

**TECHNICAL REVIEW AND EVALUATION**  
**AIR QUALITY PERMIT NO. 48824**  
*El Paso Natural Gas Company*

**I. INTRODUCTION**

This Class I, Title V renewal permit is issued to El Paso Natural Gas Company (EPNG) for operation of the Flagstaff compressor station in Flagstaff, Coconino County, Arizona. This permit renews and supersedes Permit #27931.

A. Company Information

Facility Name: Flagstaff Compressor Station

Facility Address: N 35 13' 27", W 111 33' 27"  
Old Highway 66, East of Mall one mile, Left 1/2 mile  
Flagstaff, Coconino County, Arizona 86004

Mailing Address: El Paso Natural Gas Company  
P.O. Box 1087  
Colorado Springs, CO 80901

B. Attainment Classification

The area is attainment for all criteria pollutants.

C. Learning Sites Evaluation

In accordance with ADEQ's Environmental Permits and Approvals Near Learning Sites Policy, the Department conducted an evaluation to determine if any nearby learning sites would be adversely impacted by the facility. Learning sites consist of all existing public schools, charter schools and private schools the K-12 level, and all planned sites for schools approved by the Arizona School Facilities Board. The learning sites policy was established to ensure that the protection of children at learning sites is considered before a permit approval is issued by ADEQ.

There are three learning sites within two miles of the facility.

1. Life House Alternative School
2. Neil V. Christensen School
3. Flagstaff SDA School

The Department has determined that this facility will not cause any adverse health effects at the learning sites listed above.

**II. PROCESS DESCRIPTION**

EPNG provides natural gas transportation services for natural gas suppliers and end users throughout the southwestern United States. EPNG owns and operates a large pipeline network for which the Flagstaff Station provides natural gas compression. Compression is needed to maintain enough pressure in the pipeline to keep the natural gas flowing through the pipeline network, and is accomplished by two Clark reciprocating engines that drive the compressor units. The Flagstaff Station has been automated and the location is unattended.

From a common pipeline system, natural gas flows into eight integral reciprocating compressors (four per unit) which are driven by two 5,500 horsepower Clark TCV-16 natural gas fired reciprocating engines. The reciprocating engines operate depending on the amount of natural gas being transported to various customers along the pipeline system. Primary electric power for the facility is purchased. In addition, an emergency generator is maintained on site for use during power outages.

The reciprocating engine stacks are the primary sources of air pollutant emissions. The facility has a potential to emit greater than the major source thresholds of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), and formaldehyde. Other emissions from the facility include sulfur dioxide (SO<sub>2</sub>), particulate matter with an aerodynamic diameter less than 10 microns (PM<sub>10</sub>) and volatile organic compounds (VOCs).

### III. COMPLIANCE HISTORY

There have been 30 inspections of this facility since October 5, 1994. No cases or violations have developed as a result of the inspections. There are no current violations associated with this facility.

### IV. EMISSIONS

The emissions from this facility are the result of the combustion of natural gas in the reciprocating engines and emergency generator. Table-1 below provides the facility's potential to emit (PTE).

**Table 1: PTE of Facility**

<b>Pollutant</b>	<b>Total Tons per year (tpy)</b>
<b>NO<sub>x</sub></b>	1,082
<b>CO</b>	200
<b>VOC</b>	46.3
<b>SO<sub>2</sub></b>	0.22
<b>PM<sub>10</sub></b>	13.1
<b>Formaldehyde</b>	17.5

Notes:

1. NO<sub>x</sub> and CO emissions for the Clark engines are based on a 2008 performance test.
2. All other emissions for the Clark engines and the emergency generator are based on AP-42 emissions factors.
3. Emissions are based on continuous use.

**V. APPLICABLE REGULATIONS**

Table 2 identifies applicable regulations and verification as to why that standard applies.

