

**TECHNICAL REVIEW AND EVALUATION  
OF APPLICATION FOR  
AIR QUALITY PERMIT No. 49503**

**I. INTRODUCTION**

This Class I Title V operating permit renewal is for the operation of El Paso Natural Gas Company's Alamo Lake Compressor Station which is located 13 miles North of Wenden, AZ on Alamo Dam Access Road; then approximately 5 miles Northwest on the pipeline access road. This is a renewal permit of Permit #28000.

A. Company Information

Facility Name: El Paso Natural Gas Company, Alamo Lake Compressor Station

Mailing Address: P.O. Box 1087  
Colorado Springs, CO 80901-1087

Facility Location: 13 miles North of Wenden, AZ on Alamo Dam Access Road;  
then approximately 5 miles Northwest on the pipeline access  
road

B. Attainment Classification (Source: 40 CFR §81.303)

El Paso Natural Gas Company, Alamo Lake Compressor Station is located in an area which is in attainment or unclassified for all criteria pollutants.

**II. PROCESS DESCRIPTION**

El Paso Natural Gas Company (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 Alamo Lake 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 natural gas fired General Electric regenerative cycle turbine engines that drive the compressor units.

From a common pipeline system, natural gas flows into each of the two centrifugal compressors connected in either parallel or in series. The compressors are driven by two natural gas fueled turbine engines. The turbine engines operate depending on the amount of natural gas being transported to various customers along the pipeline system.

The gas turbine stacks are the primary sources of air pollutant emissions. The primary pollutant present in the stack emissions is nitrogen oxides, which results from the combustion of natural gas. Other pollutants present in the emissions are sulfur dioxide, carbon monoxide, and volatile organic compounds.

**III. EMISSIONS**

The facility is classified as a Major Source pursuant to Arizona Administration Code (A.A.C.) R18-2-101.64. The potential emission rate of NO<sub>x</sub> is greater than the major source threshold as

shown in the table below:

**Facility-Wide Emissions**

<b>Pollutant</b>	<b>Tons per Year</b>
PM	0.44
PM <sub>2.5</sub>	0.44
VOC	0.52
SO <sub>2</sub>	38.50
NO <sub>x</sub>	107.47
CO	28.84
Formaldehyde	0.52

**IV. COMPLIANCE HISTORY**

There have been nineteen air quality inspections and fourteen file reviews associated with this facility since July 1994. No air quality cases violations have been developed for this facility as a result of the inspections.

**V. APPLICABLE REGULATIONS**

The Permittee has identified the applicable regulations that apply to each unit in its permit application. The following table summarizes the findings of the Department with respect to the regulations that are applicable to each emissions unit. Previous permit conditions are discussed under Section VI of this technical review document.

**Applicable Regulations**

<b>Unit ID</b>	<b>Year of Manufacture</b>	<b>Control Equipment</b>	<b>Applicable Regulations</b>	<b>Verification</b>
General Electric 3142RJ Regenerative Natural Gas- Fired Turbine	1974	None	<u>A.A.C.</u> R18-2-719.B R18-2- 719.C.1 R18-2-719.E R18-2-719.I R18-2-719.J	Stationary Rotating Machinery subject to State rules.  National Emission Standards for Hazardous Air Pollutants Subpart YYYY is not applicable because the turbines are not located at a major source of HAPs.

