 hours per year
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***Fuel Usage Data (fill out all applicable fields)***

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b>  <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired
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<b>Maximum design heat input and/or maximum horsepower rating:</b> 600 hp	<b>Type and Btu/hr rating of burners:</b> N/A
--	--

**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**  
Natural Gas

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	H <sub>2</sub> S < 1.0 gr/100 scf		1025 BTU/scf

<b><i>Emissions Data</i></b>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.97	8.62
Nitrogen Oxides (NO <sub>x</sub> )	16.17	70.81
Lead (Pb)	N/A	N/A
Particulate Matter (PM <sub>2.5</sub> )	0.25	1.08
Particulate Matter (PM <sub>10</sub> )	0.25	1.08
Total Particulate Matter (TSP)	0.25	1.08
Sulfur Dioxide (SO <sub>2</sub> )	3.00 E -03	1.31 E -02
Volatile Organic Compounds (VOC)	0.61	2.68
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Total HAPs	0.40	1.77
For individual HAPs, see Attachment F – Emission Calculations		
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> e	600	2,626
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>To calculate potential emissions, AP-42 factors were taken from Chapter 3.2, Table 3.2-1 (Uncontrolled Emission Factors for 2-stroke Lean-Burn Engines, dated 7/2000). The specific fuel consumption for the engine, 8,500 Btu/hp-hr, was multiplied by the engine rating, 600 hp, and then divided by 1,000,000 Btu per MMBtu to convert to units of MMBtu/hr. The AP-42 emission factors (in lb/MMBtu) were multiplied by the engine's fuel usage (in MMBtu/hr as previously calculated) to get potential emissions in pounds per hour. To determine tons per year, the pounds per hour value was multiplied by 8,760 hours per year and divided by 2,000 lbs per ton.</p> <p>To calculate greenhouse gas emissions, emission factors for natural gas combustion from 40 CFR Part 98 were used. These emission factors (in kg/MMBtu) were multiplied by the fuel usage rate in MMBtu/hr (as previously calculated) and multiplied by 2.2046 lb/kg to get the pound per hour emission rate. To determine tons per year, the pound per hour value was multiplied by 8,760 hours per year and divided by 2,000 lbs/ton.</p>		

*Applicable Requirements*

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

RICE MACT: 40 CFR 63 Subpart ZZZZ

\_\_\_\_ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

RICE MACT: Permittee will minimize the engine's time spent at idle and minimize the engines' startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes (40CFR§63.6625(h)). Permittee will comply with applicable work practice standards: change oil and filter every 4,320 hours of operation or annually, whichever comes first; inspect spark plugs every 4,320 hours of operation or annually, whichever comes first; and inspect all hoses and belts every 4,320 hours of operation or annually, whichever comes first and replace as necessary (40CFR§6603 and Table 2d to Subpart ZZZZ of 40CFR63). Permittee will also operate and maintain the engine in accordance with manufacturer's suggestions and maintain records showing that all work practices have been met (40 CFR63).

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the **Schedule of Compliance Form** as ATTACHMENT F.

## ATTACHMENT E - Emission Unit Form

***Emission Unit Description***

<b>Emission unit ID number:</b> C-006	<b>Emission unit name:</b> C-006	<b>List any control devices associated with this emission unit:</b> N/A
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
Natural Gas Fired Reciprocating Engine; 300 hp

<b>Manufacturer:</b> Cooper Bessemer	<b>Model number:</b> GMX6	<b>Serial number:</b> 41708
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<b>Construction date:</b> 1947	<b>Installation date:</b> 1947	<b>Modification date(s):</b> N/A
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):**  
300 hp

<b>Maximum Hourly Throughput:</b> 0.00293 MMScf/hr	<b>Maximum Annual Throughput:</b> 25.6 MMScf/yr	<b>Maximum Operating Schedule:</b> 24 hours per day, 7 days per week, 8760 hours per year
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***Fuel Usage Data (fill out all applicable fields)***

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b>  <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired
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<b>Maximum design heat input and/or maximum horsepower rating:</b> 300 hp	<b>Type and Btu/hr rating of burners:</b> N/A
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**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**  
Natural Gas

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	H <sub>2</sub> S < 1.0 gr/100 scf		1025 BTU/scf

<b><i>Emissions Data</i></b>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.16	5.07
Nitrogen Oxides (NO <sub>x</sub> )	9.51	41.65
Lead (Pb)	N/A	N/A
Particulate Matter (PM <sub>2.5</sub> )	0.14	0.63
Particulate Matter (PM <sub>10</sub> )	0.14	0.63
Total Particulate Matter (TSP)	0.14	0.63
Sulfur Dioxide (SO <sub>2</sub> )	1.76 E -03	7.73 E -03
Volatile Organic Compounds (VOC)	0.36	1.58
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Total HAPs	0.24	1.04
For individual HAPs, see Attachment F – Emission Calculations		
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> e	353	1,545
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>To calculate potential emissions, AP-42 factors were taken from Chapter 3.2, Table 3.2-1 (Uncontrolled Emission Factors for 2-stroke Lean-Burn Engines, dated 7/2000). The specific fuel consumption for the engine, 10,000 Btu/hp-hr, was multiplied by the engine rating, 300 hp, and then divided by 1,000,000 Btu per MMBtu to convert to units of MMBtu/hr. The AP-42 emission factors (in lb/MMBtu) were multiplied by the engine's fuel usage (in MMBtu/hr as previously calculated) to get potential emissions in pounds per hour. To determine tons per year, the pounds per hour value was multiplied by 8,760 hours per year and divided by 2,000 lbs per ton.</p> <p>To calculate greenhouse gas emissions, emission factors for natural gas combustion from 40 CFR Part 98 were used. These emission factors (in kg/MMBtu) were multiplied by the fuel usage rate in MMBtu/hr (as previously calculated) and multiplied by 2.2046 lb/kg to get the pound per hour emission rate. To determine tons per year, the pound per hour value was multiplied by 8,760 hours per year and divided by 2,000 lbs/ton.</p>		

*Applicable Requirements*

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

RICE MACT: 40 CFR 63 Subpart ZZZZ

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

**RICE MACT:** Permittee will minimize the engine's time spent at idle and minimize the engines' startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes (40CFR§63.6625(h)). Permittee will comply with applicable work practice standards: change oil and filter every 4,320 hours of operation or annually, whichever comes first; inspect spark plugs every 4,320 hours of operation or annually, whichever comes first; and inspect all hoses and belts every 4,320 hours of operation or annually, whichever comes first and replace as necessary (40CFR§6603 and Table 2d to Subpart ZZZZ of 40CFR63). Permittee will also operate and maintain the engine in accordance with manufacturer's suggestions and maintain records showing that all work practices have been met (40 CFR63).

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the **Schedule of Compliance Form** as ATTACHMENT F.

## ATTACHMENT E - Emission Unit Form

***Emission Unit Description***

<b>Emission unit ID number:</b> C-007	<b>Emission unit name:</b> C-007	<b>List any control devices associated with this emission unit:</b> N/A
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**

Natural Gas Fired Reciprocating Engine; 330 hp  
NOTE: This engine has been derated to 300 hp.

<b>Manufacturer:</b> Cooper Bessemer	<b>Model number:</b> GMX6	<b>Serial number:</b> 42055
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<b>Construction date:</b> 1949	<b>Installation date:</b> 1949	<b>Modification date(s):</b> N/A
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):**

330 hp

<b>Maximum Hourly Throughput:</b> 0.00322 MMScf/hr	<b>Maximum Annual Throughput:</b> 28.2 MMScf/yr	<b>Maximum Operating Schedule:</b> 24 hours per day, 7 days per week, 8760 hours per year
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***Fuel Usage Data (fill out all applicable fields)***

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b>  <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired
--	---

<b>Maximum design heat input and/or maximum horsepower rating:</b> 330 hp	<b>Type and Btu/hr rating of burners:</b> N/A
--	--

**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

Natural Gas

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	H <sub>2</sub> S < 1.0 gr/100 scf		1025 BTU/scf

<b><i>Emissions Data</i></b>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.27	5.58
Nitrogen Oxides (NO <sub>x</sub> )	10.46	45.82
Lead (Pb)	N/A	N/A
Particulate Matter (PM <sub>2.5</sub> )	0.16	0.70
Particulate Matter (PM <sub>10</sub> )	0.16	0.70
Total Particulate Matter (TSP)	0.16	0.70
Sulfur Dioxide (SO <sub>2</sub> )	1.94 E -03	8.50 E -03
Volatile Organic Compounds (VOC)	0.40	1.73
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Total HAPs	0.26	1.15
For individual HAPs, see Attachment F – Emission Calculations		
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> e	388	1,699
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>To calculate potential emissions, AP-42 factors were taken from Chapter 3.2, Table 3.2-1 (Uncontrolled Emission Factors for 2-stroke Lean-Burn Engines, dated 7/2000). The specific fuel consumption for the engine, 10,000 Btu/hp-hr, was multiplied by the engine rating, 330 hp, and then divided by 1,000,000 Btu per MMBtu to convert to units of MMBtu/hr. The AP-42 emission factors (in lb/MMBtu) were multiplied by the engine's fuel usage (in MMBtu/hr as previously calculated) to get potential emissions in pounds per hour. To determine tons per year, the pounds per hour value was multiplied by 8,760 hours per year and divided by 2000 lbs per ton.</p> <p>To calculate greenhouse gas emissions, emission factors for natural gas combustion from 40 CFR Part 98 were used. These emission factors (in kg/MMBtu) were multiplied by the fuel usage rate in MMBtu/hr (as previously calculated) and multiplied by 2.2046 lb/kg to get the pound per hour emission rate. To determine tons per year, the pound per hour value was multiplied by 8,760 hours per year and divided by 2,000 lbs/ton.</p>		

*Applicable Requirements*

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

RICE MACT: 40 CFR 63 Subpart ZZZZ

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

**RICE MACT:** Permittee will minimize the engine's time spent at idle and minimize the engines' startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes (40CFR§63.6625(h)). Permittee will comply with applicable work practice standards: change oil and filter every 4,320 hours of operation or annually, whichever comes first; inspect spark plugs every 4,320 hours of operation or annually, whichever comes first; and inspect all hoses and belts every 4,320 hours of operation or annually, whichever comes first and replace as necessary (40CFR§6603 and Table 2d to Subpart ZZZZ of 40CFR63). Permittee will also operate and maintain the engine in accordance with manufacturer's suggestions and maintain records showing that all work practices have been met (40 CFR63).

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the **Schedule of Compliance Form** as ATTACHMENT F.

## ATTACHMENT E - Emission Unit Form

**Emission Unit Description**

<b>Emission unit ID number:</b> C-008	<b>Emission unit name:</b> C-008	<b>List any control devices associated with this emission unit:</b> N/A
--	-------------------------------------	--

**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**

Natural Gas Fired Reciprocating Engine; 330 hp  
NOTE: This engine has been derated to 300 hp.

<b>Manufacturer:</b> Cooper Bessemer	<b>Model number:</b> GMX6	<b>Serial number:</b> 42056
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<b>Construction date:</b> 1949	<b>Installation date:</b> 1949	<b>Modification date(s):</b> N/A
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):**

330 hp

<b>Maximum Hourly Throughput:</b> 0.00322 MMScf/hr	<b>Maximum Annual Throughput:</b> 28.2 MMScf/yr	<b>Maximum Operating Schedule:</b> 24 hours per day, 7 days per week, 8760 hours per year
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**Fuel Usage Data (fill out all applicable fields)**

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b>  <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired
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<b>Maximum design heat input and/or maximum horsepower rating:</b> 330 hp	<b>Type and Btu/hr rating of burners:</b> N/A
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**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

Natural Gas

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	H <sub>2</sub> S < 1.0 gr/100 scf		1025 BTU/scf

<b><i>Emissions Data</i></b>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.27	5.58
Nitrogen Oxides (NO <sub>x</sub> )	10.46	45.82
Lead (Pb)	N/A	N/A
Particulate Matter (PM <sub>2.5</sub> )	0.16	0.70
Particulate Matter (PM <sub>10</sub> )	0.16	0.70
Total Particulate Matter (TSP)	0.16	0.70
Sulfur Dioxide (SO <sub>2</sub> )	1.94 E -03	8.50 E -03
Volatile Organic Compounds (VOC)	0.40	1.73
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Total HAPs	0.26	1.15
For individual HAPs, see Attachment F – Emission Calculations		
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> e	388	1,699
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>To calculate potential emissions, AP-42 factors were taken from Chapter 3.2, Table 3.2-1 (Uncontrolled Emission Factors for 2-stroke Lean-Burn Engines, dated 7/2000). The specific fuel consumption for the engine, 10,000 Btu/hp-hr, was multiplied by the engine rating, 330 hp, and then divided by 1,000,000 Btu per MMBtu to convert to units of MMBtu/hr. The AP-42 emission factors (in lb/MMBtu) were multiplied by the engine's fuel usage (in MMBtu/hr as previously calculated) to get potential emissions in pounds per hour. To determine tons per year, the pounds per hour value was multiplied by 8,760 hours per year and divided by 2000 lbs per ton.</p> <p>To calculate greenhouse gas emissions, emission factors for natural gas combustion from 40 CFR Part 98 were used. These emission factors (in kg/MMBtu) were multiplied by the fuel usage rate in MMBtu/hr (as previously calculated) and multiplied by 2.2046 lb/kg to get the pound per hour emission rate. To determine tons per year, the pound per hour value was multiplied by 8,760 hours per year and divided by 2,000 lbs/ton.</p>		

*Applicable Requirements*

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

RICE MACT: 40 CFR 63 Subpart ZZZZ

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

**RICE MACT:** Permittee will minimize the engine's time spent at idle and minimize the engines' startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes (40CFR§63.6625(h)). Permittee will comply with applicable work practice standards: change oil and filter every 4,320 hours of operation or annually, whichever comes first; inspect spark plugs every 4,320 hours of operation or annually, whichever comes first; and inspect all hoses and belts every 4,320 hours of operation or annually, whichever comes first and replace as necessary (40CFR§6603 and Table 2d to Subpart ZZZZ of 40CFR63). Permittee will also operate and maintain the engine in accordance with manufacturer's suggestions and maintain records showing that all work practices have been met (40 CFR63).