**Table 2: Verification of Applicable Regulations**

Unit	Control Device	Rule	Verification
Reciprocating IC Engine A-1, A-2, and Emergency Generator	None	A.A.C. R18-2-719.B A.A.C. R18-2-719.C.1 A.A.C. R18-2-719.E A.A.C. R18-2-719.J	<p>These standards are applicable to existing stationary rotating machinery.</p> <p>The engines and generator are not subject to the New Source Performance Standards (NSPS) Subpart IIII because they are not compression ignition engines.</p> <p>The engines and generator are not subject to NSPS Subpart JJJJ because they were constructed prior to July 1, 2008.</p> <p>The National Emission Standard for Hazardous Air Pollutants (NESHAP) Subpart ZZZZ is applicable to reciprocating internal combustion engines located at major and area sources of HAPs. However, the Clark engines are exempt because they are existing 2 stroke lean burn engines and the emergency engine is exempt because it is an existing 4 stroke rich burn engine rated at less than 500 horsepower.</p>
Fugitive dust sources	Water and other reasonable precautions	A.A.C. R18-2-604.A,B A.A.C. R18-2-605.A,B A.A.C. R18-2-606 A.A.C. R18-2-607.A,B A.A.C. R18-2-614 A.A.C. R18-2-702.B	These are applicable to fugitive dust sources at the facility.
Mobile sources	Water Sprays/Water Truck for dust control	A.A.C. R18-2-801.A,B A.A.C. R18-2-802.A,B A.A.C. R18-2-804.A,B	These are applicable to off-road mobile sources, which either move while emitting air pollutants or are frequently moved during the course of their utilization.
Spray Painting	N/A	A.A.C. R18-2-702.B A.A.C. R-18-2-727.A,B,C,D	This standard is applicable to any spray painting operation.
Abrasive Blasting	Wet blasting, Dust collecting equipment or other approved methods	A.A.C. R-18-2-702.B A.A.C. R-18-2-726	These standards are applicable to any abrasive blasting operation.
Demolition/renovation Operations	N/A	A.A.C. R18-2-1101.A.8	This standard is applicable to any asbestos related demolition or renovation operations.

## VI. PREVIOUS PERMIT CONDITIONS

Table 3 compares the substantive conditions in Permit No. 27931 with the conditions in this renewal permit and cross-references the previous permit conditions to their location in the renewal permit

**Table 3: Comparison of Previous and Current Permit Conditions**

Condition # in Permit No. 27931	Determination				Comments
	Deleted	Kept	Revised	Streamlined	
Attachment A			x		This Attachment has been revised and the most recent Attachment "A" is used for this permit.
Attachment B					
Condition I.A		x			This condition to have an EPA method 9 certified observer available has been retained.
Condition I.B		x			The condition to require the reporting of all required monitoring activities has been retained.
Condition I.C	x				This condition to require records of emissions related maintenance is unnecessary because Attachment "A" requires the retention of maintenance records.
Condition II.B			x		This fuel condition has been revised from pipeline quality natural gas to natural gas as defined in 40 CFR 72.2. The previous condition was ambiguous as the permit contained no definition of pipeline quality natural gas.
Condition II.C.1.a		x			This opacity standard has been retained.
Condition II.C.1.b		x			This PM emission limit has been retained.
Condition II.C.1.c		x			This condition requiring the heat input of all stationary rotating machinery to be aggregated has been retained.
Condition II.C.2.a		x			This requirement to conduct quarterly opacity observations has been retained.
Condition II.C.2.b		x			This fuel monitoring requirement has been retained.
Condition II.D.1			x		This CO and NO <sub>x</sub> performance test requirement has been retained.
Condition II.D.2			x		This CO and NO <sub>x</sub> performance test requirement has been retained.