Unit ID	Year of Manufacture	Control Equipment	Applicable Regulations	Verification
Solar Taurus 60 Regenerative Natural Gas-Fired Turbine Engine	2007	None	40 CFR 60 Subpart GG	The turbine was constructed after October 3, 1977, and are therefore subject to New Source Performance Standard (NSPS) Subpart GG. A like-kind component exchanged was completed in February 2008. Therefore, it is not considered a modification and is not subject to NSPS Subpart KKKK.
Caterpillar Emergency Generator	1993	None	<u>A.A.C.</u> R18-2-719.B R18-2-719.C.1 R18-2-719.E R18-2-719.I R18-2-719.J	Stationary Rotating Machinery subject to State rules.  Not subject to NSPS Subpart JJJJ because it was constructed prior to June 12, 2006.  Not subject to NESHAP Subpart ZZZZ because the generator is an existing 4-stroke rich burn engine and not located at an area source of HAP emissions.
Fugitive Dust	Not Applicable	Control Measures	<u>A.A.C.</u> R18-2-602 R18-2-604.A R18-2-604.B R18-2-605 R18-2-606 R18-2-607 R18-2-612 R18-2-702	The regulations listed are applicable to fugitive dust sources
Abrasive Blasting	Not Applicable	Wet blasting, enclosure, or equivalent (approved by Director)	<u>A.A.C.</u> R18-2-726 R18-2-702.B	Relevant requirements applicable to abrasive blasting
Spray Painting	Not Applicable	Control measures that attain	<u>A.A.C.</u> R18-2-727	Relevant requirements applicable to spray painting

Unit ID	Year of Manufacture	Control Equipment	Applicable Regulations	Verification
		96% efficiency		
Mobile Sources	Not Applicable	Control Measures	<u>A.A.C.</u> R18-2-801 R18-2-802.A R18-2-804	These regulations are applicable to all mobile sources
Demolition/ Renovation	Not Applicable	None	<u>A.A.C.</u> R18-2- 1101.A.8 (NESHAP for asbestos)	Relevant requirements applicable to demolition and renovation operations

## VI. PREVIOUS PERMIT AND CONDITIONS

### A. Previous Permit

The following table lists the previous permit that has been issued to El Paso Natural Gas, Alamo Lake Compressor Station.

#### Previous Permits:

Date Issued	LTF #	Application Basis	Description
08/06/2004	28000	Renewal Permit	Class I Permit
7/19/2007	44198	Minor Revision	Solar turbine serial number change
11/01/2007	45943	Facility Change without Revision	Like-kind component exchange for the Solar turbine
5/27/2008	46347	Minor Revision	Solar turbine serial number and model number change
2/4/2008	46675	Facility Change without Revision	Allow usage of CARB certified blast media for wet blasting and/or other abrasive blasting
3/12/2009	49653	Facility Change without Revision	Proposed use of name brand CARB certified abrasive blast media

### B. Previous Permit Conditions

The following is a discussion regarding the previous permit that was issued to the source.

#### TITLE V OPERATING PERMIT No. 28000

This operating permit was issued to the EPNG, Alamo Lake Compressor Station on August 6, 2004, to operate two natural gas-fired turbine engines and an emergency generator.

Permit #28000 References	Determination				Comments
	Revise	Keep	Delete	Stream-line	
Attachment.A	x				Revised to represent most recent permitting language.
Att. B. I		x			Facility Wide Limitations now includes most recent permitting language and monitoring, recordkeeping, and reporting requirements.
Att. B. II		x			Gas Turbine and Emergency Generator section is now Stationary Rotating Machinery Not Subject to NSPS.
Att. B. II	x				Emergency Generators operation is now limited to 500 hour per year.
Att. B. II.C		x			Provisions for GE turbine to operate and maintain a Dry Low NOx combustor have been kept.
Att. B. II.C.4	x				Performance test requirements for NOx and CO have been removed for the GE turbine. The turbine does not have the potential to emit more than 100 tons per year on an individual basis of either NOx or CO.
Att. B. II.D		x			Natural gas-fired turbines subject to NSPS are now included in a separate section.
Att. B. III		x			Nonpoint source requirements now included as Fugitive Dust Requirements and now includes most recent permitting language.
Att. B. IV		x			Mobile Source Requirements now includes most recent permitting language.
Att. B. V		x			Other Periodic Activity Requirements now includes most recent permitting language.
Att. C		x			Equipment list has been revised to show NSPS applicability

## V. PERIODIC MONITORING

A. Stationary Rotating Machinery

Method 9 observations are required quarterly of visible emissions from the stacks of the emergency generator when in operation. If the opacity of the emissions observed during the initial survey appears to exceed 40%, the observer is required to conduct a certified EPA Reference Method 9 observation. If the observation shows a Method 9 opacity reading in excess of 40%, the Permittee is required to report this to ADEQ as excess emission and initiate appropriate corrective action to reduce the opacity to a level below 40%.

