ADEQ CLASS II PERMIT APPLICATION

El Paso Natural Gas Company, L.L.C.
a Kinder Morgan company

Haystack Compressor Station
Chino Valley, AZ

Prepared By:

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Project 230301.0078

Trinity Consultants

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1. EXECUTIVE SUMMARY

El Paso Natural Gas Company, L.L.C. (EPNG), a subsidiary of Kinder Morgan, Inc. (Kinder Morgan) is proposing to construct and operate a new compressor station called the Haystack Compressor Station in Chino Valley, AZ. The Haystack Compressor Station will be located in Chino Valley, AZ, it will be in an area of attainment for all NSR pollutants. Attainment area means any area in Arizona that has been identified in regulations promulgated by the Administrator as being in compliance with national ambient air quality standards.

With this ADEQ Class II permit application, EPNG is seeking authorization of the following emissions units associated with the proposed Haystack Compressor Station:

- One (1) Caterpillar (CAT) G-3616 (5,000 hp) natural gas-fired compressor engine; and,
- One (1) 750 kW natural gas-fired emergency generator.

Construction of the Haystack Compressor Station is scheduled to commence in 2024, and initial start-up is scheduled for November 2025. Emissions from Haystack Compressor Station will include criteria air pollutants and hazardous air pollutants (HAPs) from the natural gas fired compressor engine and the emergency generator. Without controls, the compressor station would have Potential to Emit (PTE) of carbon monoxide (CO) exceeding the major source thresholds defined in Arizona Administrative Code (A.A.C.) R18-2-101.75. Therefore, EPNG proposes to install an oxidation catalyst device on the engine exhaust of the Caterpillar engine for control of CO. The compressor engine will undergo a break-in period of up to 200 hours of operation before the oxidation catalyst device is installed. This will prevent immediate fouling of the elements from excess oil at start-up. After the oxidation catalyst is installed, there will be another break in period, roughly 100-200 hours. With the oxidation catalyst device, air emissions from the facility will be below the major source thresholds; therefore, EPNG is applying for a Class II air quality permit from the Arizona Department of Environmental Quality (ADEQ). Emissions from the compressor station are summarized in **Table 1-1** below.

Table 1-1. Facility-Wide PTE Summary

Pollutant	Value (tpy)
PM	1.50
PM_{10}	1.50
$PM_{2.5}$	1.50
NO_x	25.25
VOC	11.48
CO	50.50
SO_2	0.09
Single HAP	8.03
Total HAPs	11.49
CO_2e	22,940

Additional details regarding the emissions units associated with the proposed Haystack Compressor Station are included in Section 2.

The Source Classification code for Haystack Compressor Station is 4922 (Natural Gas Transmission). The North American Industry Classification System (NAICS) code is 48621.

EPNG is submitting this Class II permit application package pursuant to Arizona Revised Statutes § 49-426, and Chapter 2, Title 18 of the Arizona Administrative Code. A complete set of forms, including the Standard Application Form signed by the Responsible Official, Equipment List, Emission Source Form, and Application Administrative Completeness Checklist is included in Appendix A of this application.

2. PROPOSED EQUIPMENT

The Haystack Compressor Station will consist of a compressor engine, an emergency generator, a compressor, fin-fan coolers, filtration, a compressor building, an auxiliary building, and a blowdown stack. The compressor station will be operated to meet the need of increased capacity to the Phoenix area for incremental natural gas-fired generation. The operation of the compressor station will be automated.

In a pre-application meeting on August 23, 2023, ADEQ informed EPNG that a Class II air quality control permit would be the appropriate permit for the proposed compressor station. Additionally, ambient air quality assessment modeling will not be required if EPNG elects to implement Reasonably Available Control Technology (RACT). The following sections provide descriptions of the proposed emissions units and insignificant activities included in this Class II permit application.

2.1 Compressor Engine

EPNG will operate the Haystack Compressor Station to compress natural gas in a transmission pipeline. Long distance pipelines transport gas under pressure. As the gas moves through the pipeline, customers make withdrawals. Natural gas compression is needed to maintain enough pressure in the pipeline to keep the natural gas flowing through the EPNG southwestern natural gas pipeline network. The natural gas compression at the proposed Haystack Compressor Station will be accomplished by one (1) CAT G-3616 natural gas-fired compressor engine with a maximum rated capacity of 5,000 horsepower (hp). The need for the engine will vary between day and night and from summer to winter. EPNG is requesting a Class II air permit allowing its Haystack Compressor Station in Chino Valley, Arizona to operate 24 hours a day, 7 days a week, and 52 weeks a year (8,760 hours per year).

2.2 Emergency Engine

With this Class II permit application, EPNG also proposes to install and operate a 750-kW emergency generator set at the Haystack Compressor Station to supply backup power during purchased power outages. The emergency generator set will also be exercised monthly to demonstrate that it is available for use during an emergency. The maker and model of the emergency generator set has yet to be determined.

2.3 Insignificant Activities

In addition to the proposed emissions units detailed in Section 2.1 and Section 2.2, Kinder Morgan may conduct any of the following non-exclusive insignificant activities, as defined in Section 4.0 within the ADEQ Class II permit application, at the Haystack Compressor Station:

- An estimated size of 500-gallon condensate tank.
- An estimated size of 1,000-gallon new oil tank.
- An estimated size of 1,000-gallon used oil tank.
- A small wastewater tank.
- Storage and piping of natural gas, butane, propane, or liquefied petroleum gas provided the applicant lists and identifies the contents of each stationary storage vessel with a volume of 350 gallons or more and provides threshold values for throughput or capacity or both for each such vessel.
- Piping of fuel oils, used oil and transformer oil, provided the applicant includes a system description.

- Storage and handling of drums or other transportable containers where the containers are sealed during storage, and covered during loading and unloading, including containers of waste and used oil regulated under the federal Resource Conservation and Recovery Act, 42 U.S.C. 6901-6992k. Permit applicants must provide a description of the material in the containers and the approximate amount stored.
- Storage tanks of any size containing exclusively soaps, detergents, waxes, greases, aqueous salt solutions, aqueous solutions of acids that are not regulated air pollutants, or aqueous caustic solutions, provided the permit applicant specifies the contents of each storage tank with a volume of 350 gallons or more.
- Electrical transformer oil pumping, cleaning, filtering, drying and the re-installation of oil back into transformers.
- Internal combustion engine-driven electrical generator sets, and internal combustion engine-driven water pumps used for less than 500 hours per calendar year for emergency replacement or standby service, provided the permittee keeps records documenting the hours of operation of this equipment.
- Operation of oil/water/scrubber liquid separator system.
- Powder coating operations.
- Equipment using water, water and soap or detergent, or a suspension of abrasives in water for purposes of cleaning or finishing.
- Blast-cleaning equipment using a suspension of abrasive in water and any exhaust system or collector serving them exclusively.
- Plastic pipe welding.
- Site Maintenance:
- Housekeeping activities and associated products used for cleaning purposes, including collecting spilled and accumulated materials at the source, including operation of fixed vacuum cleaning systems specifically for such purposes.
- Architectural painting and associated surface preparation for maintenance purposes at industrial or commercial facilities.
- Sampling and Testing:
- Noncommercial (in-house) experimental, analytical laboratory equipment, which is bench scale in nature, including quality control/quality assurance laboratories supporting a stationary source and research and development laboratories.
- Individual sampling points, analyzers, and process instrumentation, whose operation may result in emissions but are not regulated as emission units.
- Ancillary Non-Industrial Activities:
- General office activities, such as paper shredding, copying, photographic activities, and blueprinting, but not to include incineration.
- Use of consumer products, including hazardous substances as that term is defined in the Federal Hazardous Substances Act (15 U.S.C. 1261 et seq.) where the product is used at a source in the same manner as normal consumer use.
- Activities directly used in the diagnosis and treatment of disease, injury, or other medical condition.
- Natural gas blowdowns.
- Cathodic protection system.
- Installation and operation of potable, process and wastewater observation wells, including drilling, pumping, filtering apparatus.
- Transformer vents.

