

**TECHNICAL REVIEW AND EVALUATION  
OF APPLICATION FOR  
AIR QUALITY PERMIT NO. 48784**

**I. INTRODUCTION**

This Class I, Title V operating permit renewal is for the operation of Transwestern Pipeline Company's Flagstaff Compressor Station which is located 13 miles west of Flagstaff in Coconino County, Arizona.

**A. Company Information**

Facility Name: Transwestern Pipeline Company, Flagstaff Compressor Station

Mailing Address: P.O. Box 1188  
Houston, TX 77251

Facility Address: 13 miles west of Flagstaff  
Coconino County, AZ 86002

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

The source is located in an area that is in attainment or unclassified for all criteria pollutants.

**II. PROCESS DESCRIPTION**

Transwestern Pipeline Company, herein referred to as TWP, provides natural gas transportation services for natural gas suppliers and end users throughout the southwestern United States. TWP 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 a natural gas fired turbine, a General Electric (GE) model LM2500 compression turbine, which drives the compressor unit. Primary electric power for the facility is purchased. There are two natural gas-fired generators on site to provide back-up power in case purchased power is lost.

From a common pipeline system, natural gas flows into the compressor. The compressor is driven by the natural gas fueled turbine engine. The turbine engine operates depending on the amount of natural gas being transported to various customers along the pipeline system.

The gas turbine stack is the primary source of air pollutant emissions. The primary pollutant present in the stack emissions is nitrogen oxides (NO<sub>x</sub>), which results from the combustion of natural gas. Other pollutants present in the emissions are sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), volatile organic compounds (VOCs), and particulate matter (PM).

**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 thresholds, as shown in the following table:

### Facility-Wide Emissions

Pollutant	Tons per Year
PM <sub>10</sub>	6.6
VOC	3.36
SO <sub>2</sub>	3.31
NO <sub>x</sub>	226.1
CO	78.83
Federal HAPs	<10 tpy for any one HAP <25 tpy for combination of HAPs

#### IV. COMPLIANCE HISTORY

Compliance history of the source has been reviewed, and there are no open enforcement actions against this facility.

#### V. LEARNING SITES

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 waste water treatment plant. Learning sites consist of all existing public schools, charter schools and private schools at 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.

The Department did not identify any learning sites within two miles of the facility.

#### VI. 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.

Unit ID	Year of Manufacture	Control Equipment	Applicable Regulations	Verification
General Electric (GE) LM2500 Gas Turbine	2001	None	<u>NSPS</u> 40 CFR 60 Subpart GG	Stationary Gas Turbine subject to Subpart GG of the NSPS

Unit ID	Year of Manufacture	Control Equipment	Applicable Regulations	Verification
526 hp Caterpillar G3508 Natural Gas Backup Generator Engines	2001	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  40 CFR § 63.6500 Subpart ZZZZ	Stationary Rotating Machinery subject to State rules  This engine is an affected facility under the Standards of Performance for New Stationary Sources 40 CFR 63 Subpart ZZZZ; however since it is not part of a major HAPs source, there are no applicable Subpart ZZZZ requirements for this engine.
Fugitive Sources	Not Applicable	Control Measures	<u>A.A.C.</u> R18-2-702.B R18-2-602 R18-2-604.A R18-2-604.B R18-2-605 R18-2-606 R18-2-607 R18-2-612	The regulations listed are applicable to fugitive dust sources
Abrasive Blasting	Not Applicable	Wet blasting, Enclosures or equivalent approved by Director	<u>A.A.C.</u> R18-2-702.B R18-2-726	Relevant requirements applicable to abrasive blasting
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

## VII. PREVIOUS PERMITS AND CONDITIONS

**A. Previous Permits**

The following table lists the previous permits that have been issued to Transwestern Pipeline Company, Flagstaff Station.

**Previous Permits**

<b>Date Permit Issued</b>	<b>Permit #</b>	<b>Application Basis</b>
04/16/1998	1000155	Title V Operating Permit
11/27/2001	1001602	Significant Revision
04/21/2004	29147	Title V Operating Permit Renewal
06/04/2008	45568	Significant Revision

**B. Previous Permit Conditions**

The following is a discussion of the previous permits that were issued to the source.

**TITLE V OPERATING PERMIT NO. 29147**

This operating renewal permit was issued to the Transwestern Pipeline Company Flagstaff Compressor Station on April 21, 2001, for the operation of three natural gas-fired turbo-charged reciprocating engines.