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the **Schedule of Compliance Form** as ATTACHMENT F.

## ATTACHMENT E - Emission Unit Form

**Emission Unit Description**

<b>Emission unit ID number:</b> C-009	<b>Emission unit name:</b> C-009	<b>List any control devices associated with this emission unit:</b> N/A
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
Natural Gas Fired Reciprocating Engine; 300 hp

<b>Manufacturer:</b> Clark	<b>Model number:</b> RA32	<b>Serial number:</b> 22259
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<b>Construction date:</b> 1961	<b>Installation date:</b> 1961	<b>Modification date(s):</b> N/A
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):**  
300 hp

<b>Maximum Hourly Throughput:</b> 0.00293 MMScf/hr	<b>Maximum Annual Throughput:</b> 25.6 MMScf/yr	<b>Maximum Operating Schedule:</b> 24 hours per day, 7 days per week, 8760 hours per year
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**Fuel Usage Data (fill out all applicable fields)**

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b>  <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired
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<b>Maximum design heat input and/or maximum horsepower rating:</b> 300 hp	<b>Type and Btu/hr rating of burners:</b> N/A
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**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**  
Natural Gas

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	H <sub>2</sub> S < 1.0 gr/100 scf		1025 BTU/scf

<b><i>Emissions Data</i></b>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.16	5.07
Nitrogen Oxides (NO <sub>x</sub> )	9.51	41.65
Lead (Pb)	N/A	N/A
Particulate Matter (PM <sub>2.5</sub> )	0.14	0.63
Particulate Matter (PM <sub>10</sub> )	0.14	0.63
Total Particulate Matter (TSP)	0.14	0.63
Sulfur Dioxide (SO <sub>2</sub> )	1.76 E -03	7.73 E -03
Volatile Organic Compounds (VOC)	0.36	1.58
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Total HAPs	0.24	1.04
For individual HAPs, see Attachment F – Emission Calculations		
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> e	353	1,545
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>To calculate potential emissions, AP-42 factors were taken from Chapter 3.2, Table 3.2-1 (Uncontrolled Emission Factors for 2-stroke Lean-Burn Engines, dated 7/2000). The specific fuel consumption for the engine, 10,000 Btu/hp-hr, was multiplied by the engine rating, 300 hp, and then divided by 1,000,000 Btu per MMBtu to convert to units of MMBtu/hr. The AP-42 emission factors (in lb/MMBtu) were multiplied by the engine's fuel usage (in MMBtu/hr as previously calculated) to get potential emissions in pounds per hour. To determine tons per year, the pounds per hour value was multiplied by 8,760 hours per year and divided by 2000 lbs per ton.</p> <p>To calculate greenhouse gas emissions, emission factors for natural gas combustion from 40 CFR Part 98 were used. These emission factors (in kg/MMBtu) were multiplied by the fuel usage rate in MMBtu/hr (as previously calculated) and multiplied by 2.2046 lb/kg to get the pound per hour emission rate. To determine tons per year, the pound per hour value was multiplied by 8,760 hours per year and divided by 2,000 lbs/ton.</p>		

*Applicable Requirements*

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

RICE MACT: 40 CFR 63 Subpart ZZZZ

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

**RICE MACT:** Permittee will minimize the engine's time spent at idle and minimize the engines' startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes (40CFR§63.6625(h)). Permittee will comply with applicable work practice standards: change oil and filter every 4,320 hours of operation or annually, whichever comes first; inspect spark plugs every 4,320 hours of operation or annually, whichever comes first; and inspect all hoses and belts every 4,320 hours of operation or annually, whichever comes first and replace as necessary (40CFR§6603 and Table 2d to Subpart ZZZZ of 40CFR63). Permittee will also operate and maintain the engine in accordance with manufacturer's suggestions and maintain records showing that all work practices have been met (40 CFR63).

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the **Schedule of Compliance Form** as ATTACHMENT F.

## ATTACHMENT E - Emission Unit Form

**Emission Unit Description**

<b>Emission unit ID number:</b> G-001	<b>Emission unit name:</b> G-001	<b>List any control devices associated with this emission unit:</b> N/A
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
Natural Gas Fired Generator; 251 hp

<b>Manufacturer:</b> Cummins	<b>Model number:</b> 275H	<b>Serial number:</b> 25190800
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<b>Construction date:</b> 1995	<b>Installation date:</b> 1995	<b>Modification date(s):</b> N/A
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):**  
251 hp

<b>Maximum Hourly Throughput:</b> 0.00061 MMScf/hr	<b>Maximum Annual Throughput:</b> 5.4 MMScf/yr	<b>Maximum Operating Schedule:</b> 24 hours per day, 7 days per week, 8760 hours per year
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**Fuel Usage Data (fill out all applicable fields)**

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b> <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired
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<b>Maximum design heat input and/or maximum horsepower rating:</b> 251 hp	<b>Type and Btu/hr rating of burners:</b> N/A
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**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**  
Natural Gas

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	H <sub>2</sub> S < 1.0 gr/100 scf		1025 BTU/scf

<b><i>Emissions Data</i></b>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	2.33	10.22
Nitrogen Oxides (NO <sub>x</sub> )	1.39	6.07
Lead (Pb)	N/A	N/A
Particulate Matter (PM <sub>2.5</sub> )	0.01	0.05
Particulate Matter (PM <sub>10</sub> )	0.01	0.05
Total Particulate Matter (TSP)	0.01	0.05
Sulfur Dioxide (SO <sub>2</sub> )	3.69 E -04	1.62 E -03
Volatile Organic Compounds (VOC)	0.02	0.08
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Total HAPs	0.02	0.09
For individual HAPs, see Attachment F – Emission Calculations		
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> e	74	323
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>To calculate potential emissions, AP-42 factors were taken from Chapter 3.2, Table 3.2-3 (Uncontrolled Emission Factors for 4-stroke Rich-Burn Engines, dated 7/2000). The specific fuel consumption for the engine, 2,500 Btu/hp-hr, was multiplied by the engine rating, 251 hp, and then divided by 1,000,000 Btu per MMBtu to convert to units of MMBtu/hr. The AP-42 emission factors (in lb/MMBtu) were multiplied by the engine's fuel usage (in MMBtu/hr as previously calculated) to get potential emissions in pounds per hour. To determine tons per year, the pounds per hour value was multiplied by 8,760 hours per year and divided by 2,000 lbs per ton.</p> <p>To calculate greenhouse gas emissions, emission factors for natural gas combustion from 40 CFR Part 98 were used. These emission factors (in kg/MMBtu) were multiplied by the fuel usage rate in MMBtu/hr (as previously calculated) and multiplied by 2.2046 lb/kg to get the pound per hour emission rate. To determine tons per year, the pound per hour value was multiplied by 8,760 hours per year and divided by 2,000 lbs/ton.</p>		

*Applicable Requirements*

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

RICE MACT: 40 CFR 63 Subpart ZZZZ

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

**RICE MACT:** Permittee will minimize the engine's time spent at idle and minimize the engines' startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes (40CFR§63.6625(h)). Permittee will comply with applicable work practice standards: change oil and filter every 1,440 hours of operation or annually, whichever comes first; inspect spark plugs every 1,440 hours of operation or annually, whichever comes first; and inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first and replace as necessary (40CFR§6603 and Table 2d to Subpart ZZZZ of 40CFR63). Permittee will also operate and maintain the engine in accordance with manufacturer's suggestions and maintain records showing that all work practices have been met (40 CFR63).

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the **Schedule of Compliance Form** as ATTACHMENT F.

## ATTACHMENT E - Emission Unit Form

**Emission Unit Description**

<b>Emission unit ID number:</b> BLR01	<b>Emission unit name:</b> BLR01	<b>List any control devices associated with this emission unit:</b> N/A
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
Heating Boiler; 2.25 MMBtu/hr

<b>Manufacturer:</b> N/A	<b>Model number:</b> N/A	<b>Serial number:</b> N/A
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<b>Construction date:</b> 1988	<b>Installation date:</b> 1988	<b>Modification date(s):</b> N/A
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):**  
2.25 MMBtu/hr

<b>Maximum Hourly Throughput:</b> 0.00220 MMScf/hr	<b>Maximum Annual Throughput:</b> 19.2 MMScf/yr	<b>Maximum Operating Schedule:</b> 24 hours per day, 7 days per week, 8760 hours per year
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**Fuel Usage Data (fill out all applicable fields)**

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b>  <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired
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<b>Maximum design heat input and/or maximum horsepower rating:</b> 2.25 MMBtu/hr	<b>Type and Btu/hr rating of burners:</b> N/A
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**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**  
Natural Gas

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	H <sub>2</sub> S < 1.0 gr/100 scf		1025 BTU/scf

**Emissions Data**

Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	0.18	0.81
Nitrogen Oxides (NO <sub>x</sub> )	0.22	0.96
Lead (Pb)	1.10 E -06	4.81 E -06
Particulate Matter (PM <sub>2.5</sub> )	0.02	0.07
Particulate Matter (PM <sub>10</sub> )	0.02	0.07
Total Particulate Matter (TSP)	0.02	0.07
Sulfur Dioxide (SO <sub>2</sub> )	1.32 E -03	5.77 E -03
Volatile Organic Compounds (VOC)	0.01	0.05
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Total HAP	4.16 E -03	1.82 E -02
For individual HAPs, see Attachment F – Emission Calculations		
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> e	265	1,159
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>To calculate potential emissions, AP-42 factors were taken from Chapter 1.4, Tables 1.4-1, 1.4-2, and 1.4-3 (External Combustion Sources – Natural Gas Combustion, dated 7/1998). The fuel consumption for the boiler, 2.25 MMBtu/hr was divided by the source specific higher heating value, 1,025 Btu/scf, to find the maximum fuel consumption in MMscf/hr. The AP-42 emission factors (in lb/MMscf) were multiplied by the engine’s fuel usage (in MMscf/hr as previously calculated) to get potential emissions in pounds per hour. To determine tons per year, the pounds per hour value was multiplied by 8,760 hours per year and divided by 2,000 lbs per ton.</p> <p>To calculate greenhouse gas emissions, emission factors for natural gas combustion from 40 CFR Part 98 were used. These emission factors (in kg/MMBtu) were multiplied by the fuel usage rating in MMBtu/hr and multiplied by 2.2046 lb/kg to get the pound per hour emission rate. To determine tons per year, the pound per hour value was multiplied by 8,760 hours per year and divided by 2,000 lbs/ton.</p>		

**Applicable Requirements**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

N/A

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

N/A

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the **Schedule of Compliance Form** as ATTACHMENT F.