3. SITE MAPS & PROCESS FLOW DIAGRAM

Figure 3-1 and **Figure 3-2** contain the process flow diagrams for the proposed emission sources at the Haystack Compressor Station. **Figure 3-3** and **Figure 3-4** contain a vicinity map and site map of the Haystack Compressor Station.

Figure 3-1 Haystack Compressor Station –Emergency Generator Process Flow Diagram

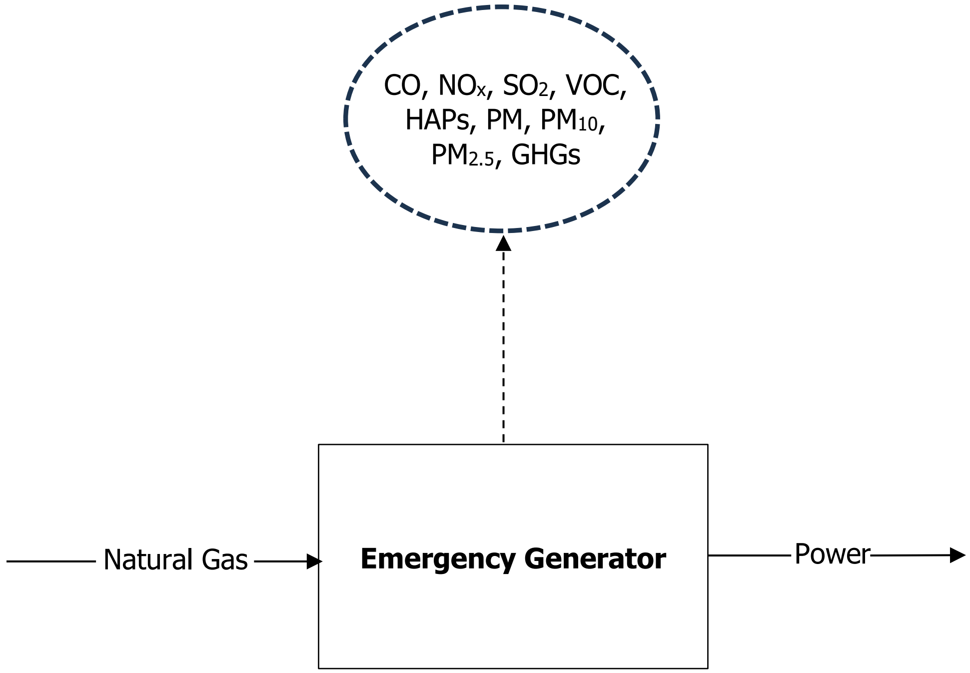


Figure 3-2 Haystack Compressor Station – Compressor Engine Process Flow Diagram

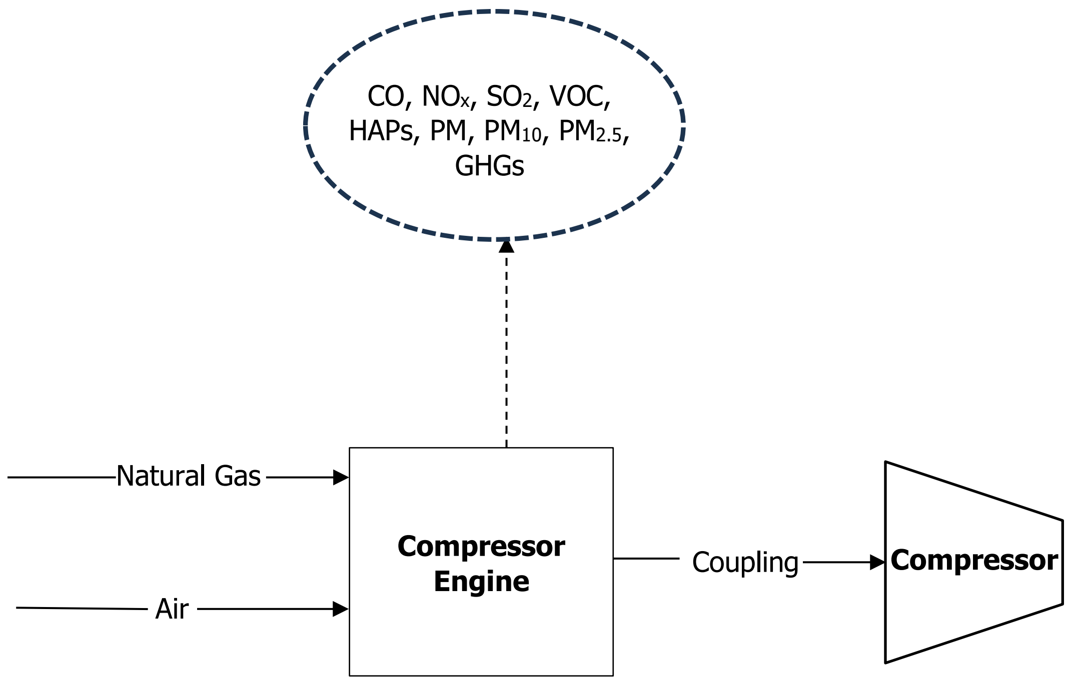
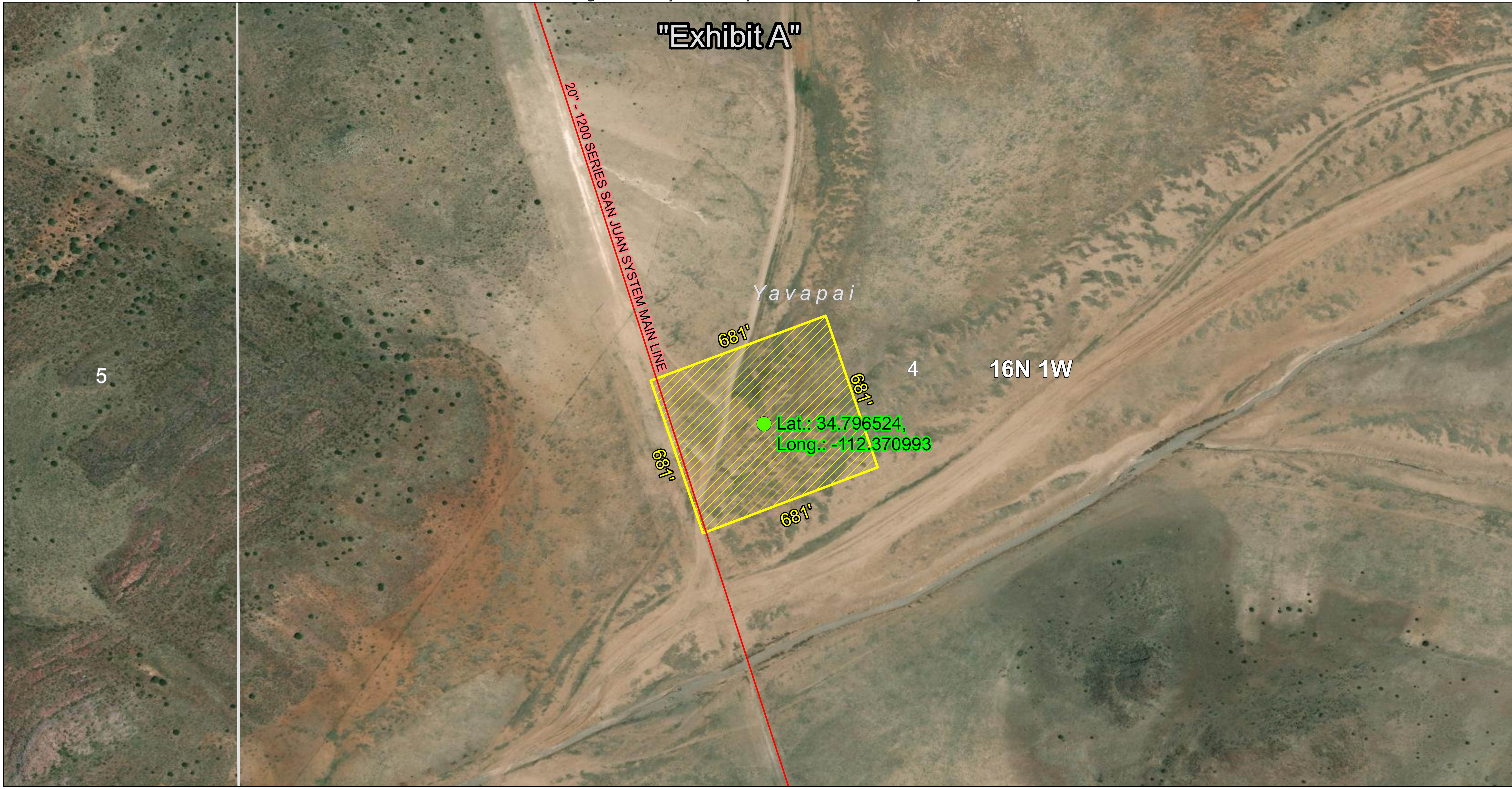
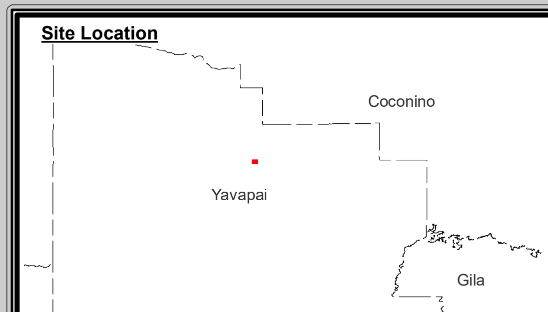


