

TECHNICAL SUPPORT DOCUMENT

AIR QUALITY PERMIT NO. 49504

El Paso Natural Gas Company-Williams Compressor Station

I. INTRODUCTION

This Class I, Title V renewal permit is issued to El Paso Natural Gas Company (EPNG) for the continued operation of the Williams Compressor station in Williams, Coconino County, Arizona. This permit supersedes Operating Permit No. 28162.

A. Company Information

Facility Name: Williams Compressor Station

Facility Address: Exit 171 off I-40, 3 miles north
Williams, AZ 86046

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

B. Attainment Classification

The facility is located in an area classified as attainment area 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 no learning sites within two miles of the facility.

II. BACKGROUND INFORMATION

The facility was issued Title V Renewal Permit No. 28162 on August 10, 2004. Subsequently, the following permit revisions have been issued to the facility:

A significant revision, Permit No. 40117, was issued on January 17, 2007, to incorporate the National Emissions Standards for Hazardous Air Pollutants (NESHAP) requirements under 40 CFR 63 Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines (RICE) for the Ingersoll-Rand engine into the permit, as well as correcting an incorrect emission equation for the GE Gas Turbine Engine. The Ingersoll-Rand engine was designated as an emergency generator.

A minor permit revision, Permit No. 48355 was issued on February 26, 2009, to update the serial number for the Solar gas turbine to reflect a like-kind component exchange performed in May 2008.

III. 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 Williams Compressor 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 five (5) natural gas fired reciprocating engines and one (1) natural gas fired turbine that drives the compressor units. The primary source of electric power is the Solar electric generator set. An Ingersoll-Rand emergency generator provides emergency power supply during outages. The Williams Compressor Station has been automated and is, therefore, an unattended facility.

IV. COMPLIANCE HISTORY

The facility has had 51 air quality inspections since 1995. There were no air quality cases or violations as a result of these inspections.

V. EMISSIONS

The facility has a potential-to-emit (PTE) more than the major source thresholds of nitrogen oxides (NO_x), carbon monoxide (CO), and volatile organic compounds (VOCs). The facility has a PTE of more than 10 tons of formaldehyde per year. Thus, the facility is major source of hazardous air pollutants (HAPs). The facility’s PTE is provided in Table-1 below:

Table 1: PTE of Facility

Pollutant	Emissions
	Tons per year
NO _x	2,840.86
PM ₁₀	19.44
CO	454.24
SO _x	3.30
VOCs	43.89
Formaldehyde	28.52

Notes:

1. Emissions of NO_x and CO are based on recent performance tests with a 20% buffer factor.
2. All other emissions are based on AP-42 emission factors.
3. Emissions from all equipment, except emergency generator, are based on continuous operation for 8,760 hours. Emissions for Ingersoll-Rand emergency generator are based on 550 hours of operation.

VI. 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
<p>Clark Reciprocating Engines (2-Stroke Lean Burn engines)</p> <p>Ingersoll Rand Reciprocating Engine Generator (4-Stroke, Rich Burn Engine)</p>	<p>None</p>	<p>A.A.C. R18-2-719</p> <p>40 CFR §63 Subpart ZZZZ</p>	<p>These standards are applicable to existing stationary rotating machinery.</p> <p>The engines and generators are not subject to NSPS Subpart IIII because they are not compression ignition engines.</p> <p>The engines and generators 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. Existing 2-stroke lean burn engines (Clark engines) and existing emergency stationary RICE (Ingersoll-Rand emergency generator) do not have to meet the requirements of 40 CFR §63 Subpart ZZZZ (40 CFR §63.6590(b)(3)).</p>
<p>GE gas turbines engine and Solar gas turbine generator</p>	<p>None</p>	<p>40 CFR 60 Subpart GG</p>	<p>The gas turbines were constructed after October 3, 1977, and are therefore subject to New Source Performance Standard (NSPS) Subpart GG.</p> <p>NSPS Subpart KKKK is applicable to stationary combustion turbines that commenced construction, modification or reconstruction after February 18, 2005. Both the GE and Solar turbines were constructed prior to this date and, hence, are not subject to NSPS Subpart KKKK. (In May 2008, the Solar turbine component was exchanged with like component. There was no increase in capacity or emissions due to this component exchange. Thus, it is not considered a modification, and hence, this turbine is not subject to NSPS Subpart KKKK.)</p> <p>NESHAP Subpart YYYYY is applicable to stationary combustion turbines located at major sources of HAPs. The GE turbine is exempt from these requirements as it was constructed before January 14, 2003. The Solar gas turbine was constructed after this date. However, as the peak power output of the Solar turbine is less than 1.0 megawatt (MW), it does not have to meet the requirements of the subpart as per 40 CFR 63.6090.b.3.</p>
<p>Fugitive dust sources</p>	<p>Water and other reasonable precautions</p>	<p>A.A.C. R18-2 Article 6</p> <p>A.A.C. R18-2-702.B</p>	<p>These are applicable to fugitive dust sources at the facility.</p>

Unit	Control Device	Rule	Verification
Mobile sources	Water Sprays/Water Truck for dust control	A.A.C. R18-2 Article 8	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	These standards are 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 or Renovation Operations	N/A	A.A.C. R18-2-1101.A.8	This standard is applicable to any asbestos related demolition or renovation operations.