## ATTACHMENT E - Emission Unit Form

***Emission Unit Description***

<b>Emission unit ID number:</b> 011	<b>Emission unit name:</b> 011	<b>List any control devices associated with this emission unit:</b> N/A
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
Three Phase Electric Compressor; 12 hp

<b>Manufacturer:</b> US Electrical Motors/Division of Emerson	<b>Model number:</b> A933A	<b>Serial number:</b> N/A
<b>Construction date:</b> 1995	<b>Installation date:</b> 1995	<b>Modification date(s):</b> N/A

**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):**  
12 hp

<b>Maximum Hourly Throughput:</b> N/A	<b>Maximum Annual Throughput:</b> N/A	<b>Maximum Operating Schedule:</b> 24 hours per day, 7 days per week, 8760 hours per year
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***Fuel Usage Data (fill out all applicable fields)***

<b>Does this emission unit combust fuel?</b> ___ Yes ___ No	<b>If yes, is it?</b>  ___ Indirect Fired ___ Direct Fired
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<b>Maximum design heat input and/or maximum horsepower rating:</b> 12 hp	<b>Type and Btu/hr rating of burners:</b> N/A
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**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

<b><i>Emissions Data</i></b>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	N/A	N/A
Nitrogen Oxides (NO <sub>x</sub> )	N/A	N/A
Lead (Pb)	N/A	N/A
Particulate Matter (PM <sub>2.5</sub> )	N/A	N/A
Particulate Matter (PM <sub>10</sub> )	N/A	N/A
Total Particulate Matter (TSP)	N/A	N/A
Sulfur Dioxide (SO <sub>2</sub> )	N/A	N/A
Volatile Organic Compounds (VOC)	N/A	N/A
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
N/A		
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
N/A		
N/A		
N/A		
<b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b>  No emissions expected, electric unit.		

**Applicable Requirements**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

N/A

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

N/A

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the **Schedule of Compliance Form** as ATTACHMENT F.

## APPENDIX F – SITE-WIDE EMISSION CALCULATIONS

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**EQT - Comet Compressor Station  
Facility-Wide Emissions Summary**

Pollutant	Engine #5 (C-005)		Engine #6 (C-006)		Engine #7 (C-007)		Engine #8 (C-008)		Engine #9 (C-009)	
	(lb/hr)	(tpy)								
Carbon Monoxide (CO)	1.97	8.62	1.16	5.07	1.27	5.58	1.27	5.58	1.16	5.07
Nitrogen Oxides (NO <sub>x</sub> )	16.17	70.81	9.51	41.65	10.46	45.82	10.46	45.82	9.51	41.65
Lead (Pb)	-	-	-	-	-	-	-	-	-	-
Particulate Matter (PM <sub>2.5</sub> )	2.46E-01	1.08E+00	1.45E-01	6.35E-01	1.59E-01	6.98E-01	1.59E-01	6.98E-01	1.45E-01	6.35E-01
Particulate Matter (PM <sub>10</sub> )	2.46E-01	1.08E+00	1.45E-01	6.35E-01	1.59E-01	6.98E-01	1.59E-01	6.98E-01	1.45E-01	6.35E-01
Total Particulate Matter (TSP)	2.46E-01	1.08E+00	1.45E-01	6.35E-01	1.59E-01	6.98E-01	1.59E-01	6.98E-01	1.45E-01	6.35E-01
Sulfur Dioxide (SO <sub>2</sub> )	3.00E-03	1.31E-02	1.76E-03	7.73E-03	1.94E-03	8.50E-03	1.94E-03	8.50E-03	1.76E-03	7.73E-03
Volatile Organic Compounds (VOC)	0.61	2.68	0.36	1.58	0.40	1.73	0.40	1.73	0.36	1.58
Total HAPs	0.40	1.77	0.24	1.04	0.26	1.15	0.26	1.15	0.24	1.04
Carbon Dioxide (CO <sub>2</sub> )	596	2,611	351	1,536	386	1,689	386	1,689	351	1,536
Nitrous Oxide (N <sub>2</sub> O)	1.12E-03	4.92E-03	6.61E-04	2.90E-03	7.28E-04	3.19E-03	7.28E-04	3.19E-03	6.61E-04	2.90E-03
Methane (CH <sub>4</sub> )	1.12E-02	4.92E-02	6.61E-03	2.90E-02	7.28E-03	3.19E-02	7.28E-03	3.19E-02	6.61E-03	2.90E-02
Carbon Equivalent Emissions (CO <sub>2</sub> e) <sup>a</sup>	600	2,626	353	1,545	388	1,699	388	1,699	353	1,545

<sup>a</sup> Carbon equivalent emissions (CO<sub>2</sub>e) are based on the following Global Warming Potentials (GWP) from 40 CFR Part 98, Table A-1:

Carbon Dioxide (CO<sub>2</sub>): 1  
Methane (CH<sub>4</sub>): 21  
Nitrous Oxide (N<sub>2</sub>O): 310

**EQT - Comet Compressor Station  
Facility-Wide Emissions Summary**

Pollutant	Generator #1 (G-001)		Boiler (BLR01)		Hot Water Heater		Site-Wide TOTAL	
	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Carbon Monoxide (CO)	2.33	10.22	0.18	0.81	0.00	0.01	<b>9.4</b>	<b>41.0</b>
Nitrogen Oxides (NO <sub>x</sub> )	1.39	6.07	0.22	0.96	0.00	0.01	<b>58</b>	<b>253</b>
Lead (Pb)	-	-	1.10E-06	4.81E-06	1.46E-08	6.41E-08	<b>1.11E-06</b>	<b>4.87E-06</b>
Particulate Matter (PM <sub>2.5</sub> )	1.22E-02	5.33E-02	1.67E-02	7.31E-02	2.22E-04	9.74E-04	<b>8.84E-01</b>	<b>3.87E+00</b>
Particulate Matter (PM <sub>10</sub> )	1.22E-02	5.33E-02	1.67E-02	7.31E-02	2.22E-04	9.74E-04	<b>8.84E-01</b>	<b>3.87E+00</b>
Total Particulate Matter (TSP)	1.22E-02	5.33E-02	1.67E-02	7.31E-02	2.22E-04	9.74E-04	<b>8.84E-01</b>	<b>3.87E+00</b>
Sulfur Dioxide (SO <sub>2</sub> )	3.69E-04	1.62E-03	1.32E-03	5.77E-03	1.76E-05	7.69E-05	<b>1.21E-02</b>	<b>5.30E-02</b>
Volatile Organic Compounds (VOC)	0.02	0.08	0.01	0.05	0.00	0.00	<b>2.15</b>	<b>9.44</b>
Total HAPs	0.02	0.09	0.00	0.02	0.00	0.00	<b>1.43</b>	<b>6.26</b>
Carbon Dioxide (CO <sub>2</sub> )	73	321	263	1,152	4	15	<b>2,409</b>	<b>10,550</b>
Nitrous Oxide (N <sub>2</sub> O)	1.38E-04	6.06E-04	4.96E-04	2.17E-03	6.61E-06	2.90E-05	<b>4.54E-03</b>	<b>1.99E-02</b>
Methane (CH <sub>4</sub> )	1.38E-03	6.06E-03	4.96E-03	2.17E-02	6.61E-05	2.90E-04	<b>4.54E-02</b>	<b>1.99E-01</b>
Carbon Equivalent Emissions (CO <sub>2</sub> e) <sup>a</sup>	74	323	265	1,159	4	15	<b>2,423</b>	<b>10,613</b>

**EQT - Comet Compressor Station  
Facility-Wide HAP Summary**

Pollutant	Engine #5 (C-005)		Engine #6 (C-006)		Engine #7 (C-007)		Engine #8 (C-008)		Engine #9 (C-009)	
	(lb/hr)	(tpy)								
<b>HAPs:</b>										
Acetaldehyde	3.96E-02	1.73E-01	2.33E-02	1.02E-01	2.56E-02	1.12E-01	2.56E-02	1.12E-01	2.33E-02	1.02E-01
Acrolein	3.97E-02	1.74E-01	2.33E-02	1.02E-01	2.57E-02	1.12E-01	2.57E-02	1.12E-01	2.33E-02	1.02E-01
Benzene	9.89E-03	4.33E-02	5.82E-03	2.55E-02	6.40E-03	2.80E-02	6.40E-03	2.80E-02	5.82E-03	2.55E-02
Biphenyl	2.01E-05	8.82E-05	1.19E-05	5.19E-05	1.30E-05	5.71E-05	1.30E-05	5.71E-05	1.19E-05	5.19E-05
1,3-Butadiene	4.18E-03	1.83E-02	2.46E-03	1.08E-02	2.71E-03	1.19E-02	2.71E-03	1.19E-02	2.46E-03	1.08E-02
Carbon Tetrachloride	3.10E-04	1.36E-03	1.82E-04	7.98E-04	2.00E-04	8.77E-04	2.00E-04	8.77E-04	1.82E-04	7.98E-04
Chlorobenzene	2.26E-04	9.92E-04	1.33E-04	5.83E-04	1.47E-04	6.42E-04	1.47E-04	6.42E-04	1.33E-04	5.83E-04
Chloroform	2.40E-04	1.05E-03	1.41E-04	6.19E-04	1.55E-04	6.81E-04	1.55E-04	6.81E-04	1.41E-04	6.19E-04
Dichlorobenzene	-	-	-	-	-	-	-	-	-	-
1,3-Dichloropropene	2.23E-04	9.78E-04	1.31E-04	5.76E-04	1.45E-04	6.33E-04	1.45E-04	6.33E-04	1.31E-04	5.76E-04
Ethylbenzene	5.51E-04	2.41E-03	3.24E-04	1.42E-03	3.56E-04	1.56E-03	3.56E-04	1.56E-03	3.24E-04	1.42E-03
Ethylene Dibromide	3.74E-04	1.64E-03	2.20E-04	9.64E-04	2.42E-04	1.06E-03	2.42E-04	1.06E-03	2.20E-04	9.64E-04
Formaldehyde	2.82E-01	1.23E+00	1.66E-01	7.25E-01	1.82E-01	7.98E-01	1.82E-01	7.98E-01	1.66E-01	7.25E-01
Methanol	1.26E-02	5.54E-02	7.44E-03	3.26E-02	8.18E-03	3.58E-02	8.18E-03	3.58E-02	7.44E-03	3.26E-02
Methylene Chloride	7.50E-04	3.28E-03	4.41E-04	1.93E-03	4.85E-04	2.12E-03	4.85E-04	2.12E-03	4.41E-04	1.93E-03
n-Hexane	2.27E-03	9.94E-03	1.34E-03	5.85E-03	1.47E-03	6.43E-03	1.47E-03	6.43E-03	1.34E-03	5.85E-03
Perylene	2.53E-08	1.11E-07	1.49E-08	6.53E-08	1.64E-08	7.18E-08	1.64E-08	7.18E-08	1.49E-08	6.53E-08
Phenol	2.15E-04	9.40E-04	1.26E-04	5.53E-04	1.39E-04	6.09E-04	1.39E-04	6.09E-04	1.26E-04	5.53E-04
Styrene	2.79E-04	1.22E-03	1.64E-04	7.20E-04	1.81E-04	7.92E-04	1.81E-04	7.92E-04	1.64E-04	7.20E-04
1,1,2,2-Tetrachloroethane	3.38E-04	1.48E-03	1.99E-04	8.71E-04	2.19E-04	9.58E-04	2.19E-04	9.58E-04	1.99E-04	8.71E-04
Toluene	4.91E-03	2.15E-02	2.89E-03	1.27E-02	3.18E-03	1.39E-02	3.18E-03	1.39E-02	2.89E-03	1.27E-02
1,1,2-Trichloroethane	2.69E-04	1.18E-03	1.58E-04	6.92E-04	1.74E-04	7.62E-04	1.74E-04	7.62E-04	1.58E-04	6.92E-04
2,2,4-Trimethylpentane	4.31E-03	1.89E-02	2.54E-03	1.11E-02	2.79E-03	1.22E-02	2.79E-03	1.22E-02	2.54E-03	1.11E-02
Vinyl Chloride	1.26E-04	5.52E-04	7.41E-05	3.25E-04	8.15E-05	3.57E-04	8.15E-05	3.57E-04	7.41E-05	3.25E-04
Xylene	1.37E-03	5.99E-03	8.04E-04	3.52E-03	8.84E-04	3.87E-03	8.84E-04	3.87E-03	8.04E-04	3.52E-03