Figure 3-3 Haystack Compressor Station – Site Map





- KM EPNG - 1200 Series San Juan System Main Line
- Proposed Site Location - 681'x681'
- Haystack CS Site

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0 80 160 320 480 640 Feet

GISMS - 5221

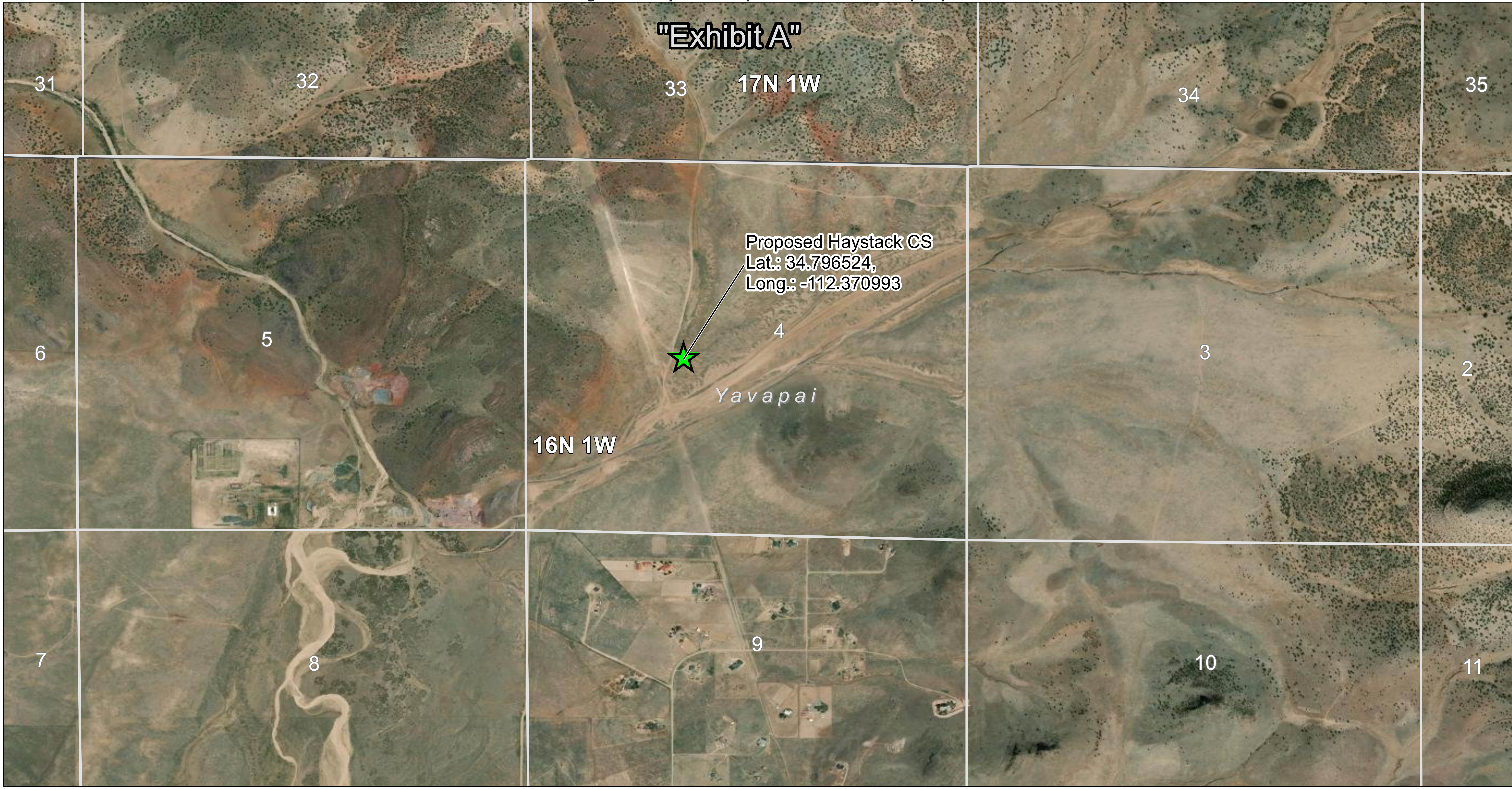
Date: 3/6/2024

KINDER MORGAN

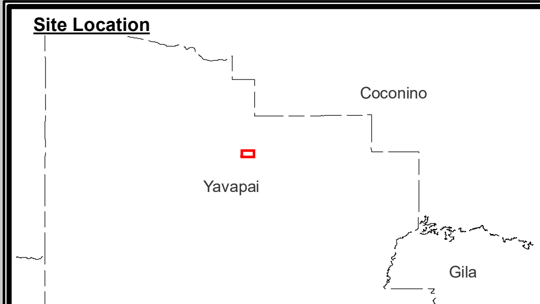
Haystack Compressor Station - Site and Vicinity Map AFE 233827

Yavapai County, Arizona

Figure 3-4 Haystack Compressor Station – Vicinity Map



Site Location



★ Haystack CS Site

NOTICE
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0 275 550 1,100 1,650 2,200 Feet

GISMS - 5221

Date: 3/6/2024

KINDER MORGAN

Haystack Compressor Station - Site and Vicinity Map AFE 233827

Yavapai County, Arizona

4. POTENTIAL EMISSIONS OF REGULATED AIR POLLUTANTS

The proposed Haystack Compressor Station will result in emissions of the following air pollutants:

- Particulate Matter ($PM/PM_{10}/PM_{2.5}$);
- Nitrogen oxides (NO_X)
- Carbon monoxide (CO);
- Sulphur dioxide (SO_2);
- Volatile organic compounds (VOC);
- Hazardous Air Pollutants (HAPs); and,
- Greenhouse gases (GHGs).

Potential emissions associated with operation of the gas compressor engine and emergency engine are calculated using the methodologies described in the following sections. Detailed emissions calculations are presented in Appendix B of this application.

4.1 Emission Calculations

4.1.1 Natural Gas-Fired Compressor Engine

Potential emissions of CO, NO_x SO_2, VOC, PM, PM_{10}, and $PM_{2.5}$ and HAPs are calculated based on a maximum operating capacity of 8,760 hr/yr at the maximum rated capacity of the compressor engine. Emission factors for SO_2, PM, PM_{10}, $PM_{2.5}$, and HAPs, in lb/MMBtu, are obtained from AP-42 Section 3.2 (Natural Gas-fired Reciprocating Engines), Table 3.2-2, 4-Stroke Lean Burn Engine. Emission rates for CO, NO_x, and VOC, in lb/hr, are obtained from vendor's quote.