Condition # in Permit No. 27931	Determination				Comments
	Deleted	Kept	Revised	Streamlined	
Condition II.E.1			x		This fuel sulfur content limitation has been revised to reflect the definition of natural gas in 40 CFR 72.2.
Condition II.E.2			x		This fuel recordkeeping requirement has been revised to require appropriate documentation to demonstrate 20.0 grains per 100 scf.
Condition III		x			These general standards for non-point sources have been revised and moved to Condition III.
Condition IV			x		These general standards for mobile sources have been revised and moved to Condition IV.
Condition V			x		These general standards for periodic activity have been revised and moved to Condition V.

## VII. MONITORING AND RECORDKEEPING REQUIREMENTS

### A. Facility Wide

1. Along with the semiannual compliance certification, the Permittee is required to submit reports of all recordkeeping, monitoring and maintenance required by the permit.
2. The Permittee is required to maintain, on-site, records of the manufacturer's specifications or an Operation and Maintenance Plan for all equipment listed in the permit.

### B. Stationary Rotating Machinery

1. The Permittee is required to show compliance with the opacity standard in Attachment "B", Section II by having a Method 9 certified observer perform a quarterly survey of visible emissions from the stacks of the stationary rotating machinery. The observer is required to conduct a 6-minute Method 9 observation if the results of the initial survey appear on an instantaneous basis to exceed the applicable standard.
2. The Permittee is required to keep records of the name of the observer, the time, date, and location of the observation and the results of all surveys and observations.
3. The Permittee is required to keep records of any corrective action taken to lower the opacity of any emission point and any excess emission reports.
4. The Permittee is required to maintain appropriate documentation to demonstrate compliance with the fuel sulfur requirements and fuel heating value monitoring requirements.

### C. Fugitive Dust

1. The Permittee is required to keep record of the dates on which any of the dust control measures contained in Attachment "B", Conditions III.B.1.a.(3)(a) through III.B.1.a.(3)(h) are employed.

2. The Permittee is required to show compliance with the opacity standards in Attachment “B”, Section V by having a Method 9 certified observer perform a quarterly survey of visible emission from fugitive dust sources. The observer is required to conduct a 6-minute Method 9 observation if the results of the initial survey appear on an instantaneous basis to exceed the applicable standard.
3. The Permittee is required to keep records of the name of the observer, the time, date, and location of the observation and the results of all surveys and observations.
4. The Permittee is required to keep records of any corrective action taken to lower the opacity of any emission point and any excess emission reports.

D. Mobile Sources

The Permittee is required to keep records of all emission related maintenance performed on the mobile sources.

E. Periodic Activities

1. The Permittee is required to record the date, duration and pollution control measures of any abrasive blasting project.
2. The Permittee is required to record the date, duration, and quantity of paint used, any applicable MSDS, and pollution control measures of any spray painting project.
3. The Permittee is required to maintain records of all asbestos related demolition or renovation projects. The required records include the “NESHAP Notification for Renovation and Demolition Activities” form and all supporting documents.

**VIII. TESTING REQUIREMENTS**

- A. The Permittee is required to conduct a once per permit term EPA Method 7E test for NO<sub>x</sub> emissions on each Clerk reciprocating engine.
- B. The Permittee is required to conduct a once per permit term EPA Method 10 test for CO emissions on each Clerk reciprocating engine.
- C. The performance tests are required as a basis for emissions fees and as a baseline for future modifications.

**IX. INSIGNIFICANT ACTIVITY**

Table 4, below, lists insignificant activities conducted by the Permittee.