EQT - Comet Compressor Station  
Facility-Wide HAP Summary

Pollutant	Engine #5 (C-005)		Engine #6 (C-006)		Engine #7 (C-007)		Engine #8 (C-008)		Engine #9 (C-009)	
	(lb/hr)	(tpy)								
<b>Polycyclic Organic Matter:</b>										
Acenaphthene	6.78E-06	2.97E-05	3.99E-06	1.75E-05	4.39E-06	1.92E-05	4.39E-06	1.92E-05	3.99E-06	1.75E-05
Acenaphthylene	1.62E-05	7.08E-05	9.51E-06	4.17E-05	1.05E-05	4.58E-05	1.05E-05	4.58E-05	9.51E-06	4.17E-05
Anthracene	3.66E-06	1.60E-05	2.15E-06	9.43E-06	2.37E-06	1.04E-05	2.37E-06	1.04E-05	2.15E-06	9.43E-06
Benz(a)anthracene	1.71E-06	7.51E-06	1.01E-06	4.42E-06	1.11E-06	4.86E-06	1.11E-06	4.86E-06	1.01E-06	4.42E-06
Benzo(a)pyrene	2.90E-08	1.27E-07	1.70E-08	7.46E-08	1.87E-08	8.21E-08	1.87E-08	8.21E-08	1.70E-08	7.46E-08
Benzo(b)fluoranthene	4.34E-08	1.90E-07	2.55E-08	1.12E-07	2.81E-08	1.23E-07	2.81E-08	1.23E-07	2.55E-08	1.12E-07
Benzo(e)pyrene	1.19E-07	5.23E-07	7.02E-08	3.07E-07	7.72E-08	3.38E-07	7.72E-08	3.38E-07	7.02E-08	3.07E-07
Benzo(g,h,i)perylene	1.26E-07	5.54E-07	7.44E-08	3.26E-07	8.18E-08	3.58E-07	8.18E-08	3.58E-07	7.44E-08	3.26E-07
Benzo(k)fluoranthene	2.17E-08	9.52E-08	1.28E-08	5.60E-08	1.41E-08	6.16E-08	1.41E-08	6.16E-08	1.28E-08	5.60E-08
Chrysene	3.43E-06	1.50E-05	2.02E-06	8.83E-06	2.22E-06	9.71E-06	2.22E-06	9.71E-06	2.02E-06	8.83E-06
Dibenzo(a,h)anthracene	-	-	-	-	-	-	-	-	-	-
7,12-Dimethylbenz(a)anthracene	-	-	-	-	-	-	-	-	-	-
Fluoranthene	1.84E-06	8.06E-06	1.08E-06	4.74E-06	1.19E-06	5.22E-06	1.19E-06	5.22E-06	1.08E-06	4.74E-06
Fluorene	8.62E-06	3.78E-05	5.07E-06	2.22E-05	5.58E-06	2.44E-05	5.58E-06	2.44E-05	5.07E-06	2.22E-05
Indeno(1,2,3-c,d)pyrene	5.06E-08	2.22E-07	2.98E-08	1.30E-07	3.28E-08	1.44E-07	3.28E-08	1.44E-07	2.98E-08	1.30E-07
3-Methylchloranthrene	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	1.09E-04	4.78E-04	6.42E-05	2.81E-04	7.06E-05	3.09E-04	7.06E-05	3.09E-04	6.42E-05	2.81E-04
Naphthalene	4.91E-04	2.15E-03	2.89E-04	1.27E-03	3.18E-04	1.39E-03	3.18E-04	1.39E-03	2.89E-04	1.27E-03
PAH	-	-	-	-	-	-	-	-	-	-
Phenanthrene	1.80E-05	7.89E-05	1.06E-05	4.64E-05	1.16E-05	5.10E-05	1.16E-05	5.10E-05	1.06E-05	4.64E-05
Pyrene	2.98E-06	1.30E-05	1.75E-06	7.67E-06	1.93E-06	8.44E-06	1.93E-06	8.44E-06	1.75E-06	7.67E-06
<b>Metals:</b>										
Arsenic	-	-	-	-	-	-	-	-	-	-
Beryllium	-	-	-	-	-	-	-	-	-	-
Cadmium	-	-	-	-	-	-	-	-	-	-
Chromium	-	-	-	-	-	-	-	-	-	-
Cobalt	-	-	-	-	-	-	-	-	-	-
Lead	-	-	-	-	-	-	-	-	-	-
Manganese	-	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-
Nickel	-	-	-	-	-	-	-	-	-	-
Selenium	-	-	-	-	-	-	-	-	-	-
<b>TOTAL HAP:</b>	<b>0.40</b>	<b>1.77</b>	<b>0.24</b>	<b>1.04</b>	<b>0.26</b>	<b>1.15</b>	<b>0.26</b>	<b>1.15</b>	<b>0.24</b>	<b>1.04</b>

**EQT - Comet Compressor Station  
Facility-Wide HAP Summary**

Pollutant	Generator #1 (G-001)		Boiler (BLR01)		Hot Water Heater		Site-Wide TOTAL	
	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
<b>HAPs:</b>								
Acetaldehyde	1.75E-03	7.67E-03	-	-	-	-	1.39E-01	6.09E-01
Acrolein	1.65E-03	7.23E-03	-	-	-	-	1.39E-01	6.10E-01
Benzene	9.91E-04	4.34E-03	4.61E-06	2.02E-05	6.15E-08	2.69E-07	3.53E-02	1.55E-01
Biphenyl	-	-	-	-	-	-	6.99E-05	3.06E-04
1,3-Butadiene	4.16E-04	1.82E-03	-	-	-	-	1.49E-02	6.54E-02
Carbon Tetrachloride	1.11E-05	4.86E-05	-	-	-	-	1.09E-03	4.75E-03
Chlorobenzene	8.09E-06	3.55E-05	-	-	-	-	7.94E-04	3.48E-03
Chloroform	8.60E-06	3.77E-05	-	-	-	-	8.42E-04	3.69E-03
Dichlorobenzene	-	-	2.63E-06	1.15E-05	3.51E-08	1.54E-07	2.67E-06	1.17E-05
1,3-Dichloropropene	7.97E-06	3.49E-05	-	-	-	-	7.83E-04	3.43E-03
Ethylbenzene	1.56E-05	6.82E-05	-	-	-	-	1.93E-03	8.44E-03
Ethylene Dibromide	1.34E-05	5.85E-05	-	-	-	-	1.31E-03	5.75E-03
Formaldehyde	1.29E-02	5.63E-02	1.65E-04	7.21E-04	2.20E-06	9.61E-06	9.90E-01	4.34E+00
Methanol	1.92E-03	8.41E-03	-	-	-	-	4.58E-02	2.01E-01
Methylene Chloride	2.59E-05	1.13E-04	-	-	-	-	2.63E-03	1.15E-02
n-Hexane	-	-	3.95E-03	1.73E-02	5.27E-05	2.31E-04	1.19E-02	5.20E-02
Perylene	-	-	-	-	-	-	8.80E-08	3.85E-07
Phenol	-	-	-	-	-	-	7.45E-04	3.26E-03
Styrene	7.47E-06	3.27E-05	-	-	-	-	9.77E-04	4.28E-03
1,1,2,2-Tetrachloroethane	1.59E-05	6.95E-05	-	-	-	-	1.19E-03	5.21E-03
Toluene	3.50E-04	1.53E-03	7.46E-06	3.27E-05	9.95E-08	4.36E-07	1.74E-02	7.62E-02
1,1,2-Trichloroethane	9.60E-06	4.21E-05	-	-	-	-	9.42E-04	4.13E-03
2,2,4-Trimethylpentane	-	-	-	-	-	-	1.50E-02	6.56E-02
Vinyl Chloride	4.51E-06	1.97E-05	-	-	-	-	4.42E-04	1.93E-03
Xylene	1.22E-04	5.36E-04	-	-	-	-	4.87E-03	2.13E-02

EQT - Comet Compressor Station  
Facility-Wide HAP Summary

Pollutant	Generator #1 (G-001)		Boiler (BLR01)		Hot Water Heater		Site-Wide TOTAL	
	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
<b>Polycyclic Organic Matter:</b>								
Acenaphthene	-	-	3.95E-09	1.73E-08	5.27E-11	2.31E-10	2.35E-05	1.03E-04
Acenaphthylene	-	-	3.95E-09	1.73E-08	5.27E-11	2.31E-10	5.61E-05	2.46E-04
Anthracene	-	-	5.27E-09	2.31E-08	7.02E-11	3.08E-10	1.27E-05	5.57E-05
Benz(a)anthracene	-	-	3.95E-09	1.73E-08	5.27E-11	2.31E-10	5.95E-06	2.61E-05
Benzo(a)pyrene	-	-	2.63E-09	1.15E-08	3.51E-11	1.54E-10	1.03E-07	4.52E-07
Benzo(b)fluoranthene	-	-	3.95E-09	1.73E-08	5.27E-11	2.31E-10	1.55E-07	6.77E-07
Benzo(e)pyrene	-	-	-	-	-	-	4.14E-07	1.81E-06
Benzo(g,h,i)perylene	-	-	2.63E-09	1.15E-08	3.51E-11	1.54E-10	4.42E-07	1.93E-06
Benzo(k)fluoranthene	-	-	3.95E-09	1.73E-08	5.27E-11	2.31E-10	7.94E-08	3.48E-07
Chrysene	-	-	3.95E-09	1.73E-08	5.27E-11	2.31E-10	1.19E-05	5.21E-05
Dibenzo(a,h)anthracene	-	-	2.63E-09	1.15E-08	3.51E-11	1.54E-10	2.67E-09	1.17E-08
7,12-Dimethylbenz(a)anthracene	-	-	3.51E-08	1.54E-07	4.68E-10	2.05E-09	3.56E-08	1.56E-07
Fluoranthene	-	-	6.59E-09	2.88E-08	8.78E-11	3.85E-10	6.40E-06	2.80E-05
Fluorene	-	-	6.15E-09	2.69E-08	8.20E-11	3.59E-10	2.99E-05	1.31E-04
Indeno(1,2,3-c,d)pyrene	-	-	3.95E-09	1.73E-08	5.27E-11	2.31E-10	1.80E-07	7.87E-07
3-Methylchloranthrene	-	-	3.95E-09	1.73E-08	5.27E-11	2.31E-10	4.00E-09	1.75E-08
2-Methylnaphthalene	-	-	5.27E-08	2.31E-07	7.02E-10	3.08E-09	3.79E-04	1.66E-03
Naphthalene	-	-	1.34E-06	5.86E-06	1.79E-08	7.82E-08	1.71E-03	7.47E-03
PAH	8.85E-05	3.88E-04	-	-	-	-	8.85E-05	3.88E-04
Phenanthrene	-	-	3.73E-08	1.63E-07	4.98E-10	2.18E-09	6.25E-05	2.74E-04
Pyrene	-	-	1.10E-08	4.81E-08	1.46E-10	6.41E-10	1.03E-05	4.53E-05
<b>Metals:</b>								
Arsenic	-	-	4.39E-07	1.92E-06	5.85E-09	2.56E-08	4.45E-07	1.95E-06
Beryllium	-	-	9.66E-06	4.23E-05	1.29E-07	5.64E-07	9.79E-06	4.29E-05
Cadmium	-	-	2.41E-06	1.06E-05	3.22E-08	1.41E-07	2.45E-06	1.07E-05
Chromium	-	-	3.07E-06	1.35E-05	4.10E-08	1.79E-07	3.11E-06	1.36E-05
Cobalt	-	-	1.84E-07	8.08E-07	2.46E-09	1.08E-08	1.87E-07	8.18E-07
Lead	-	-	1.10E-06	4.81E-06	1.46E-08	6.41E-08	1.11E-06	4.87E-06
Manganese	-	-	8.34E-07	3.65E-06	1.11E-08	4.87E-08	8.45E-07	3.70E-06
Mercury	-	-	5.71E-07	2.50E-06	7.61E-09	3.33E-08	5.78E-07	2.53E-06
Nickel	-	-	4.61E-06	2.02E-05	6.15E-08	2.69E-07	4.67E-06	2.05E-05
Selenium	-	-	5.27E-08	2.31E-07	7.02E-10	3.08E-09	5.34E-08	2.34E-07
<b>TOTAL HAP:</b>	<b>0.02</b>	<b>0.09</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>1.43</b>	<b>6.26</b>

**Engine #5 (C-005)**

Source Designation:	Compressor
Manufacturer:	Ajax
Model No.:	DPC-600
Year Installed:	1980
Stroke Cycle:	2-stroke
Type of Burn:	Lean burn
Fuel Used:	Natural Gas
Higher Heating Value (HHV) (Btu/scf):	1,025
Rated Horsepower (bhp):	600
Heat Input (MMBtu/hr)	5.10
Specific Fuel Consumption (Btu/bhp-hr)	8,500
Maximum Fuel Consumption at 100% Load (MMscf/hr):	0.00498
Maximum Fuel Consumption at 100% Load (MMscf/yr):	43.6

**Operational Details:**

Potential Annual Hours of Operation (hr/yr):	8,760
Potential Fuel Consumption (MMBtu/yr):	44,676

**Criteria and Manufacturer Specific Pollutant Emission Factors:**

Pollutant	Emission Factors	Units
NO <sub>x</sub> <sup>a</sup>	3.17E+00	lb/MMBtu
CO <sup>a</sup>	3.86E-01	lb/MMBtu
SO <sub>2</sub> <sup>a</sup>	5.88E-04	lb/MMBtu
Total Particulate Matter (TSP) <sup>a</sup>	4.83E-02	lb/MMBtu
PM <sub>10</sub> (Filterable + Condensable) <sup>a</sup>	4.83E-02	lb/MMBtu
PM <sub>2.5</sub> (Filterable + Condensable) <sup>a</sup>	4.83E-02	lb/MMBtu
VOC <sup>a</sup>	1.20E-01	lb/MMBtu
CO <sub>2</sub> <sup>b</sup>	5.30E+01	kg/MMBtu
CH <sub>4</sub> <sup>b</sup>	1.00E-03	kg/MMBtu
N <sub>2</sub> O <sup>b</sup>	1.00E-04	kg/MMBtu