Maximum hourly emissions of SO_2, PM, PM_{10}, and $PM_{2.5}$, and HAPs are calculated as follows:

$$\text{Hourly Emissions}\left(\frac{\text{lb}}{\text{hr}}\right) = \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBtu}}\right) \times \frac{\text{MMBtu}}{10^6\ \text{Btu}} \times \text{Heat Rate}\left(\frac{\text{Btu}}{\text{hp-hr}}\right) \times \text{Gas Engine Power (hp)}$$

Maximum hourly emissions of NOx, CO, and VOC are calculated as follows:

$$\text{Hourly Emissions}\left(\frac{\text{lb}}{\text{hr}}\right) = \text{Emission Factor}\left(\frac{\text{g}}{\text{hp}-\text{hr}}\right) \times \frac{\text{lb}}{453.592\ \text{g}} \times \text{Gas Engine Power (hp)}$$

Annual emissions of all pollutants are calculated as follows:

$$\text{Annual Emissions (tpy)} = \text{Hourly Emissions}\left(\frac{\text{lb}}{\text{hr}}\right) \times \left(\frac{8{,}760\ \text{hr}}{\text{yr}}\right) \times \left(\frac{\text{ton}}{2{,}000\ \text{lb}}\right)$$

GHG pollutants expected to be emitted from the compressor include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Standard emission factors for CO_2, N_2O and CH_4 are provided in 40 CFR Part 98, Subpart C, Table C-1 and Table C-2. The global warming potential for each relevant pollutant is obtained from 40 CFR Part 98, Subpart A, Table A-1. Calculations for GHG pollutants are based on the emission factor for each GHG pollutant, relevant global warming potential, annual hours of operation, and the maximum power of the gas compressor.

4.1.2 Natural Gas-Fired Emergency Engine

The emergency generator set is anticipated to operate no more than 500 hours per year (consistent with EPA guidance[1]); therefore, potential emissions from the proposed natural gas-fired emergency engine have been calculated based on a maximum operating capacity of 500 hr/yr at the maximum engine power rating. Emission factors for NO_x, CO, and VOC are based on the emission standards in Table 1 to 40 CFR Part 60 New Source Performance Standards (NSPS) Subpart JJJJ. Emission factors for all other pollutants are obtained from AP-42 Section 3.2 (*Natural Gas-fired Reciprocating Engines*), Table 3.2-1 and Table 3.2-2.

Maximum hourly emissions of CO, NO_x, and VOC are calculated as follows:

$$\text{Hourly Emissions}\left(\frac{\text{lb}}{\text{hr}}\right) = \text{Emission Factor}\left(\frac{\text{g}}{\text{hp-hr}}\right) \times \frac{\text{lb}}{453.592\ \text{g}} \times \text{Engine Power (hp)}$$

Maximum hourly emissions of SO_2, PM, PM_{10}, $PM_{2.5}$ and HAPs are calculated as follows:

$$\text{Hourly Emissions}\left(\frac{\text{lb}}{\text{hr}}\right) = \text{Emission Factor}\left(\frac{\text{lb}}{\text{MMBtu}}\right) \times \frac{\text{MMBtu}}{10^6\ \text{Btu}} \times \text{Heat Rate}\left(\frac{\text{Btu}}{\text{hp-hr}}\right) \times \text{Engine Power (hp)}$$

Annual emissions of all pollutants are calculated as follows:

$$\text{Annual Emissions (tpy)} = \text{Hourly Emissions}\left(\frac{\text{lb}}{\text{hr}}\right) \times \left(\frac{8{,}760\ \text{hr}}{\text{yr}}\right) \times \left(\frac{\text{ton}}{2{,}000\ \text{lb}}\right)$$

GHG pollutants expected to be emitted from the engine include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Standard emission factors for CO_2, N_2O and CH_4 are provided in 40 CFR Part 98, Subpart C, Table C-1 and Table C-2. The global warming potential for each relevant pollutant is obtained from 40 CFR Part 98, Subpart A, Table A-1. Calculations for GHG pollutants are based on the emission factor for each GHG pollutant, relevant global warming potential, annual hours of operation, and the maximum power of the engine.

Maximum hourly GHG emissions are calculated as follows:

$$\text{Hourly Emissions}\left(\frac{\text{lb}}{\text{hr}}\right) = \left(\sum \text{Emission Factor}\left(\frac{lb}{MMBtu}\right) \times GWP\right) \times \frac{\text{MMBtu}}{10^6\ \text{Btu}} \times \text{Heat Rate}\left(\frac{\text{Btu}}{\text{hp-hr}}\right) \times \text{Engine Power (hp)}$$

Annual GHG emissions are calculated as follows:

[1] See EPA memorandum "Calculating Potential to Emit (PTE) for Emergency Generators," John S. Seitz (Sept. 6, 1995).

$$\text{Annual Emissions (tpy)} = \text{Hourly Emissions}\left(\frac{\text{lb}}{\text{hr}}\right) \times \left(\frac{8{,}760\ \text{hr}}{\text{yr}}\right) \times \left(\frac{\text{ton}}{2{,}000\ \text{lb}}\right)$$

4.1.3 Fugitive Emissions

Fugitive VOC emissions are released from piping equipment components including valves and flanges. Calculations are based on the default number of equipment components from GRI-HAP Calc Version 3.01, which uses a worst-case default number of connectors, flanges, open-ended lines, valves, and other components in gas service for a typical natural gas compression facility. The default numbers were then doubled as a conservative estimate. Fugitive emissions are estimated using the Total Hydrocarbon (THC) emission factors contained in Table 2-4 of the Environmental Protection Agency (EPA) Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017) and a representative weight percent of VOCs, HAPs, CO_2, CH_4 from a recent gas analysis. Supporting calculations are provided in Appendix B. Annual emissions are based on the compressor station operating continuously for 8,760 hours per year.

Maximum hourly VOC, HAPs, CO_2, and CH_4 emissions are calculated as follows:

$$\text{Hourly Emissions}\left(\frac{\text{lb}}{\text{hr}}\right) = \text{Fugitive Component Count} \times \text{THC EF}\left(\frac{\text{lb}}{\text{hr} - \text{SRC}}\right) \times \text{Emission Content (Weight, \%)}$$

Maximum hourly CO_2e emissions are calculated as follows:

$$\text{Hourly Emissions}\left(\frac{\text{lb}}{\text{hr}}\right) = (\text{CO}_2 + \text{CH}_4\ \text{Emissions})\left(\frac{\text{lb}}{\text{hr}}\right) \times \text{CH}_4\ \text{GWP}$$

Annual emissions of all pollutants are calculated as follows:

$$\text{Annual Emissions (tpy)} = \text{Hourly Emissions}\left(\frac{\text{lb}}{\text{hr}}\right) \times \left(\frac{8{,}760\ \text{hr}}{\text{yr}}\right) \times \left(\frac{\text{ton}}{2{,}000\ \text{lb}}\right)$$

4.2 Emission Summary

The potential emissions of regulated air pollutants resulting from the proposed installation of compressor engine and emergency engine are summarized in **Table 4-1**.

Table 4-1. Summary of Potential Emissions of Regulated Air Pollutants for Gas Compressor Engine and Emergency Engine

Description	Emission Unit ID	Source Type	Pollutant (tpy)									
			PM	PM_{10}	$PM_{2.5}$	NOx	VOC	CO	SO_2	Single HAP	Total HAPs	CO_2e[3]
Natural Gas-Fired Engine	A-1	Point	1.4831	1.4831	1.4831	24.14	9.66	48.28	0.0873	7.84	11.26	21,908
Natural Gas-Fired Emergency Engine	AUX-1	Point	0.0177	0.0177	0.0177	1.11	0.55	2.22	0.0010	0.09	0.13	262
Station Piping Component Fugitives	FUG-1	Fugitive	--	--	--	--	1.27	--	--	0.10	0.10	771
Site-Wide Emissions			1.50	1.50	1.50	25.25	11.48	50.50	0.09	8.03	11.49	22,940
Permit Exemption Thresholds (tpy) [1]			--	7.5	5	20	20	50	20	--	--	--
Above Permit Exemption Thresholds?			*No*	*No*	*No*	*Yes*	*No*	*Yes*	*No*	*No*	*No*	*No*
Federal NSR Thresholds (tpy) [2]			250	250	250	250	250	250	250	--	--	100,000
Above Federal NSR Thresholds?			*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*
Title V Thresholds (tpy)			100	100	100	100	100	100	100	10	25	100,000
Above Title V Thresholds?			*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*

[1] Permit Exemption Thresholds per A.A.C. R18-2-101.101

[2] Federal NSR thresholds for a non-categorical stationary source in an attainment area for all regulated pollutants.