**Table 4: Insignificant Activities**

<b>Equipment/Activity</b>	<b>Verification of Insignificance</b>
Lube oil storage tanks. Tank smaller than 40,000 gallons and contents less volatile than diesel	A.A.C. R18-2-101.57.c
Water heater and space heaters with aggregated capacity less than 500,000 BTU/hr.	A.A.C. R18-2-101.57.j Emissions will be insignificant

Equipment/Activity	Verification of Insignificance
Temporary hydrostatic test water evaporation ponds	A.A.C. R18-2-101.57.j Emissions will be insignificant
Pressure tanks	A.A.C. R18-2-101.57.j Emissions will be insignificant
Used oil systems.	A.A.C. R18-2-101.57.j Emissions will be insignificant
General maintenance of regulated emissions units, including, but not limited to, oil filter replacement (including drainage of oil filters), and work on the engine jacket water system	A.A.C. R18-2-101.57.j Emissions will be insignificant
Fan systems	A.A.C. R18-2-101.57.j Emissions will be insignificant
Maintenance and use of inertial separators (to filter air intake into the gas turbine engines)	A.A.C. R18-2-101.57.j Emissions will be insignificant
Domestic wastewater systems	A.A.C. R18-2-101.57.j Emissions will be insignificant
Plant water and wastewater system	A.A.C. R18-2-101.57.j Emissions will be insignificant
Emergency shut down system and pressure relief valves	A.A.C. R18-2-101.57.j Emissions will be insignificant
Blowdown activities	A.A.C. R18-2-101.57.j Emissions will be insignificant
Scrubber liquid systems	A.A.C. R18-2-101.57.j Emissions will be insignificant
Oil/water separator systems	A.A.C. R18-2-101.57.j Emissions will be insignificant
Cathodic protection systems	A.A.C. R18-2-101.57.j Emissions will be insignificant
Vents, valve and flanges	A.A.C. R18-2-101.57.j Emissions will be insignificant
Solvent degreasing	A.A.C. R18-2-101.57.j Emissions will be insignificant
Cooling water systems	A.A.C. R18-2-101.57.j Emissions will be insignificant
General plant maintenance, construction and upkeep activities not associated with the Permittee's primary business activity, and not otherwise triggering a permit modification	A.A.C. R18-2-101.57.j Emissions will be insignificant
Manually operated equipment used for buffing, polishing, carving, cutting, drilling, machining, routing, sanding, sawing, surface grinding, or turning of precision parts, leather, metals, plastics, fiber board, masonry, carbon, glass or wood	A.A.C. R18-2-101.57.j Emissions will be insignificant

Equipment/Activity	Verification of Insignificance
Use of consumer office products	A.A.C. R18-2-101.57.j Emissions will be insignificant
Use and maintenance of electric driven equipment for general location maintenance including but not limited to a bench grinder, drill press, pipe threader and lathe	A.A.C. R18-2-101.57.j Emissions will be insignificant
Steam cleaning activities	A.A.C. R18-2-101.57.j Emissions will be insignificant
Welding activities	A.A.C. R18-2-101.57.j Emissions will be insignificant
Laboratory equipment used exclusively for chemical and physical analysis	A.A.C. R18-2-101.57.i
Safety equipment	A.A.C. R18-2-101.57.j Emissions will be insignificant
Uninterruptible power supply systems	A.A.C. R18-2-101.57.j Emissions will be insignificant
Utility pumps and systems	A.A.C. R18-2-101.57.j Emissions will be insignificant
Use of chlorination systems	A.A.C. R18-2-101.57.j Emissions will be insignificant

## X. LIST OF ABBREVIATIONS

A.A.C.....	Arizona Administrative Code
ADEQ.....	Arizona Department of Environmental Quality
CFR.....	Code of Federal Regulations
CO.....	Carbon Monoxide
EPNG.....	El Paso Natural Gas Company
HAPS.....	Hazardous Air Pollutants
MSDS.....	Material Safety Data Sheet
NESHAP.....	National Emission Standards for Hazardous Air Pollutants
NO <sub>x</sub> .....	Nitrogen Oxides
NSPS.....	New Source Performance Standards
PM.....	Particulate Matter
PM <sub>10</sub> .....	Particulate Matter with an aerodynamic diameter less than 10 microns
PTE.....	Potential-to-Emit
SO <sub>2</sub> .....	Sulfur Dioxide
TPY.....	Tons per Year
VOC.....	Volatile Organic Compound