**Criteria and Manufacturer Specific Pollutant Emission Rates:**

Pollutant	Potential Emissions	
	(lb/hr) <sup>c, d</sup>	(tons/yr) <sup>e</sup>
NO <sub>x</sub>	1.62E+01	7.08E+01
CO	1.97E+00	8.62E+00
SO <sub>2</sub>	3.00E-03	1.31E-02
Total Particulate Matter (TSP)	2.46E-01	1.08E+00
PM <sub>10</sub> (Filterable + Condensable)	2.46E-01	1.08E+00
PM <sub>2.5</sub> (Filterable + Condensable)	2.46E-01	1.08E+00
VOC	6.12E-01	2.68E+00
CO <sub>2</sub>	5.96E+02	2.61E+03
CH <sub>4</sub>	1.12E-02	4.92E-02
N <sub>2</sub> O	1.12E-03	4.92E-03

**Hazardous Air Pollutant (HAP) Potential Emissions:**

Pollutant	Emission Factor (lb/MMBtu) <sup>a</sup>	Potential Emissions (lb/hr) <sup>c</sup>	Potential Emissions (tons/yr) <sup>e</sup>
<b>HAPs:</b>			
Acetaldehyde	7.76E-03	3.96E-02	1.73E-01
Acrolein	7.78E-03	3.97E-02	1.74E-01
Benzene	1.94E-03	9.89E-03	4.33E-02
Biphenyl	3.95E-06	2.01E-05	8.82E-05
1,3-Butadiene	8.20E-04	4.18E-03	1.83E-02
Carbon Tetrachloride	6.07E-05	3.10E-04	1.36E-03
Chlorobenzene	4.44E-05	2.26E-04	9.92E-04
Chloroform	4.71E-05	2.40E-04	1.05E-03
1,3-Dichloropropene	4.38E-05	2.23E-04	9.78E-04
Ethylbenzene	1.08E-04	5.51E-04	2.41E-03
Ethylene Dibromide	7.34E-05	3.74E-04	1.64E-03
Formaldehyde	5.52E-02	2.82E-01	1.23E+00
Methanol	2.48E-03	1.26E-02	5.54E-02
Methylene Chloride	1.47E-04	7.50E-04	3.28E-03
n-Hexane	4.45E-04	2.27E-03	9.94E-03
Perylene	4.97E-09	2.53E-08	1.11E-07
Phenol	4.21E-05	2.15E-04	9.40E-04
Styrene	5.48E-05	2.79E-04	1.22E-03
Toluene	9.63E-04	4.91E-03	2.15E-02
1,1,2,2-Tetrachloroethane	6.63E-05	3.38E-04	1.48E-03
1,1,2-Trichloroethane	5.27E-05	2.69E-04	1.18E-03
2,2,4-Trimethylpentane	8.46E-04	4.31E-03	1.89E-02
Vinyl Chloride	2.47E-05	1.26E-04	5.52E-04
Xylene	2.68E-04	1.37E-03	5.99E-03
<b>Polycyclic Organic Matter:</b>			
Acenaphthene	1.33E-06	6.78E-06	2.97E-05
Acenaphthylene	3.17E-06	1.62E-05	7.08E-05
Anthracene	7.18E-07	3.66E-06	1.60E-05
Benz(a)anthracene	3.36E-07	1.71E-06	7.51E-06
Benzo(a)pyrene	5.68E-09	2.90E-08	1.27E-07
Benzo(b)fluoranthene	8.51E-09	4.34E-08	1.90E-07
Benzo(e)pyrene	2.34E-08	1.19E-07	5.23E-07
Benzo(g,h,i)perylene	2.48E-08	1.26E-07	5.54E-07
Benzo(k)fluoranthene	4.26E-09	2.17E-08	9.52E-08
Chrysene	6.72E-07	3.43E-06	1.50E-05
Fluoranthene	3.61E-07	1.84E-06	8.06E-06
Fluorene	1.69E-06	8.62E-06	3.78E-05
Indeno(1,2,3-c,d)pyrene	9.93E-09	5.06E-08	2.22E-07
2-Methylnaphthalene	2.14E-05	1.09E-04	4.78E-04
Naphthalene	9.63E-05	4.91E-04	2.15E-03
Phenanthrene	3.53E-06	1.80E-05	7.89E-05
Pyrene	5.84E-07	2.98E-06	1.30E-05
<b>Total HAP</b>		<b>0.40</b>	<b>1.77</b>

<sup>a</sup> Emission factor from AP-42 Section 3.2, Table 3.2-1 "Uncontrolled Emission Factors for 2-stroke Lean-burn Engines," Supplement F, July 2000.

<sup>b</sup> Greenhouse gas emission factors are from 40 CFR Part 98 for natural gas combustion

<sup>c</sup> Emission Rate (lb/hr) = Rated Capacity (MMBtu/hr) × Emission Factor (lb/MMBtu).

<sup>d</sup> Emission Rate (lb/hr) = Rated Capacity (MMBtu/hr) × Emission Factor (kg/MMBtu) × 2.2046 (lb/kg)

<sup>e</sup> Annual Emissions (tons/yr)<sub>Potential</sub> = (lb/hr)<sub>Emissions</sub> × (Maximum Allowable Operating Hours, 8,760 hr/yr) × (1 ton/2000 lb).

**Engine #6 (C-006)**

Source Designation:	Compressor
Manufacturer:	Cooper Bessemer
Model No.:	GMX-6 41708
Year Installed:	1947
Stroke Cycle:	2-stroke
Type of Burn:	Lean Burn
Fuel Used:	Natural Gas
Higher Heating Value (HHV) (Btu/scf):	1,025
Rated Horsepower (bhp):	300
Heat Input (MMBtu/hr)	3.00
Specific Fuel Consumption (Btu/bhp-hr)	10,000
Maximum Fuel Consumption at 100% Load (MMscf/hr):	0.00293
Maximum Fuel Consumption at 100% Load (MMscf/yr):	25.6

**Operational Details:**

Potential Annual Hours of Operation (hr/yr):	8,760
Potential Fuel Consumption (MMBtu/yr):	26,280

**Criteria and Manufacturer Specific Pollutant Emission Factors:**

Pollutant	Emission Factors	Units
NO <sub>x</sub> <sup>a</sup>	3.17E+00	lb/MMBtu
CO <sup>a</sup>	3.86E-01	lb/MMBtu
SO <sub>2</sub> <sup>a</sup>	5.88E-04	lb/MMBtu
Total Particulate Matter (TSP) <sup>a</sup>	4.83E-02	lb/MMBtu
PM <sub>10</sub> (Filterable + Condensable) <sup>a</sup>	4.83E-02	lb/MMBtu
PM <sub>2.5</sub> (Filterable + Condensable) <sup>a</sup>	4.83E-02	lb/MMBtu
VOC <sup>a</sup>	1.20E-01	lb/MMBtu
CO <sub>2</sub> <sup>b</sup>	5.30E+01	kg/MMBtu
CH <sub>4</sub> <sup>b</sup>	1.00E-03	kg/MMBtu
N <sub>2</sub> O <sup>b</sup>	1.00E-04	kg/MMBtu

**Criteria and Manufacturer Specific Pollutant Emission Rates:**

Pollutant	Potential Emissions	
	(lb/hr) <sup>c, d</sup>	(tons/yr) <sup>e</sup>
NO <sub>x</sub>	9.51E+00	4.17E+01
CO	1.16E+00	5.07E+00
SO <sub>2</sub>	1.76E-03	7.73E-03
Total Particulate Matter (TSP)	1.45E-01	6.35E-01
PM <sub>10</sub> (Filterable + Condensable)	1.45E-01	6.35E-01
PM <sub>2.5</sub> (Filterable + Condensable)	1.45E-01	6.35E-01
VOC	3.60E-01	1.58E+00
CO <sub>2</sub>	3.51E+02	1.54E+03
CH <sub>4</sub>	6.61E-03	2.90E-02
N <sub>2</sub> O	6.61E-04	2.90E-03

**Hazardous Air Pollutant (HAP) Potential Emissions:**

Pollutant	Emission Factor (lb/MMBtu) <sup>a</sup>	Potential Emissions (lb/hr) <sup>c</sup>	Potential Emissions (tons/yr) <sup>e</sup>
<b>HAPs:</b>			
Acetaldehyde	7.76E-03	2.33E-02	1.02E-01
Acrolein	7.78E-03	2.33E-02	1.02E-01
Benzene	1.94E-03	5.82E-03	2.55E-02
Biphenyl	3.95E-06	1.19E-05	5.19E-05
1,3-Butadiene	8.20E-04	2.46E-03	1.08E-02
Carbon Tetrachloride	6.07E-05	1.82E-04	7.98E-04
Chlorobenzene	4.44E-05	1.33E-04	5.83E-04
Chloroform	4.71E-05	1.41E-04	6.19E-04
1,3-Dichloropropene	4.38E-05	1.31E-04	5.76E-04
Ethylbenzene	1.08E-04	3.24E-04	1.42E-03
Ethylene Dibromide	7.34E-05	2.20E-04	9.64E-04
Formaldehyde	5.52E-02	1.66E-01	7.25E-01
Methanol	2.48E-03	7.44E-03	3.26E-02
Methylene Chloride	1.47E-04	4.41E-04	1.93E-03
n-Hexane	4.45E-04	1.34E-03	5.85E-03
Perylene	4.97E-09	1.49E-08	6.53E-08
Phenol	4.21E-05	1.26E-04	5.53E-04
Styrene	5.48E-05	1.64E-04	7.20E-04
Toluene	9.63E-04	2.89E-03	1.27E-02
1,1,2,2-Tetrachloroethane	6.63E-05	1.99E-04	8.71E-04
1,1,2-Trichloroethane	5.27E-05	1.58E-04	6.92E-04
2,2,4-Trimethylpentane	8.46E-04	2.54E-03	1.11E-02
Vinyl Chloride	2.47E-05	7.41E-05	3.25E-04
Xylene	2.68E-04	8.04E-04	3.52E-03
<b>Polycyclic Organic Matter:</b>			
Acenaphthene	1.33E-06	3.99E-06	1.75E-05
Acenaphthylene	3.17E-06	9.51E-06	4.17E-05
Anthracene	7.18E-07	2.15E-06	9.43E-06
Benz(a)anthracene	3.36E-07	1.01E-06	4.42E-06
Benzo(a)pyrene	5.68E-09	1.70E-08	7.46E-08
Benzo(b)fluoranthene	8.51E-09	2.55E-08	1.12E-07
Benzo(e)pyrene	2.34E-08	7.02E-08	3.07E-07
Benzo(g,h,i)perylene	2.48E-08	7.44E-08	3.26E-07
Benzo(k)fluoranthene	4.26E-09	1.28E-08	5.60E-08
Chrysene	6.72E-07	2.02E-06	8.83E-06
Fluoranthene	3.61E-07	1.08E-06	4.74E-06
Fluorene	1.69E-06	5.07E-06	2.22E-05
Indeno(1,2,3-c,d)pyrene	9.93E-09	2.98E-08	1.30E-07
2-Methylnaphthalene	2.14E-05	6.42E-05	2.81E-04
Naphthalene	9.63E-05	2.89E-04	1.27E-03
Phenanthrene	3.53E-06	1.06E-05	4.64E-05
Pyrene	5.84E-07	1.75E-06	7.67E-06
<b>Total HAP</b>		<b>0.24</b>	<b>1.04</b>

<sup>a</sup> Emission factor from AP-42 Section 3.2, Table 3.2-3 "Uncontrolled Emission Factors for 2-stroke Lean-burn Engines," Supplement F, July 2000.

<sup>b</sup> Greenhouse gas emission factors are from 40 CFR Part 98 for natural gas combustion

<sup>c</sup> Emission Rate (lb/hr) = Rated Capacity (MMBtu/hr) × Emission Factor (lb/MMBtu).

<sup>d</sup> Emission Rate (lb/hr) = Rated Capacity (MMBtu/hr) × Emission Factor (kg/MMBtu) × 2.2046 (lb/kg)

<sup>e</sup> Annual Emissions (tons/yr)<sub>Potential</sub> = (lb/hr)<sub>Emissions</sub> × (Maximum Allowable Operating Hours, 8,760 hr/yr) × (1 ton/2000 lb).