[3] GHG include CO_2, N_2O, and CH_4. Emissions shown are based on CO_2 equivalent (CO_2e). No hydrofluorocarbon, perfluorocarbon, or sulfur hexafluoride emissions are expected from any of the equipment.

5. REGULATORY ANALYSIS

5.1 Permit Applicability Analysis

A.A.C. R18-2-302 identifies classes of permits. The proposed Haystack Compressor Station is not required to obtain an ADEQ Class I permit because the potential emissions from the source are below the applicable major source thresholds as demonstrated in **Table 4-1**. The proposed Haystack Compressor Station will be subject to a standard, limitation, or other requirements under Section 111 of the Clean Air Act (NSPS); therefore, construction and operation of the source will require a Class II permit pursuant to A.A.C. R18-2-302.01(D).

A.A.C. R18-2-334.A.1 requires construction of any new Class II source to undergo Minor New Source Review (mNSR) if the source has the potential to emit a regulated minor NSR pollutant at an amount equal to or greater than the permitting exemption threshold. Per A.A.C. R18-2-101.124, regulated minor NSR pollutant means any pollutant for which a national ambient air quality standard has been promulgated and the following precursors for such pollutants: VOC and NOx as precursors to ozone. As demonstrated in Table 4-1, Haystack Compressor Station has the potential to emit NOx emissions at an amount greater than the permitting exemption threshold. Therefore, the source is subject to mNSR. Under the mNSR, the source has the option to implement Reasonably Available Control Technology (RACT) for each emission unit that has the potential to emit a regulated minor NSR pollutant in an amount equal to or greater than twenty percent (20%) of the permitting exemption threshold. Only the CAT compressor engine has the potential to emit more than 20% of the permitting exemption threshold for NOx and VOC emissions. Therefore, mNSR is applicable to the CAT compressor engine.

5.2 RACT Analysis

RACT requirements are established to achieve and maintain compliance with National Ambient Air Quality Standards (NAAQS). As discussed in Section 5.1, Haystack Compressor Station is required to implement RACT for the CAT compressor engine. Per A.A.C. R18-2-334.D.2.b, an emissions standard established or revised by the Administrator for the same type of source under Section 111 or 112 of the Act after November 15, 1990 is acceptable as RACT if the standard is in effect at the time of the application. Section 111 of the Act establishes NSPS for specific categories of stationary sources. The CAT compressor engine is subject to NSPS Subpart JJJJ. Therefore, the standards for NOx, CO, and VOC emissions established in NSPS Subpart JJJJ are acceptable RACT.

Also, A.A.C. R18-2-334.C.1.a requires a new source to implement RACT for each emission unit that has the potential to emit a regulated minor NSR pollutant in an amount equal to or greater than 20% of the permitting exemption thresholds. Per A.A.C. R18-2-101.124, regulated minor NSR pollutants are VOC and NOx as precursors to ozone. The CAT compressor engine has the potential to emit VOC and NOx greater than 20% of the permitting exemption thresholds.

The expected NOx, CO, and VOC emissions data provided by the engine vendor are more stringent than those published in NSPS Subpart JJJJ. Therefore, EPNG proposes to use the vendor-provided engine emission data as justification for compliance with RACT requirements[2]. Additionally, EPNG proposes to install an oxidation

[2] Meeting with ADEQ on 8/23/2023

catalyst device on the CAT compressor engine to control VOC and CO emissions, which will satisfy the RACT requirements.

5.3 Potentially Applicable Requirements

5.3.1 New Source Performance Standards

New Source Performance Standards (NSPS) apply to a variety of source categories with certain types of equipment that are newly constructed, modified, or reconstructed after a given applicability date. Only the NSPS subparts that may be potentially applicable to the proposed Haystack Compressor Station are addressed in this section.

5.3.1.1 NSPS Subpart A

NSPS Subpart A, *General Provisions,* is a general provision that sets out the scope and purpose of the NSPS regulations, including definitions and regulatory authorities. The Haystack Compressor Station will comply with all applicable requirements in this subpart.

5.3.1.2 NSPS Subpart OOOOb

NSPS Subpart OOOOb, Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction commenced after December 6^{th}, 2022. Construction of the Haystack Compressor Station will commence after December 6^{th}, 2022. The compressor station will comply with all applicable requirements of this rule.

5.3.1.3 NSPS Subpart JJJJ

NSPS Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines, applies to any owner or operator of a stationary spark ignition (SI) internal combustion engine (ICE) for which construction commenced after June 12, 2006, per 40 CFR 60.4230(a)(4). The proposed compressor engine and emergency generator are SI ICE and construction will commence after June 12, 2006. Therefore, the proposed natural gas-fired engines are subject to the requirements under NSPS JJJJ. EPNG will purchase a certified emergency generator.

5.3.2 National Emission Standards for Hazardous Air Pollutants

National Emission Standards for Hazardous Air Pollutants (NESHAPs) are established at 40 CFR Part 63 to control the emissions of hazardous air pollutants (HAPs) from certain source categories. Only the NESHAP subparts that may be potentially applicable to the proposed equipment at the Haystack Compressor Station are addressed in this section.

5.3.2.1 NESHAP Subpart A

NESHAP Subpart A, *General Provisions,* is a general provision that sets out the scope and purpose of the NESHAP regulations, including definitions and regulatory authorities. The Haystack Compressor Station will comply with all applicable requirements in this subpart.

5.3.2.2 NESHAP Subpart ZZZZ

NESHAP Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, applies to any owner or operator of a stationary RICE at an area source. The proposed engines are considered RICE and will be operated at an area source of HAPs. Per 40 CFR 63.6590(a)(2)(iii), a new or reconstructed stationary RICE located at an area source of HAPs does not have any further requirements under NESHAP Subpart ZZZZ if the RICE meets the requirements of NSPS Subpart JJJJ. As described under Section 5.3.1.2 of this application, the Haystack Compressor Station will comply with all requirements stipulated under NSPS Subpart JJJJ. As such, the Haystack Compressor Station will comply with NESHAP Subpart ZZZZ by meeting the requirements of NSPS Subpart JJJJ.

6. PERMIT PROCESSING FEE

In accordance with ADEQ's permit fee schedule, no fee is being submitted with this Class II Permit application. However, upon receipt of the ADEQ invoice following permit processing, EPNG agrees to pay the fee of $196.40 per hour based on the total actual time spent by ADEQ staff on processing this application.

APPENDIX A. ADEQ STANDARD APPLICATION FORM

SECTION 3.0

CLASS II PERMIT APPLICATION PACKAGE

SECTION 3.1

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Air Quality Division

1110 West Washington • Phoenix, AZ 85007 • Phone: (602) 771-2338

STANDARD CLASS II PERMIT APPLICATION FORM

(As required by A.R.S. § 49-426, and Chapter 2, Article 3, Arizona Administrative Code)

1. Permit to be issued to (Business license name of organization that is to receive permit): El Paso Natural Gas Company, Inc.

2. Mailing Address: 5151 E Broadway Blvd. Ste. 1680
   City: Tucson State: AZ ZIP: 85711

3. Name (or names) of Responsible Official: Philip Baca
   Phone: 520 663-4224 Fax: Email: Philip_Baca@kindermorgan.com

4. Facility Manager/Contact Person and Title: Cody Cox - Operations Manager
   Phone: 928-527-6526 Fax: Email: Cody_Cox@kindermorgan.com

5. Facility Name: Haystack Compressor Station
   Facility Location/Address (Current/Proposed): TBD
   City: Chino Valley County: Yavapai ZIP: 86323
   Indian Reservation (if applicable, which one):
   Latitude/Longitude, Elevation: 34°47'46.71"N, 112°22'16.04"W, 4770'

6. General Nature of Business: Natural Gas Transmission Pipeline

7. Type of Organization:
   X **Corporation** ☐ Individual Owner ☐ Partnership ☐ Government Entity ☐ LLC
   ☐ Other

8. Permit Application Basis: X **New Source** ☐ Revision ☐ Renewal of Existing Permit
   For renewal or modification, include existing permit number (and exp. date):
   Date of Commencement of Construction or Modification:
   Primary Standard Industrial Classification Code: 48621

9. I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by ADEQ as public record. I also attest that I am in compliance with the applicable requirements of the Permit and will continue to comply with such requirements and any future requirements that become effective during the life of the Permit. I will present a certification of compliance to ADEQ no less than annually and more frequently if specified by ADEQ. I further state that

I will assume responsibility for the construction, modification, or operation of the source in accordance with Arizona Administrative Code, Title 18, Chapter 2 and any permit issued thereof.