VII. PREVIOUS PERMITS AND PERMIT CONDITIONS

A. PREVIOUS PERMITS

Table 3: PREVIOUS PERMITS

Permit #	Issue Date	Application Basis
28162	August 10, 2004	Title V Operating Permit
40117	January 17, 2007	Significant Permit Revision
48355	February 26, 2009	Minor Permit Revision

B. PREVIOUS PERMIT CONDITIONS

Table 4 compares the substantive conditions in Permit No. 28162 with the conditions in this renewal permit and cross-references the previous permit conditions to their location in the renewal permit

Table 4: Comparison of Previous and Current Permit Conditions

Permit No. 28162

Condition # in Permit No. 28162	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.

Condition # in Permit No. 28162	Determination				Comments
	Deleted	Kept	Revised	Streamlined	
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, and relocated as Condition I.B.2.
Condition I.C	x				This recordkeeping requirement for emissions related maintenance activities is unnecessary as Attachment "A" requires the retention of maintenance records. Hence, this is deleted.
Condition II.B			x		This condition for burning of "pipeline quality natural gas" has been revised to "natural gas".
Condition II.C.1		x			This condition for particulate matter and opacity emission standards is relocated as Condition II.D.1.
Condition II.C.2		x			The monitoring, reporting and recordkeeping requirements for particulate matter and opacity are relocated under Condition II.D.2.
Condition II.D			x		This condition for NO _x testing requirements is relocated as Condition II.E. The CO testing requirement is deleted as the CO emissions for each reciprocating engine are less than 100 tons per year, and there is no applicable emission standard to measure against.
Condition II.E.1		x			This reporting requirement for usage of high sulfur fuel is relocated as Condition II.B.3.
Condition II.E.2		x			This requirement for maintaining records of sulfur in natural gas is relocated as Condition II.B.2.
Condition III.B			x		This condition for burning of "pipeline quality natural gas" has been revised to "natural gas" and is renumbered as Condition III.B.1.
Condition III.C.1		x			This condition for NO _x emission standard for turbines been retained.
Condition III.C.2		x			This NO _x performance testing has been retained.

Condition # in Permit No. 28162	Determination				Comments
	Deleted	Kept	Revised	Streamlined	
Condition III.D	x				This CO performance test requirement has been deleted as there is no emission standard to measure against.
Condition III.E.1		x			This requirement of natural gas sulfur content is relocated as Condition III.B.1.
Condition III.E.2			x		This fuel monitoring and recordkeeping requirement has been revised to require appropriate documentation to demonstrate 20.0 grains per 100 scf, and is relocated as Condition III.B.2.
Section IV			x		These requirements for non-point sources have been updated with the most recent version used by ADEQ for general requirements. This Section is renamed as "Fugitive Dust Sources"
Condition V			x		These requirements for mobile sources have been updated with the most recent version used by ADEQ for general requirements.
Condition VI			x		These requirements for periodic activities have been updated with the most recent version used for general requirements.

Permit No. 40117

Condition # in Permit No. 28162	Determination				Comments
	Deleted	Kept	Revised	Streamlined	
Condition II.D.1			x		This condition for NO _x testing requirements is relocated as Condition II.E. The CO testing requirement is deleted as there is no emission standard to measure against.
Condition III.C.1		x			This Condition for NO _x emission standard for turbines been retained.
Section VII.A		x			This Condition for MACT requirements for emergency generator is relocated under Conditions II.C.1 and 2.

Condition # in Permit No. 28162	Determination				Comments
	Deleted	Kept	Revised	Streamlined	
Equipment List		x			The updated serial number for the Solar gas turbine to reflect a like-kind component exchange performed in May 2008 is retained.

VIII. MONITORING, RECORDKEEPING AND TESTING REQUIREMENTS

A. Reciprocating Engines

1. The Permittee is required to maintain appropriate documentation to demonstrate compliance with the fuel sulfur requirements and fuel heating value monitoring requirements.
2. The Permittee is required to perform a quarterly survey of visible emissions from the stacks of the reciprocating engines. If the results of the initial survey appear on an instantaneous basis to exceed the applicable standard, the Permittee is required to conduct a 6-minute Method 9 observation. If the observation shows the opacity reading in excess of the standard, the Permittee must report this to ADEQ as excess emission and initiate appropriate corrective action to reduce the opacity to a level below the standard. 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 maintain daily, monthly and 12-month total hours of operation for the Ingersoll-Rand generator for emergency, including operation for the purpose of maintenance checks and readiness testing, as well as non-emergency situations.

B. Gas Turbine engines

1. The Permittee is required to maintain appropriate documentation to demonstrate compliance with the fuel sulfur requirements and fuel heating value monitoring requirements.
2. The Permittee is required to perform annual performance tests on GE and Solar turbine engines for nitrogen oxide to determine compliance with the applicable emission limits as per the procedures outlined in 40 CFR 60.335, and using EPA Reference Method 20 to determine NO_x emissions.

IX. INSIGNIFICANT ACTIVITIES

The following table includes a list of activities proposed by EPNG Williams Compressor Station to be insignificant. This table includes an evaluation of whether the activity can be deemed as insignificant pursuant to A.A.C. R18-2-101.57.

Table 5

Equipment/Activity	Determination	Comment
Lube oil storage tanks	Insignificant	Insignificant pursuant to A.A.C. R18-2-101.57.c
Minor natural gas-fired appliances (space heaters)	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

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_x Nitrogen Oxides
- NSPS New Source Performance Standards
- PM Particulate Matter
- PM₁₀..... Particulate Matter with an aerodynamic diameter less than 10 microns
- PTE..... Potential-to-Emit
- SO₂..... Sulfur Dioxide
- TPY Tons per Year
- VOC..... Volatile Organic Compound