**Engine #7 (C-007)**

Source Designation:	Compressor
Manufacturer:	Cooper Bessemer
Model No.:	GMX-6 42055
Year Installed:	1949
Stroke Cycle:	2-stroke
Type of Burn:	Lean burn
Fuel Used:	Natural Gas
Higher Heating Value (HHV) (Btu/scf):	1,025
Rated Horsepower (bhp):	330
Heat Input (MMBtu/hr)	3.30
Specific Fuel Consumption (Btu/bhp-hr)	10,000
Maximum Fuel Consumption at 100% Load (MMscf/hr):	0.00322
Maximum Fuel Consumption at 100% Load (MMscf/yr):	28.2

**Operational Details:**

Potential Annual Hours of Operation (hr/yr):	8,760
Potential Fuel Consumption (MMBtu/yr):	28,908

**Criteria and Manufacturer Specific Pollutant Emission Factors:**

Pollutant	Emission Factors	Units
NO <sub>x</sub> <sup>a</sup>	3.17E+00	lb/MMBtu
CO <sup>a</sup>	3.86E-01	lb/MMBtu
SO <sub>2</sub> <sup>a</sup>	5.88E-04	lb/MMBtu
Total Particulate Matter (TSP) <sup>a</sup>	4.83E-02	lb/MMBtu
PM <sub>10</sub> (Filterable + Condensable) <sup>a</sup>	4.83E-02	lb/MMBtu
PM <sub>2.5</sub> (Filterable + Condensable) <sup>a</sup>	4.83E-02	lb/MMBtu
VOC <sup>a</sup>	1.20E-01	lb/MMBtu
CO <sub>2</sub> <sup>b</sup>	5.30E+01	kg/MMBtu
CH <sub>4</sub> <sup>b</sup>	1.00E-03	kg/MMBtu
N <sub>2</sub> O <sup>b</sup>	1.00E-04	kg/MMBtu

**Criteria and Manufacturer Specific Pollutant Emission Rates:**

Pollutant	Potential Emissions	
	(lb/hr) <sup>c, d</sup>	(tons/yr) <sup>e</sup>
NO <sub>x</sub>	1.05E+01	4.58E+01
CO	1.27E+00	5.58E+00
SO <sub>2</sub>	1.94E-03	8.50E-03
Total Particulate Matter (TSP)	1.59E-01	6.98E-01
PM <sub>10</sub> (Filterable + Condensable)	1.59E-01	6.98E-01
PM <sub>2.5</sub> (Filterable + Condensable)	1.59E-01	6.98E-01
VOC	3.96E-01	1.73E+00
CO <sub>2</sub>	3.86E+02	1.69E+03
CH <sub>4</sub>	7.28E-03	3.19E-02
N <sub>2</sub> O	7.28E-04	3.19E-03

**Hazardous Air Pollutant (HAP) Potential Emissions:**

Pollutant	Emission Factor (lb/MMBtu) <sup>a</sup>	Potential Emissions (lb/hr) <sup>c</sup>	Potential Emissions (tons/yr) <sup>e</sup>
<b>HAPs:</b>			
Acetaldehyde	7.76E-03	2.56E-02	1.12E-01
Acrolein	7.78E-03	2.57E-02	1.12E-01
Benzene	1.94E-03	6.40E-03	2.80E-02
Biphenyl	3.95E-06	1.30E-05	5.71E-05
1,3-Butadiene	8.20E-04	2.71E-03	1.19E-02
Carbon Tetrachloride	6.07E-05	2.00E-04	8.77E-04
Chlorobenzene	4.44E-05	1.47E-04	6.42E-04
Chloroform	4.71E-05	1.55E-04	6.81E-04
1,3-Dichloropropene	4.38E-05	1.45E-04	6.33E-04
Ethylbenzene	1.08E-04	3.56E-04	1.56E-03
Ethylene Dibromide	7.34E-05	2.42E-04	1.06E-03
Formaldehyde	5.52E-02	1.82E-01	7.98E-01
Methanol	2.48E-03	8.18E-03	3.58E-02
Methylene Chloride	1.47E-04	4.85E-04	2.12E-03
n-Hexane	4.45E-04	1.47E-03	6.43E-03
Perylene	4.97E-09	1.64E-08	7.18E-08
Phenol	4.21E-05	1.39E-04	6.09E-04
Styrene	5.48E-05	1.81E-04	7.92E-04
Toluene	9.63E-04	3.18E-03	1.39E-02
1,1,2,2-Tetrachloroethane	6.63E-05	2.19E-04	9.58E-04
1,1,2-Trichloroethane	5.27E-05	1.74E-04	7.62E-04
2,2,4-Trimethylpentane	8.46E-04	2.79E-03	1.22E-02
Vinyl Chloride	2.47E-05	8.15E-05	3.57E-04
Xylene	2.68E-04	8.84E-04	3.87E-03
<b>Polycyclic Organic Matter:</b>			
Acenaphthene	1.33E-06	4.39E-06	1.92E-05
Acenaphthylene	3.17E-06	1.05E-05	4.58E-05
Anthracene	7.18E-07	2.37E-06	1.04E-05
Benz(a)anthracene	3.36E-07	1.11E-06	4.86E-06
Benzo(a)pyrene	5.68E-09	1.87E-08	8.21E-08
Benzo(b)fluoranthene	8.51E-09	2.81E-08	1.23E-07
Benzo(e)pyrene	2.34E-08	7.72E-08	3.38E-07
Benzo(g,h,i)perylene	2.48E-08	8.18E-08	3.58E-07
Benzo(k)fluoranthene	4.26E-09	1.41E-08	6.16E-08
Chrysene	6.72E-07	2.22E-06	9.71E-06
Fluoranthene	3.61E-07	1.19E-06	5.22E-06
Fluorene	1.69E-06	5.58E-06	2.44E-05
Indeno(1,2,3-c,d)pyrene	9.93E-09	3.28E-08	1.44E-07
2-Methylnaphthalene	2.14E-05	7.06E-05	3.09E-04
Naphthalene	9.63E-05	3.18E-04	1.39E-03
Phenanthrene	3.53E-06	1.16E-05	5.10E-05
Pyrene	5.84E-07	1.93E-06	8.44E-06
<b>Total HAP</b>		<b>0.26</b>	<b>1.15</b>

<sup>a</sup> Emission factor from AP-42 Section 3.2, Table 3.2-1 "Uncontrolled Emission Factors for 2-stroke Lean-burn Engines," Supplement F, July 2000.

<sup>b</sup> Greenhouse gas emission factors are from 40 CFR Part 98 for natural gas combustion

<sup>c</sup> Emission Rate (lb/hr) = Rated Capacity (MMBtu/hr) × Emission Factor (lb/MMBtu).

<sup>d</sup> Emission Rate (lb/hr) = Rated Capacity (MMBtu/hr) × Emission Factor (kg/MMBtu) × 2.2046 (lb/kg)

<sup>e</sup> Annual Emissions (tons/yr)<sub>Potential</sub> = (lb/hr)<sub>Emissions</sub> × (Maximum Allowable Operating Hours, 8,760 hr/yr) × (1 ton/2000 lb).

**Engine #8 (C-008)**

Source Designation:	Compressor
Manufacturer:	Cooper Bessemer
Model No.:	GMX-6 42056
Year Installed:	1949
Stroke Cycle:	2-stroke
Type of Burn:	Lean Burn
Fuel Used:	Natural Gas
Higher Heating Value (HHV) (Btu/scf):	1,025
Rated Horsepower (bhp):	330
Heat Input (MMBtu/hr)	3.30
Specific Fuel Consumption (Btu/bhp-hr)	10,000
Maximum Fuel Consumption at 100% Load (MMscf/hr):	0.00322
Maximum Fuel Consumption at 100% Load (MMscf/yr):	28.2

**Operational Details:**

Potential Annual Hours of Operation (hr/yr):	8,760
Potential Fuel Consumption (MMBtu/yr):	28,908

**Criteria and Manufacturer Specific Pollutant Emission Factors:**

Pollutant	Emission Factors	Units
NO <sub>x</sub> <sup>a</sup>	3.17E+00	lb/MMBtu
CO <sup>a</sup>	3.86E-01	lb/MMBtu
SO <sub>2</sub> <sup>a</sup>	5.88E-04	lb/MMBtu
Total Particulate Matter (TSP) <sup>a</sup>	4.83E-02	lb/MMBtu
PM <sub>10</sub> (Filterable + Condensable) <sup>a</sup>	4.83E-02	lb/MMBtu
PM <sub>2.5</sub> (Filterable + Condensable) <sup>a</sup>	4.83E-02	lb/MMBtu
VOC <sup>a</sup>	1.20E-01	lb/MMBtu
CO <sub>2</sub> <sup>b</sup>	5.30E+01	kg/MMBtu
CH <sub>4</sub> <sup>b</sup>	1.00E-03	kg/MMBtu
N <sub>2</sub> O <sup>b</sup>	1.00E-04	kg/MMBtu

**Criteria and Manufacturer Specific Pollutant Emission Rates:**

Pollutant	Potential Emissions	
	(lb/hr) <sup>c, d</sup>	(tons/yr) <sup>e</sup>
NO <sub>x</sub>	1.05E+01	4.58E+01
CO	1.27E+00	5.58E+00
SO <sub>2</sub>	1.94E-03	8.50E-03
Total Particulate Matter (TSP)	1.59E-01	6.98E-01
PM <sub>10</sub> (Filterable + Condensable)	1.59E-01	6.98E-01
PM <sub>2.5</sub> (Filterable + Condensable)	1.59E-01	6.98E-01
VOC	3.96E-01	1.73E+00
CO <sub>2</sub>	3.86E+02	1.69E+03
CH <sub>4</sub>	7.28E-03	3.19E-02
N <sub>2</sub> O	7.28E-04	3.19E-03

**Hazardous Air Pollutant (HAP) Potential Emissions:**

Pollutant	Emission Factor (lb/MMBtu) <sup>a</sup>	Potential Emissions (lb/hr) <sup>c</sup>	Potential Emissions (tons/yr) <sup>e</sup>
<b>HAPs:</b>			
Acetaldehyde	7.76E-03	2.56E-02	1.12E-01
Acrolein	7.78E-03	2.57E-02	1.12E-01
Benzene	1.94E-03	6.40E-03	2.80E-02
Biphenyl	3.95E-06	1.30E-05	5.71E-05
1,3-Butadiene	8.20E-04	2.71E-03	1.19E-02
Carbon Tetrachloride	6.07E-05	2.00E-04	8.77E-04
Chlorobenzene	4.44E-05	1.47E-04	6.42E-04
Chloroform	4.71E-05	1.55E-04	6.81E-04
1,3-Dichloropropene	4.38E-05	1.45E-04	6.33E-04
Ethylbenzene	1.08E-04	3.56E-04	1.56E-03
Ethylene Dibromide	7.34E-05	2.42E-04	1.06E-03
Formaldehyde	5.52E-02	1.82E-01	7.98E-01
Methanol	2.48E-03	8.18E-03	3.58E-02
Methylene Chloride	1.47E-04	4.85E-04	2.12E-03
n-Hexane	4.45E-04	1.47E-03	6.43E-03
Perylene	4.97E-09	1.64E-08	7.18E-08
Phenol	4.21E-05	1.39E-04	6.09E-04
Styrene	5.48E-05	1.81E-04	7.92E-04
Toluene	9.63E-04	3.18E-03	1.39E-02
1,1,2,2-Tetrachloroethane	6.63E-05	2.19E-04	9.58E-04
1,1,2-Trichloroethane	5.27E-05	1.74E-04	7.62E-04
2,2,4-Trimethylpentane	8.46E-04	2.79E-03	1.22E-02
Vinyl Chloride	2.47E-05	8.15E-05	3.57E-04
Xylene	2.68E-04	8.84E-04	3.87E-03
<b>Polycyclic Organic Matter:</b>			
Acenaphthene	1.33E-06	4.39E-06	1.92E-05
Acenaphthylene	3.17E-06	1.05E-05	4.58E-05
Anthracene	7.18E-07	2.37E-06	1.04E-05
Benz(a)anthracene	3.36E-07	1.11E-06	4.86E-06
Benzo(a)pyrene	5.68E-09	1.87E-08	8.21E-08
Benzo(b)fluoranthene	8.51E-09	2.81E-08	1.23E-07
Benzo(e)pyrene	2.34E-08	7.72E-08	3.38E-07
Benzo(g,h,i)perylene	2.48E-08	8.18E-08	3.58E-07
Benzo(k)fluoranthene	4.26E-09	1.41E-08	6.16E-08
Chrysene	6.72E-07	2.22E-06	9.71E-06
Fluoranthene	3.61E-07	1.19E-06	5.22E-06
Fluorene	1.69E-06	5.58E-06	2.44E-05
Indeno(1,2,3-c,d)pyrene	9.93E-09	3.28E-08	1.44E-07
2-Methylnaphthalene	2.14E-05	7.06E-05	3.09E-04
Naphthalene	9.63E-05	3.18E-04	1.39E-03
Phenanthrene	3.53E-06	1.16E-05	5.10E-05
Pyrene	5.84E-07	1.93E-06	8.44E-06
<b>Total HAP</b>		<b>0.26</b>	<b>1.15</b>

<sup>a</sup> Emission factor from AP-42 Section 3.2, Table 3.2-1 "Uncontrolled Emission Factors for 2-stroke Lean-burn Engines," Supplement F, July 2000.