Signature of Responsible Official: Philip L Baca

Printed Name of Signer/Official Title: Philip L. Baca

Date: 3-15-24 Telephone Number: 520-663-4224

Section 3.5 - Equipment List

Type of Equipment	Maximum Rated Capacity [1]	Make	Model	Serial Number	Date of Manufacture	Equipment ID Number
Reciprocating IC Engine	5,000 bhp	Caterpillar	G3616	N/A	N/A	N/A
Emergency Generator	750 kW	N/A	N/A	N/A	N/A	N/A

[1} For generator sets, enter the maximum rated capacity of the engine rather than the maximum rated capacity of the generator.

All relevant equipment utilized at the facility should be included in the equipment list. Please complete all fields.
The date of manufacture must be included in order to determine applicability of regulations.
Indicate the units (tons/hour, horsepower, etc.) when recording the maximum rated capacity.
Make additional copies of this form if necessary.
***Submit photographs of the faceplates for all engines listed above.**
***If an engine is certified, please also include a copy of the engine certification with the application.**
***For any newly added equipment, include a copy of the specification sheet.**
***These documents will be used to verify equipment information and determine applicable regulations.**

SECTION 3.6 - EMISSION SOURCE FORM

Emission Point		Regulated Air Pollutant Name	PTE		USE THIS SECTION FOR MODIFICATIONS ONLY: PTE AFTER MODIFICATION		CHANGE IN PTE
Number	Name		lbs/hr	tons/yr	lbs/hr	tons/yr	tons/yr
See attached emission calculations in Appendix B							

****Submit emission calculations spreadsheet with your application****

SECTION 5.0 -APPLICATION ADMINISTRATIVE COMPLETENESS CHECKLIST

	REQUIREMENT	MEETS REQUIREMENTS			COMMENT
		YES	NO	N/A	
1	Has the standard application form been completed?	X			
2	Has the responsible official signed the standard application form?	X			
3	Has a process description been provided?	X			
4	Are the facility's emissions documented with all appropriate supporting information?	X			
5	Is the facility subject to Minor NSR requirements? If the answer is "YES" , answer 6a, 6b and 6c as applicable. If the answer is "NO", skip to 7.	X			
6.a	If the facility chooses to implement RACT, is the RACT determination included for the affected pollutants for all affected emission units?	X			
6.b	If the facility chooses to demonstrate compliance with NAAQS by screen modeling, is the modeling analysis included?			X	
6.c	If refined modeling has been conducted, is a comprehensive modeling report along with all modeling files included?			X	
7	Does the application include an equipment list with the type, name, make, model, serial number, maximum rated capacity, and date of manufacture?	X			
8	Does the application include an identification and description of Pollution Controls? (if applicable)			X	
9	For any application component claimed as confidential, are the requirements of AR.S. 49-432 and A.A.C. R18-2-305 addressed?			X	
10	For any current non-compliance issue, is a compliance schedule attached?			X	
11	For minor permit revision that will make a modification upon submittal of application, has a suggested draft permit been attached?			X	

APPENDIX B. EMISSIONS CALCULATIONS

APPENDIX B
EMISSIONS CALCULATIONS

Table 1.a. Potential Emissions Summary

Description	Emission Unit ID	Source Type	Pollutant (tpy)									
			PM	PM_{10}	$PM_{2.5}$	NO_x	VOC	CO	SO_2	Single HAP	Total HAPs	CO_2e[3]
Natural Gas-Fired Engine	COM-1	Point	1.4831	1.4831	1.4831	24.14	9.66	48.28	0.0873	7.84	11.26	21,908
Natural Gas-Fired Emergency Engine	ENG-1	Point	0.0177	0.0177	0.0177	1.11	0.55	2.22	0.0010	0.09	0.13	262
Station Piping Component Fugitives	FUG-1	Fugitive	--	--	--	--	1.27	--	--	0.10	0.10	771
Site-Wide Emissions			**1.50**	**1.50**	**1.50**	**25.25**	**11.48**	**50.50**	**0.09**	**8.03**	**11.49**	**22,940**
Permitting Exemption Thresholds (tpy) [1]			--	7.5	5	20	20	50	20	--	--	--
Above Permitting Exemption Thresholds?			*No*	*No*	*No*	*Yes*	*No*	*Yes*	*No*	*No*	*No*	*No*
Federal NSR Thresholds (tpy) [2]			250	250	250	250	250	250	250	--	--	100,000
Above Federal NSR Thresholds?			*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*
Title V Thresholds (tpy)			100	100	100	100	100	100	100	10	25	100,000
Above Title V Thresholds?			*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*	*No*

[1] Permitting Exemption Thresholds per A.A.C. R18-2-101.101
[2] Federal NSR thresholds for a non-categorical stationary source in an attainment area for all regulated pollutants.
[3] GHG include CO_2, N_2O, and CH_4. Emissions shown are based on CO_2 equivalent (CO_2e). No hydrofluorocarbon, perfluorocarbon, or sulfur hexafluoride emissions are expected from any of the equipment.