B. Fugitive Dust

1. The Permittee is required to keep record of the dates on which any of the dust control measures are employed.
2. The Permittee is required to show compliance with the opacity standards in 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.

**VI. TESTING REQUIREMENTS**

Gas Turbine Engine(s) Subject to NSPS

The Permittee is required to perform an annual performance test for nitrogen oxides to determine compliance with the limit specified in the permit. The Permittee is required to follow the procedures in 40 CFR 60.335 and use EPA Reference Method 20 to determine the NO<sub>x</sub> emissions.

**Insignificant Activities**

Equipment/ Activity	Determination	Comment
Caterpillar Emergency Generator 125 hp, model Number 3306NALCR	Not Insignificant	Subject to R18-2-719
Internal Combustion engine-driven compressors, IC engine-driven electrical generator sets used only for emergency replacement or standby service	Not Insignificant	Subject to R18-2-719

Equipment/ Activity	Determination	Comment
Petroleum-based solvent tanks less than 10,000 gallons (solvent with a vapor pressure less than gasoline)	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.b
Lube oil storage tanks	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.c
Minor natural gas-fired appliances, if the aggregate rate is less than 500,000 Btu/hr (hot water heaters, HVAC, etc.)	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
Temporary hydrostatic test water evaporation ponds	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
Pressure tanks	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
Used oil systems	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
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	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
Fan systems	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
Maintenance and use of inertial separators (to filter air intake into the gas turbine engines)	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
Exercise of standby equipment	Not Insignificant	Standby IC engines will be subject to R18-2-719. Other equipment will be evaluated on a case by case basis.
Domestic wastewater systems	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
Plant water and wastewater system	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
Emergency shut down system and pressure relief valves	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
Blowdown activities	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
Scrubber liquid systems	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
Oil/water separator systems	Insignificant	Insignificant pursuant to A.A.C.

Equipment/ Activity	Determination	Comment
		R18-2-101.57.j
Cathodic protection systems	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
Vents, valves and flanges	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
Solvent degreasing	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
Cooling water systems	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
General plant maintenance, construction and upkeep activities not associated with the Permittee's primary business activity, and not otherwise triggering a permit modification	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
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	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.f
Use of consumer office products	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
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	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
Steam cleaning activities	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
Welding activities	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
Laboratory equipment	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.i
Safety equipment	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
Uninterruptible power supply systems	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
Utility pumps and systems	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.j
Use of chlorination systems	Insignificant	Insignificant pursuant to A.A.C.



Equipment/ Activity	Determination	Comment
		R18-2-101.57.j

**VII. LIST OF ABBREVIATIONS**

A.A.C. .... Arizona Administrative Code  
ADEQ ..... Arizona Department of Environmental Quality  
Btu/ft<sup>3</sup> ..... British Thermal Units per Cubic Foot  
Btu/hr ..... British Thermal Units per Hour  
CFR ..... Code of Federal Regulations  
CO ..... Carbon Monoxide  
EPA ..... Environmental Protection Agency  
EPNG ..... El Paso Natural Gas Company  
FERC ..... Federal Energy Regulatory Commissions  
HAP ..... Hazardous Air Pollutant  
hp .....Horsepower  
lb/hr ..... Pound per Hour  
NO<sub>x</sub> ..... Nitrogen Oxides  
NSPS .....New Source Performance Standards  
PM .....Particulate Matter  
PM<sub>10</sub> ..... Particulate Matter Nominally less than 10 Micrometers  
SO<sub>x</sub> ..... Sulfur Oxides  
VOC ..... Volatile Organic Compound