<sup>b</sup> Greenhouse gas emission factors are from 40 CFR Part 98 for natural gas combustion

<sup>c</sup> Emission Rate (lb/hr) = Rated Capacity (MMBtu/hr) × Emission Factor (lb/MMBtu).

<sup>d</sup> Emission Rate (lb/hr) = Rated Capacity (MMBtu/hr) × Emission Factor (kg/MMBtu) × 2.2046 (lb/kg)

<sup>e</sup> Annual Emissions (tons/yr)<sub>Potential</sub> = (lb/hr)<sub>Emissions</sub> × (Maximum Allowable Operating Hours, 8,760 hr/yr) × (1 ton/2000 lb).

**Engine #9 (C-009)**

Source Designation:	Compressor
Manufacturer:	Clark
Model No.:	RA-32
Year Installed:	1961
Stroke Cycle:	2-stroke
Type of Burn:	Lean Burn
Fuel Used:	Natural Gas
Higher Heating Value (HHV) (Btu/scf):	1,025
Rated Horsepower (bhp):	300
Heat Input (MMBtu/hr)	3.00
Specific Fuel Consumption (Btu/bhp-hr)	10,000
Maximum Fuel Consumption at 100% Load (MMscf/hr):	0.00293
Maximum Fuel Consumption at 100% Load (MMscf/yr):	25.6

**Operational Details:**

Potential Annual Hours of Operation (hr/yr):	8,760
Potential Fuel Consumption (MMBtu/yr):	26,280

**Criteria and Manufacturer Specific Pollutant Emission Factors:**

Pollutant	Emission Factors	Units
NO <sub>x</sub> <sup>a</sup>	3.17E+00	lb/MMBtu
CO <sup>a</sup>	3.86E-01	lb/MMBtu
SO <sub>2</sub> <sup>a</sup>	5.88E-04	lb/MMBtu
Total Particulate Matter (TSP) <sup>a</sup>	4.83E-02	lb/MMBtu
PM <sub>10</sub> (Filterable + Condensable) <sup>a</sup>	4.83E-02	lb/MMBtu
PM <sub>2.5</sub> (Filterable + Condensable) <sup>a</sup>	4.83E-02	lb/MMBtu
VOC <sup>a</sup>	1.20E-01	lb/MMBtu
CO <sub>2</sub> <sup>b</sup>	5.30E+01	kg/MMBtu
CH <sub>4</sub> <sup>b</sup>	1.00E-03	kg/MMBtu
N <sub>2</sub> O <sup>b</sup>	1.00E-04	kg/MMBtu

**Criteria and Manufacturer Specific Pollutant Emission Rates:**

Pollutant	Potential Emissions	
	(lb/hr) <sup>c, d</sup>	(tons/yr) <sup>e</sup>
NO <sub>x</sub>	9.51E+00	4.17E+01
CO	1.16E+00	5.07E+00
SO <sub>2</sub>	1.76E-03	7.73E-03
Total Particulate Matter (TSP)	1.45E-01	6.35E-01
PM <sub>10</sub> (Filterable + Condensable)	1.45E-01	6.35E-01
PM <sub>2.5</sub> (Filterable + Condensable)	1.45E-01	6.35E-01
VOC	3.60E-01	1.58E+00
CO <sub>2</sub>	3.51E+02	1.54E+03
CH <sub>4</sub>	6.61E-03	2.90E-02
N <sub>2</sub> O	6.61E-04	2.90E-03

**Hazardous Air Pollutant (HAP) Potential Emissions:**

Pollutant	Emission Factor (lb/MMBtu) <sup>a</sup>	Potential Emissions (lb/hr) <sup>c</sup>	Potential Emissions (tons/yr) <sup>e</sup>
<b>HAPs:</b>			
Acetaldehyde	7.76E-03	2.33E-02	1.02E-01
Acrolein	7.78E-03	2.33E-02	1.02E-01
Benzene	1.94E-03	5.82E-03	2.55E-02
Biphenyl	3.95E-06	1.19E-05	5.19E-05
1,3-Butadiene	8.20E-04	2.46E-03	1.08E-02
Carbon Tetrachloride	6.07E-05	1.82E-04	7.98E-04
Chlorobenzene	4.44E-05	1.33E-04	5.83E-04
Chloroform	4.71E-05	1.41E-04	6.19E-04
1,3-Dichloropropene	4.38E-05	1.31E-04	5.76E-04
Ethylbenzene	1.08E-04	3.24E-04	1.42E-03
Ethylene Dibromide	7.34E-05	2.20E-04	9.64E-04
Formaldehyde	5.52E-02	1.66E-01	7.25E-01
Methanol	2.48E-03	7.44E-03	3.26E-02
Methylene Chloride	1.47E-04	4.41E-04	1.93E-03
n-Hexane	4.45E-04	1.34E-03	5.85E-03
Perylene	4.97E-09	1.49E-08	6.53E-08
Phenol	4.21E-05	1.26E-04	5.53E-04
Styrene	5.48E-05	1.64E-04	7.20E-04
Toluene	9.63E-04	2.89E-03	1.27E-02
1,1,2,2-Tetrachloroethane	6.63E-05	1.99E-04	8.71E-04
1,1,2-Trichloroethane	5.27E-05	1.58E-04	6.92E-04
2,2,4-Trimethylpentane	8.46E-04	2.54E-03	1.11E-02
Vinyl Chloride	2.47E-05	7.41E-05	3.25E-04
Xylene	2.68E-04	8.04E-04	3.52E-03
<b>Polycyclic Organic Matter:</b>			
Acenaphthene	1.33E-06	3.99E-06	1.75E-05
Acenaphthylene	3.17E-06	9.51E-06	4.17E-05
Anthracene	7.18E-07	2.15E-06	9.43E-06
Benz(a)anthracene	3.36E-07	1.01E-06	4.42E-06
Benzo(a)pyrene	5.68E-09	1.70E-08	7.46E-08
Benzo(b)fluoranthene	8.51E-09	2.55E-08	1.12E-07
Benzo(e)pyrene	2.34E-08	7.02E-08	3.07E-07
Benzo(g,h,i)perylene	2.48E-08	7.44E-08	3.26E-07
Benzo(k)fluoranthene	4.26E-09	1.28E-08	5.60E-08
Chrysene	6.72E-07	2.02E-06	8.83E-06
Fluoranthene	3.61E-07	1.08E-06	4.74E-06
Fluorene	1.69E-06	5.07E-06	2.22E-05
Indeno(1,2,3-c,d)pyrene	9.93E-09	2.98E-08	1.30E-07
2-Methylnaphthalene	2.14E-05	6.42E-05	2.81E-04
Naphthalene	9.63E-05	2.89E-04	1.27E-03
Phenanthrene	3.53E-06	1.06E-05	4.64E-05
Pyrene	5.84E-07	1.75E-06	7.67E-06
<b>Total HAP</b>		<b>0.24</b>	<b>1.04</b>

<sup>a</sup> Emission factor from AP-42 Section 3.2, Table 3.2-1 "Uncontrolled Emission Factors for 2-stroke Lean-burn Engines," Supplement F, July 2000.

<sup>b</sup> Greenhouse gas emission factors are from 40 CFR Part 98 for natural gas combustion

<sup>c</sup> Emission Rate (lb/hr) = Rated Capacity (MMBtu/hr) × Emission Factor (lb/MMBtu).

<sup>d</sup> Emission Rate (lb/hr) = Rated Capacity (MMBtu/hr) × Emission Factor (kg/MMBtu) × 2.2046 (lb/kg)

<sup>e</sup> Annual Emissions (tons/yr)<sub>Potential</sub> = (lb/hr)<sub>Emissions</sub> × (Maximum Allowable Operating Hours, 8,760 hr/yr) × (1 ton/2000 lb).

**Generator #1 (G-001)**

Source Designation:	Compressor
Manufacturer:	Cummings
Model No.:	275H
Year Installed:	1995
Stroke Cycle:	4-stroke
Type of Burn:	Rich burn
Fuel Used:	Natural Gas
Higher Heating Value (HHV) (Btu/scf):	1,025
Rated Horsepower (bhp):	251
Heat Input (MMBtu/hr)	0.63
Specific Fuel Consumption (Btu/bhp-hr)	2,500
Maximum Fuel Consumption at 100% Load (MMscf/hr):	0.00061
Maximum Fuel Consumption at 100% Load (MMscf/yr):	5.4

**Operational Details:**

Potential Annual Hours of Operation (hr/yr):	8,760
Potential Fuel Consumption (MMBtu/yr):	5,497

**Criteria and Manufacturer Specific Pollutant Emission Factors:**

Pollutant	Emission Factors	Units
NO <sub>x</sub> <sup>a</sup>	2.21E+00	lb/MMBtu
CO <sup>a</sup>	3.72E+00	lb/MMBtu
SO <sub>2</sub> <sup>a</sup>	5.88E-04	lb/MMBtu
Total Particulate Matter (TSP) <sup>a</sup>	1.94E-02	lb/MMBtu
PM <sub>10</sub> (Filterable + Condensable) <sup>a</sup>	1.94E-02	lb/MMBtu
PM <sub>2.5</sub> (Filterable + Condensable) <sup>a</sup>	1.94E-02	lb/MMBtu
VOC <sup>a</sup>	2.96E-02	lb/MMBtu
CO <sub>2</sub> <sup>b</sup>	5.30E+01	kg/MMBtu
CH <sub>4</sub> <sup>b</sup>	1.00E-03	kg/MMBtu
N <sub>2</sub> O <sup>b</sup>	1.00E-04	kg/MMBtu

**Criteria and Manufacturer Specific Pollutant Emission Rates:**

Pollutant	Potential Emissions	
	(lb/hr) <sup>c, d</sup>	(tons/yr) <sup>e</sup>
NO <sub>x</sub>	1.39E+00	6.07E+00
CO	2.33E+00	1.02E+01
SO <sub>2</sub>	3.69E-04	1.62E-03
Total Particulate Matter (TSP)	1.22E-02	5.33E-02
PM <sub>10</sub> (Filterable + Condensable)	1.22E-02	5.33E-02
PM <sub>2.5</sub> (Filterable + Condensable)	1.22E-02	5.33E-02
VOC	1.86E-02	8.14E-02
CO <sub>2</sub>	7.33E+01	3.21E+02
CH <sub>4</sub>	1.38E-03	6.06E-03
N <sub>2</sub> O	1.38E-04	6.06E-04

**Hazardous Air Pollutant (HAP) Potential Emissions:**

<b>Pollutant</b>	<b>Emission Factor (lb/MMBtu)<sup>a</sup></b>	<b>Potential Emissions (lb/hr)<sup>c</sup></b>	<b>Potential Emissions (tons/yr)<sup>e</sup></b>
<b>HAPs:</b>			
Acetaldehyde	2.79E-03	1.75E-03	7.67E-03
Acrolein	2.63E-03	1.65E-03	7.23E-03
Benzene	1.58E-03	9.91E-04	4.34E-03
1,3-Butadiene	6.63E-04	4.16E-04	1.82E-03
Carbon Tetrachloride	1.77E-05	1.11E-05	4.86E-05
Chlorobenzene	1.29E-05	8.09E-06	3.55E-05
Chloroform	1.37E-05	8.60E-06	3.77E-05
1,3-Dichloropropene	1.27E-05	7.97E-06	3.49E-05
Ethylbenzene	2.48E-05	1.56E-05	6.82E-05
Ethylene Dibromide	2.13E-05	1.34E-05	5.85E-05
Formaldehyde	2.05E-02	1.29E-02	5.63E-02
Methanol	3.06E-03	1.92E-03	8.41E-03
Methylene Chloride	4.12E-05	2.59E-05	1.13E-04
Styrene	1.19E-05	7.47E-06	3.27E-05
Toluene	5.58E-04	3.50E-04	1.53E-03
1,1,2,2-Tetrachloroethane	2.53E-05	1.59E-05	6.95E-05
1,1,2-Trichloroethane	1.53E-05	9.60E-06	4.21E-05
Vinyl Chloride	7.18E-06	4.51E-06	1.97E-05
Xylene	1.95E-04	1.22E-04	5.36E-04
<b>Polycyclic Organic Matter:</b>			
PAH	1.41E-04	8.85E-05	3.88E-04
<b>Total HAP</b>		<b>0.02</b>	<b>0.09</b>

<sup>a</sup> Emission factor from AP-42 Section 3.2, Table 3.2-3 "Uncontrolled Emission Factors for 4-stroke Rich-burn Engines," Supplement F, July 2000.

<sup>b</sup> Greenhouse gas emission factors are from 40 CFR Part 98 for natural gas combustion

<sup>c</sup> Emission Rate (lb/hr) = Rated Capacity (MMBtu/hr) × Emission Factor (lb/MMBtu).