APPENDIX B
EMISSIONS CALCULATIONS

Table 2.a. G3616 Engine - Criteria Emissions

Pollutant	Emission Factor [1 - 4]	Unit	Potential to Emit [5 - 6]		
			(lb/hr)	(lb/day)	(tpy)
Nitrogen Oxides	5.00E-01	g/hp-hr	5.51	132.28	24.14
Carbon Monoxide	1.00E+00	g/hp-hr	11.02	264.55	48.28
Sulfur Dioxide	5.88E-04	lb/MMBtu	0.0199	0.4783	0.0873
Volatile Organic Compounds	2.00E-01	g/hp-hr	2.20	52.91	9.66
Particulate Matter ($PM/PM_{10}/PM_{2.5}$)	9.99E-03	lb/MMBtu	0.3386	8.1267	1.4831
		HAPs			
1,1,2,2-Tetrachloroethane	4.00E-05	lb/MMBtu	1.36E-03	3.25E-02	5.94E-03
1,1,2-Trichloroethane	3.18E-05	lb/MMBtu	1.08E-03	2.59E-02	4.72E-03
1,1-Dichloroethane	2.36E-05	lb/MMBtu	8.00E-04	1.92E-02	3.50E-03
1,2-Dichloroethane	2.36E-05	lb/MMBtu	8.00E-04	1.92E-02	3.50E-03
1,2-Dichloropropane	2.69E-05	lb/MMBtu	9.12E-04	2.19E-02	3.99E-03
1,3-Butadiene	2.67E-04	lb/MMBtu	9.05E-03	2.17E-01	3.96E-02
1,3-Dichloropropene	2.64E-05	lb/MMBtu	8.95E-04	2.15E-02	3.92E-03
2-Methylnaphthalene	3.32E-05	lb/MMBtu	1.13E-03	2.70E-02	4.93E-03
2,2,4-Trimethylpentane	2.50E-04	lb/MMBtu	8.47E-03	2.03E-01	3.71E-02
Acenaphthene	1.25E-06	lb/MMBtu	4.24E-05	1.02E-03	1.86E-04
Acenaphthylene	5.53E-06	lb/MMBtu	1.87E-04	4.50E-03	8.21E-04
Acetaldehyde	8.36E-03	lb/MMBtu	2.83E-01	6.80E+00	1.24E+00
Acrolein	5.14E-03	lb/MMBtu	1.74E-01	4.18E+00	7.63E-01
Benzene	4.40E-04	lb/MMBtu	1.49E-02	3.58E-01	6.53E-02
Benzo(b)fluoranthene	1.66E-07	lb/MMBtu	5.63E-06	1.35E-04	2.46E-05
Benzo(e)pyrene	4.15E-07	lb/MMBtu	1.41E-05	3.38E-04	6.16E-05
Benzo(g,h,i)perylene	4.14E-07	lb/MMBtu	1.40E-05	3.37E-04	6.15E-05
Biphenyl	2.12E-04	lb/MMBtu	7.19E-03	1.72E-01	3.15E-02
Butane	5.41E-04	lb/MMBtu	1.83E-02	4.40E-01	8.03E-02
Carbon Tetrachloride	3.67E-05	lb/MMBtu	1.24E-03	2.99E-02	5.45E-03
Chlorobenzene	3.04E-05	lb/MMBtu	1.03E-03	2.47E-02	4.51E-03
Chloroethane	1.87E-06	lb/MMBtu	6.34E-05	1.52E-03	2.78E-04
Chloroform	2.85E-05	lb/MMBtu	9.66E-04	2.32E-02	4.23E-03
Chrysene	6.93E-07	lb/MMBtu	2.35E-05	5.64E-04	1.03E-04
Ethylbenzene	3.97E-05	lb/MMBtu	1.35E-03	3.23E-02	5.89E-03
Ethylene Dibromide	4.43E-05	lb/MMBtu	1.50E-03	3.60E-02	6.58E-03
Fluoroanthene	1.11E-06	lb/MMBtu	3.76E-05	9.03E-04	1.65E-04
Fluorene	5.67E-06	lb/MMBtu	1.92E-04	4.61E-03	8.42E-04
Formaldehyde	5.28E-02	lb/MMBtu	1.79E+00	4.30E+01	7.84
Methanol	2.50E-03	lb/MMBtu	8.47E-02	2.03E+00	3.71E-01
Methylene Chloride	2.00E-05	lb/MMBtu	6.78E-04	1.63E-02	2.97E-03
n-Hexane	1.11E-03	lb/MMBtu	3.76E-02	9.03E-01	1.65E-01
n-Nonane	1.10E-04	lb/MMBtu	3.73E-03	8.95E-02	1.63E-02
n-Octane	3.51E-04	lb/MMBtu	1.19E-02	2.86E-01	5.21E-02
n-Pentane	2.60E-03	lb/MMBtu	8.81E-02	2.12E+00	3.86E-01
Naphthalene	7.44E-05	lb/MMBtu	2.52E-03	6.05E-02	1.10E-02
PAH	2.69E-05	lb/MMBtu	9.12E-04	2.19E-02	3.99E-03
Phenanthrene	1.04E-05	lb/MMBtu	3.53E-04	8.46E-03	1.54E-03
Phenol	2.40E-05	lb/MMBtu	8.13E-04	1.95E-02	3.56E-03
Pyrene	1.36E-06	lb/MMBtu	4.61E-05	1.11E-03	2.02E-04
Styrene	2.36E-05	lb/MMBtu	8.00E-04	1.92E-02	3.50E-03
Tetrachloroethane	2.48E-06	lb/MMBtu	8.41E-05	2.02E-03	3.68E-04
Toluene	4.08E-04	lb/MMBtu	1.38E-02	3.32E-01	6.06E-02
Vinyl Chloride	2.19E-09	lb/MMBtu	7.43E-08	1.78E-06	3.25E-07
Xylenes	1.84E-04	lb/MMBtu	6.24E-03	1.50E-01	2.73E-02
		Max HAP	*1.79*	*42.95*	*7.84*
		Total HAPs	*2.57*	*61.71*	*11.26*

[1] Emission factors for SO_2, PM, and HAPs per AP-42 Section 3.2 (*Natural Gas-fired Reciprocating Engines*), Table 3.2-2, 4-Stroke Lean Burn Engine
[2] Assumes $PM = PM_{10} = PM_{2.5}$
[3] Emission factors for NO_x, CO, and VOC constituents per vendor quote.
[4] Heat rate per G3616 technical data sheet: 6,779 Btu/hp-hr
[5] Engine rating: 5,000 hp
[6] Annual hours of operation: 8760 hr/yr

Sample Calculations:

Emergency Engine NO_x Hourly Emissions (lb/hr)	5,000 hp	6,779 Btu / hp-hr	MMBtu / 10^6 Btu	0.50 lb / MMBtu	5.51	lb / hr
Emergency Engine NO_x Annual Emissions (tpy)	5.51 lb / hr	8760 hr / yr	ton / 2,000 lb	=	24.14	ton / yr

Table 2.b. GHG Emissions

Emission Factor (lb/MMBtu) [1]			CO_2e Potential to Emit [2]	
CO_2	CH_4	N_2O	(lb/hr)	(tpy)
1.47E+02	2.20E-03	2.20E-04	5,002	21,908

[1] Emission factors per Tables C-1 and C-2 of 40 CFR Part 98 Subpart C.
[2] Global Warming Potentials (GWP) obtained from Table A-1 of 40 CFR Part 98 Subpart A:
CH_4 GWP = 25
N_2O GWP = 298

Sample Calculations:

Emergency Engine GHG Hourly Emissions (lb/hr)	5,000 hp	(147.45 + 2E-03 x 25 + 2E-04 x 298) lb / 10^6 Btu	6,779 Btu / hp-hr	=	5,002	lb / hr
Emergency Engine GHG Annual Emissions (tpy)	5002 lb / hr	8760 hr / yr	ton / 2,000 lb	=	21,908	ton / yr

Table 3.a. Emergency Engine - Criteria Emissions

Pollutant	Emission Factor [1 - 4]	Unit	Potential to Emit [5 - 6]		
			(lb/hr)	(lb/day)	(tpy)
Nitrogen Oxides	2.00E+00	g/hp-hr	4.43	106.43	1.11
Carbon Monoxide	4.00E+00	g/hp-hr	8.87	212.86	2.22
Sulfur Dioxide	5.88E-04	lb/MMBtu	0.0042	0.1001	0.0010
Volatile Organic Compounds	1.00E+00	g/hp-hr	2.22	53.22	0.55
Particulate Matter ($PM/PM_{10}/PM_{2.5}$)	9.99E-03	lb/MMBtu	0.0709	1.7008	0.0177
HAPs					
1,1,2,2-Tetrachloroethane	4.00E-05	lb/MMBtu	2.84E-04	6.81E-03	7.09E-05
1,1,2-Trichloroethane	3.18E-05	lb/MMBtu	2.26E-04	5.41E-03	5.64E-05
1,1-Dichloroethane	2.36E-05	lb/MMBtu	1.67E-04	4.02E-03	4.19E-05
1,2-Dichloroethane	2.36E-05	lb/MMBtu	1.67E-04	4.02E-03	4.19E-05
1,2-Dichloropropane	2.69E-05	lb/MMBtu	1.91E-04	4.58E-03	4.77E-05
1,3-Butadiene	2.67E-04	lb/MMBtu	1.89E-03	4.55E-02	4.74E-04
1,3-Dichloropropene	2.64E-05	lb/MMBtu	1.87E-04	4.49E-03	4.68E-05
2-Methylnaphthalene	3.32E-05	lb/MMBtu	2.36E-04	5.65E-03	5.89E-05
2,2,4-Trimethylpentane	2.50E-04	lb/MMBtu	1.77E-03	4.26E-02	4.43E-04
Acenaphthene	1.25E-06	lb/MMBtu	8.87E-06	2.13E-04	2.22E-06
Acenaphthylene	5.53E-06	lb/MMBtu	3.92E-05	9.41E-04	9.81E-06
Acetaldehyde	8.36E-03	lb/MMBtu	5.93E-02	1.42E+00	1.48E-02
Acrolein	5.14E-03	lb/MMBtu	3.65E-02	8.75E-01	9.12E-03
Benzene	4.40E-04	lb/MMBtu	3.12E-03	7.49E-02	7.80E-04
Benzo(b)fluoranthene	1.66E-07	lb/MMBtu	1.18E-06	2.83E-05	2.94E-07
Benzo(e)pyrene	4.15E-07	lb/MMBtu	2.94E-06	7.07E-05	7.36E-07
Benzo(g,h,i)perylene	4.14E-07	lb/MMBtu	2.94E-06	7.05E-05	7.34E-07
Biphenyl	2.12E-04	lb/MMBtu	1.50E-03	3.61E-02	3.76E-04
Butane	5.41E-04	lb/MMBtu	3.84E-03	9.21E-02	9.59E-04
Carbon Tetrachloride	3.67E-05	lb/MMBtu	2.60E-04	6.25E-03	6.51E-05
Chlorobenzene	3.04E-05	lb/MMBtu	2.16E-04	5.18E-03	5.39E-05
Chloroethane	1.87E-06	lb/MMBtu	1.33E-05	3.18E-04	3.32E-06
Chloroform	2.85E-05	lb/MMBtu	2.02E-04	4.85E-03	5.05E-05
Chrysene	6.93E-07	lb/MMBtu	4.92E-06	1.18E-04	1.23E-06
Ethylbenzene	3.97E-05	lb/MMBtu	2.82E-04	6.76E-03	7.04E-05
Ethylene Dibromide	4.43E-05	lb/MMBtu	3.14E-04	7.54E-03	7.86E-05
Fluoroanthene	1.11E-06	lb/MMBtu	7.87E-06	1.89E-04	1.97E-06
Fluorene	5.67E-06	lb/MMBtu	4.02E-05	9.65E-04	1.01E-05
Formaldehyde	5.28E-02	lb/MMBtu	3.75E-01	8.99E+00	9.36E-02
Methanol	2.50E-03	lb/MMBtu	1.77E-02	4.26E-01	4.43E-03
Methylene Chloride	2.00E-05	lb/MMBtu	1.42E-04	3.40E-03	3.55E-05
n-Hexane	1.11E-03	lb/MMBtu	7.87E-03	1.89E-01	1.97E-03
n-Nonane	1.10E-04	lb/MMBtu	7.80E-04	1.87E-02	1.95E-04
n-Octane	3.51E-04	lb/MMBtu	2.49E-03	5.98E-02	6.22E-04
n-Pentane	2.60E-03	lb/MMBtu	1.84E-02	4.43E-01	4.61E-03
Naphthalene	7.44E-05	lb/MMBtu	5.28E-04	1.27E-02	1.32E-04
PAH	2.69E-05	lb/MMBtu	1.91E-04	4.58E-03	4.77E-05
Phenanthrene	1.04E-05	lb/MMBtu	7.38E-05	1.77E-03	1.84E-05
Phenol	2.40E-05	lb/MMBtu	1.70E-04	4.09E-03	4.26E-05
Pyrene	1.36E-06	lb/MMBtu	9.65E-06	2.32E-04	2.41E-06
Styrene	2.36E-05	lb/MMBtu	1.67E-04	4.02E-03	4.19E-05
Tetrachloroethane	2.48E-06	lb/MMBtu	1.76E-05	4.22E-04	4.40E-06
Toluene	4.08E-04	lb/MMBtu	2.89E-03	6.95E-02	7.24E-04
Vinyl Chloride	2.19E-09	lb/MMBtu	1.55E-08	3.73E-07	3.89E-09
Xylenes	1.84E-04	lb/MMBtu	1.31E-03	3.13E-02	3.26E-04
		Max HAP (Formaldehyde)	*0.37*	*8.99*	*0.09*
		Total HAPs	*0.54*	*12.91*	*0.13*

[1] Emission factors for SO_2, PM, and HAPs per AP-42 Section 3.2 (*Natural Gas-fired Reciprocating Engines*), Table 3.2-2, 4-Stroke Lean Burn Engine
[2] Assumes $PM = PM_{10} = PM_{2.5}$
[3] Emission factors for NO_x, CO, and VOC constituents per 40 CFR Part 60, Subpart JJJJ.
[4] Heat rate per G3512 technical data sheet: 7,053 Btu/hp-hr
[5] Engine rating: 1,006 hp
[6] Proposed annual hours of operation per EPA memorandum "*Calculating Potential to Emit (PTE) for Emergency Generators*", John S. Seitz, September 6, 1995: 500 hr/yr

Sample Calculations:

Emergency Engine NO_x Hourly Emissions (lb/hr): 1006 hp | 7,053 Btu / hp-hr | MMBtu / 10^6 Btu | 2.00 lb / MMBtu | 4.43 lb / hr

Emergency Engine NO_x Annual Emissions (tpy): 4.43 lb / hr | 500 hr / yr | ton / 2,000 lb = 1.11 ton / yr

Table 3.b. GHG Emissions

Emission Factor (lb/MMBtu) [1]			CO_2e Potential to Emit [2]	
CO_2	CH_4	N_2O	(lb/hr)	(tpy)
1.47E+02	2.20E-03	2.20E-04	1047	261.70

[1] Emission factors per Tables C-1 and C-2 of 40 CFR Part 98 Subpart C.
[2] Global Warming Potentials (GWP) obtained from Table A-1 of 40 CFR Part 98 Subpart A:
CH_4 GWP = 25
N_2O GWP = 298

Sample Calculations:

Emergency Engine GHG Hourly Emissions (lb/hr): 1,006 hp | (147.45 + 2E-03 x 25 + 2E-04 x 298) lb / 10^6 Btu | 7,053 Btu / hp-hr = 1,047 lb / hr

Emergency Engine GHG Annual Emissions (tpy): 1047 lb / hr | 500 hr / yr | ton / 2,000 lb = 262 ton / yr

Table 4.a. Fugitive Emissions from Components in Natural Gas Service

Component	Component Count [1]	THC Emission Factor [2]	VOC Content [3, 4]	HAPs Content [3 - 5]	CO_2 Content [3, 4]	CH_4 Content [3, 4]	VOC Emissions		HAP Emissions		CO_2 Emissions		CH_4 Emissions		CO_2e Emissions [7]	
		(lb/hr-SRC)	(wt%)	(wt%)	(wt%)	(wt%)	(lb/hr)	(tpy) [6]	(lb/hr)	(tpy) [6]	(lb/hr)	(tpy) [6]	(lb/hr)	(tpy) [6]	(lb/hr)	(tpy) [6]
Valves	514	0.00992	4.00	0.30	5.00	97.00	0.20	0.89	0.02	0.07	0.25	1.12	4.95	21.66	123.90	542.69
Flanges	240	0.00086	4.00	0.30	5.00	97.00	0.008	0.04	0.001	0.003	0.01	0.05	0.20	0.88	5.02	21.97
Connections	1474	0.00044	4.00	0.30	5.00	97.00	0.03	0.11	0.002	0.01	0.03	0.14	0.63	2.76	15.76	69.03
Open-ended lines	28	0.00445	4.00	0.30	5.00	97.00	0.005	0.02	0.0004	0.002	0.01	0.03	0.12	0.53	3.03	13.27
Others	60	0.01940	4.00	0.30	5.00	97.00	0.05	0.20	0.003	0.02	0.06	0.25	1.13	4.95	28.29	123.89
Totals							***0.29***	***1.27***	***0.02***	***0.10***	***0.36***	***1.59***	***7.03***	***30.77***	***175.99***	***770.85***

[1] Component counts per default values obtained from GRI-HAP Calc Version 3.01 for a "typical" compressor station with a safety factor of 2.0 incorporated as a conservative measure.

[2] THC emission factors from Table 2-4 of EPA-453/R-95-017, Protocol for Equipment Leak Emission Estimates (November, 1995).
THC emissions factors were multiplied by the VOC weight percent and HAP weight percent to calculate VOC lb/hr and HAP lb/hr.
THC emissions factors were multiplied by the CO_2 weight percent and CH_4 weight percent to calculate CO_2 lb/hr and CH_4 lb/hr.

[3] VOC, HAPs, CO_2, and CH_4 contents estimated per similar compressor stations including conservative safety factor. Weight percentages for VOC, HAPs, CO_2, and CH_4 as follows:

VOC:	4.00	%
HAPs:	0.30	%
CO_2:	5.00	%
CH_4:	97.00	%

[4] Natural gas constituent percentages add to more than 100% because each individual value was chosen to be conservative.

[5] Conservatively assumed that all Hexanes are n-Hexane.

[6] Annual (tpy) emissions are based on: 8,760 hrs/yr

[7] CO_2e is calculated using Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A:

CH_4 GWP = 25