<sup>d</sup> Emission Rate (lb/hr) = Rated Capacity (MMBtu/hr) × Emission Factor (kg/MMBtu) × 2.2046 (lb/kg)

<sup>e</sup> Annual Emissions (tons/yr)<sub>Potential</sub> = (lb/hr)<sub>Emissions</sub> × (Maximum Allowable Operating Hours, 8,760 hr/yr) × (1 ton/2000 lb).

**Boiler (BLR01)**

Source Designation:	Compressor
Year Installed:	1988
Fuel Used:	Natural Gas
Higher Heating Value (HHV) (Btu/scf):	1,025
Heat Input (MMBtu/hr)	2.25
Maximum Fuel Consumption at 100% Load (MMscf/hr):	0.00220
Maximum Fuel Consumption at 100% Load (MMscf/yr):	19.2

**Operational Details:**

Potential Annual Hours of Operation (hr/yr):	8,760
Potential Fuel Consumption (MMBtu/yr):	19

**Criteria and Manufacturer Specific Pollutant Emission Factors:**

Pollutant	Emission Factors	Units
NO <sub>x</sub> <sup>a</sup>	1.00E+02	lb/MMScf
CO <sup>a</sup>	8.40E+01	lb/MMScf
SO <sub>2</sub> <sup>a</sup>	6.00E-01	lb/MMScf
Total Particulate Matter (TSP) <sup>a</sup>	7.60E+00	lb/MMScf
PM <sub>10</sub> (Filterable + Condensable) <sup>a</sup>	7.60E+00	lb/MMScf
PM <sub>2.5</sub> (Filterable + Condensable) <sup>a</sup>	7.60E+00	lb/MMScf
VOC <sup>a</sup>	5.50E+00	lb/MMScf
CO <sub>2</sub> <sup>b</sup>	5.30E+01	kg/MMBtu
CH <sub>4</sub> <sup>b</sup>	1.00E-03	kg/MMBtu
N <sub>2</sub> O <sup>b</sup>	1.00E-04	kg/MMBtu

**Criteria and Manufacturer Specific Pollutant Emission Rates:**

Pollutant	Potential Emissions	
	(lb/hr) <sup>c, d</sup>	(tons/yr) <sup>e</sup>
NO <sub>x</sub>	2.20E-01	9.61E-01
CO	1.84E-01	8.08E-01
SO <sub>2</sub>	1.32E-03	5.77E-03
Total Particulate Matter (TSP)	1.67E-02	7.31E-02
PM <sub>10</sub> (Filterable + Condensable)	1.67E-02	7.31E-02
PM <sub>2.5</sub> (Filterable + Condensable)	1.67E-02	7.31E-02
VOC	1.21E-02	5.29E-02
CO <sub>2</sub>	2.63E+02	1.15E+03
CH <sub>4</sub>	4.96E-03	2.17E-02
N <sub>2</sub> O	4.96E-04	2.17E-03

**Hazardous Air Pollutant (HAP) Potential Emissions:**

Pollutant	Emission Factor (lb/MMScf) <sup>a</sup>	Potential Emissions (lb/hr) <sup>c</sup>	Potential Emissions (tons/yr) <sup>e</sup>
<b>HAPs:</b>			
Benzene	2.10E-03	4.61E-06	2.02E-05
Dichlorobenzene	1.20E-03	2.63E-06	1.15E-05
Formaldehyde	7.50E-02	1.65E-04	7.21E-04
n-Hexane	1.80E+00	3.95E-03	1.73E-02
Toluene	3.40E-03	7.46E-06	3.27E-05
<b>Polycyclic Organic Matter:</b>			
Acenaphthene	1.80E-06	3.95E-09	1.73E-08
Acenaphthylene	1.80E-06	3.95E-09	1.73E-08
Anthracene	2.40E-06	5.27E-09	2.31E-08
Benz(a)anthracene	1.80E-06	3.95E-09	1.73E-08
Benzo(a)pyrene	1.20E-06	2.63E-09	1.15E-08
Benzo(b)fluoranthene	1.80E-06	3.95E-09	1.73E-08
Benzo(g,h,i)perylene	1.20E-06	2.63E-09	1.15E-08
Benzo(k)fluoranthene	1.80E-06	3.95E-09	1.73E-08
Chrysene	1.80E-06	3.95E-09	1.73E-08
Dibenzo(a,h)anthracene	1.20E-06	2.63E-09	1.15E-08
7,12-Dimethylbenz(a)anthracene	1.60E-05	3.51E-08	1.54E-07
Fluoranthene	3.00E-06	6.59E-09	2.88E-08
Fluorene	2.80E-06	6.15E-09	2.69E-08
Indeno(1,2,3-c,d)pyrene	1.80E-06	3.95E-09	1.73E-08
3-Methylchloranthrene	1.80E-06	3.95E-09	1.73E-08
2-Methylnaphthalene	2.40E-05	5.27E-08	2.31E-07
Naphthalene	6.10E-04	1.34E-06	5.86E-06
Phenanthrene	1.70E-05	3.73E-08	1.63E-07
Pyrene	5.00E-06	1.10E-08	4.81E-08
<b>Metals:</b>			
Arsenic	2.00E-04	4.39E-07	1.92E-06
Beryllium	4.40E-03	9.66E-06	4.23E-05
Cadmium	1.10E-03	2.41E-06	1.06E-05
Chromium	1.40E-03	3.07E-06	1.35E-05
Cobalt	8.40E-05	1.84E-07	8.08E-07
Lead	5.00E-04	1.10E-06	4.81E-06
Manganese	3.80E-04	8.34E-07	3.65E-06
Mercury	2.60E-04	5.71E-07	2.50E-06
Nickel	2.10E-03	4.61E-06	2.02E-05
Selenium	2.40E-05	5.27E-08	2.31E-07
<b>Total HAP</b>		<b>4.16E-03</b>	<b>1.82E-02</b>

<sup>a</sup> Emission factor from AP-42 Section 1.4, Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4, July 1998.

<sup>b</sup> Greenhouse gas emission factors are from 40 CFR Part 98 for natural gas combustion

<sup>c</sup> Emission Rate (lb/hr) = Fuel Consumption (scf/hr) × Emission Factor (lb/MMScf) / 10<sup>6</sup>.

<sup>d</sup> Emission Rate (lb/hr) = Rated Capacity (MMBtu/hr) × Emission Factor (kg/MMBtu) × 2.2046 (lb/kg)

<sup>e</sup> Annual Emissions (tons/yr)<sub>Potential</sub> = (lb/hr)<sub>Emissions</sub> × (Maximum Allowable Operating Hours, 8,760 hr/yr) × (1 ton/2000 lb).

## Hot Water Heater

Source Designation:	Compressor
Fuel Used:	Natural Gas
Higher Heating Value (HHV) (Btu/scf):	1,025
Heat Input (MMBtu/hr)	0.03
Maximum Fuel Consumption at 100% Load (MMscf/hr):	0.00003
Maximum Fuel Consumption at 100% Load (MMscf/yr):	0.3

### Operational Details:

Potential Annual Hours of Operation (hr/yr):	8,760
Potential Fuel Consumption (MMBtu/yr):	0

### Criteria and Manufacturer Specific Pollutant Emission Factors:

Pollutant	Emission Factors	Units
NO <sub>x</sub> <sup>a</sup>	1.00E+02	lb/MMScf
CO <sup>a</sup>	8.40E+01	lb/MMScf
SO <sub>2</sub> <sup>a</sup>	6.00E-01	lb/MMScf
Total Particulate Matter (TSP) <sup>a</sup>	7.60E+00	lb/MMScf
PM <sub>10</sub> (Filterable + Condensable) <sup>a</sup>	7.60E+00	lb/MMScf
PM <sub>2.5</sub> (Filterable + Condensable) <sup>a</sup>	7.60E+00	lb/MMScf
VOC <sup>a</sup>	5.50E+00	lb/MMScf
CO <sub>2</sub> <sup>b</sup>	5.30E+01	kg/MMBtu
CH <sub>4</sub> <sup>b</sup>	1.00E-03	kg/MMBtu
N <sub>2</sub> O <sup>b</sup>	1.00E-04	kg/MMBtu

### Criteria and Manufacturer Specific Pollutant Emission Rates:

Pollutant	Potential Emissions	
	(lb/hr) <sup>c, d</sup>	(tons/yr) <sup>e</sup>
NO <sub>x</sub>	2.93E-03	1.28E-02
CO	2.46E-03	1.08E-02
SO <sub>2</sub>	1.76E-05	7.69E-05
Total Particulate Matter (TSP)	2.22E-04	9.74E-04
PM <sub>10</sub> (Filterable + Condensable)	2.22E-04	9.74E-04
PM <sub>2.5</sub> (Filterable + Condensable)	2.22E-04	9.74E-04
VOC	1.61E-04	7.05E-04
CO <sub>2</sub>	3.51E+00	1.54E+01
CH <sub>4</sub>	6.61E-05	2.90E-04
N <sub>2</sub> O	6.61E-06	2.90E-05

**Hazardous Air Pollutant (HAP) Potential Emissions:**

Pollutant	Emission Factor (lb/MMScf) <sup>a</sup>	Potential Emissions (lb/hr) <sup>c</sup>	Potential Emissions (tons/yr) <sup>c</sup>
<b>HAPs:</b>			
Benzene	2.10E-03	6.15E-08	2.69E-07
Dichlorobenzene	1.20E-03	3.51E-08	1.54E-07
Formaldehyde	7.50E-02	2.20E-06	9.61E-06
n-Hexane	1.80E+00	5.27E-05	2.31E-04
Toluene	3.40E-03	9.95E-08	4.36E-07
<b>Polycyclic Organic Matter:</b>			
Acenaphthene	1.80E-06	5.27E-11	2.31E-10
Acenaphthylene	1.80E-06	5.27E-11	2.31E-10
Anthracene	2.40E-06	7.02E-11	3.08E-10
Benz(a)anthracene	1.80E-06	5.27E-11	2.31E-10
Benzo(a)pyrene	1.20E-06	3.51E-11	1.54E-10
Benzo(b)fluoranthene	1.80E-06	5.27E-11	2.31E-10
Benzo(g,h,i)perylene	1.20E-06	3.51E-11	1.54E-10
Benzo(k)fluoranthene	1.80E-06	5.27E-11	2.31E-10
Chrysene	1.80E-06	5.27E-11	2.31E-10
Dibenzo(a,h)anthracene	1.20E-06	3.51E-11	1.54E-10
7,12-Dimethylbenz(a)anthracene	1.60E-05	4.68E-10	2.05E-09
Fluoranthene	3.00E-06	8.78E-11	3.85E-10
Fluorene	2.80E-06	8.20E-11	3.59E-10
Indeno(1,2,3-c,d)pyrene	1.80E-06	5.27E-11	2.31E-10
3-Methylchloranthrene	1.80E-06	5.27E-11	2.31E-10
2-Methylnaphthalene	2.40E-05	7.02E-10	3.08E-09
Naphthalene	6.10E-04	1.79E-08	7.82E-08
Phenanthrene	1.70E-05	4.98E-10	2.18E-09
Pyrene	5.00E-06	1.46E-10	6.41E-10
<b>Metals:</b>			
Arsenic	2.00E-04	5.85E-09	2.56E-08
Beryllium	4.40E-03	1.29E-07	5.64E-07
Cadmium	1.10E-03	3.22E-08	1.41E-07
Chromium	1.40E-03	4.10E-08	1.79E-07
Cobalt	8.40E-05	2.46E-09	1.08E-08
Lead	5.00E-04	1.46E-08	6.41E-08
Manganese	3.80E-04	1.11E-08	4.87E-08
Mercury	2.60E-04	7.61E-09	3.33E-08
Nickel	2.10E-03	6.15E-08	2.69E-07
Selenium	2.40E-05	7.02E-10	3.08E-09
<b>Total HAP</b>		<b>5.54E-05</b>	<b>2.43E-04</b>

<sup>a</sup> Emission factor from AP-42 Section 3.2, Tables 1.4-1, 1.4-2, and 1.4-3, July 1998.

<sup>b</sup> Greenhouse gas emission factors are from 40 CFR Part 98 for natural gas combustion

<sup>c</sup> Emission Rate (lb/hr) = Fuel Consumption (scf/hr) × Emission Factor (lb/MMScf) / 10<sup>6</sup>.

<sup>d</sup> Emission Rate (lb/hr) = Rated Capacity (MMBtu/hr) × Emission Factor (kg/MMBtu) × 2.2046 (lb/kg)

<sup>e</sup> Annual Emissions (tons/yr)<sub>Potential</sub> = (lb/hr)<sub>Emissions</sub> × (Maximum Allowable Operating Hours, 8,760 hr/yr) × (1 ton/2000 lb).