<b>Condition No.</b>	<b>Determination</b>				<b>Comments</b>
	<b>Revise</b>	<b>Keep</b>	<b>Delete</b>	<b>Stream-line</b>	
Att. A.	x				General Provisions - Revised to represent most recent permitting language
Att. B. Section I		x			Facility Wide Requirements – no changes were made to this section.
Att. B. Section II	x				NSPS Gas Turbine Requirements: The sulfur dioxide part of this section has been revised to allow the source to forego sulfur monitoring and, instead, maintain a copy of a valid tariff sheet pursuant to 40 CFR 60.334(h)(3)(i)
Att. B. Section III.	x				Generators: The generator section has been revised to remove reference to the 519 HP diesel generator which is no longer on site.

Condition No.	Determination				Comments
	Revise	Keep	Delete	Stream-line	
Att. B. Section IV			x		Heaters: This section has been deleted as the heaters have been removed from operation.
Att. B. Section V	x				Non-Point Source Requirements: This section has been moved to section IV in the new permit and has been renamed fugitive source requirements. This section has been revised to reflect most recent permitting language
Att. B. Section VI	x				Mobile Sources: This section has been moved to section V in the new permit. This section has been revised to reflect most recent permitting language.
Att. B. Section VII	x				Other Periodic Activities: This section has been moved to section VI in the new permit. This section has been revised to reflect most recent permitting language.

## VIII. PERIODIC MONITORING

### A. General Electric (GE) LM2500 Natural Gas-Fired Turbine

#### Sulfur Dioxide (SO<sub>2</sub>)

The Permittee must demonstrate that the gaseous fuel burned in the gas turbine meets the definition of “natural gas” in 40 CFR 60.331(u) by maintaining a current, valid purchase contract, tariff sheet, or transportation contract for the gaseous fuel, specifying that the maximum total sulfur content of the fuel is 20 grains/100 scf or less.

### B. Caterpillar G3508 Back-up Generators

#### 1. SO<sub>2</sub>

The Permittee must record daily the sulfur content and lower heating value of the fuel being fired in the generator.

#### 2. Opacity

A certified Environmental Protection Agency (EPA) Reference Method 9 observer must conduct a quarterly survey of visible emissions emanating from the stack of the generators. If the opacity of the emissions observed appears to exceed 40 percent, then the observer must conduct a certified EPA Reference Method 9 observation. The results of the Method 9 observations must be maintained and excess emissions reported.

### **3. Particulate Matter**

The Permittee must maintain a copy of that part of the Federal Energy Regulatory Commissions (FERC) approved tariff agreement that limits transmission of pipeline quality natural gas to having a heating value greater than or equal to 967 British thermal units per cubic foot.

### **E. Fugitive Dust Sources**

The Permittee must maintain records of the dates on which any reasonable precaution to prevent excessive amounts of particulate matter from becoming airborne is taken. In addition, a certified EPA Reference Method 9 observer must conduct a quarterly survey of visible emissions from fugitive dust sources. If the observer sees a plume that on an instantaneous basis appears to exceed 40%, then the observer must take a six minute Method 9 observation of the plume. If the six-minute opacity of the plume is less than 40%, then the observer must make a record of the location, date, time of the observation and the results of the Method 9 observation. If the six-minute opacity of the plume exceeds 40%, then the Permittee must adjust or repair the controls or equipment to reduce opacity to below 40% and report it as an excess emission.

## **IX. TESTING REQUIREMENT**

General Electric (GE) LM2500 Natural Gas-Fired Turbine

The Permittee is required to conduct a performance test for NO<sub>x</sub> annually and CO emissions testing one time during the permit term.

## **X. COMPLIANCE ASSURANCE MONITORING (CAM) (40 CFR 64):**

There are no add on emission controls on the General Electric (GE) LM2500 Natural Gas-Fired Turbine. CAM only applies to emission units with an add-on control device. Therefore, compliance assurance monitoring (CAM) does not apply.

## **XI. MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY (40 CFR 63)**

Transwestern Pipeline Company, Flagstaff Compressor Station does not generate emissions of HAPs above the major source threshold (10 tons per single HAP or 25 tons per total HAPs), and therefore, the Maximum Achievable Control Technology (MACT) regulations for stationary combustion turbines are not applicable. The stationary combustion turbine MACT is only applicable to sources which are classified as a major source for HAPs. Additionally, 40 CFR 60 Subpart ZZZZ (RICE MACT) applies to this facility as the engines are affected sources as defined under the Subpart, however, there are no applicable requirements as the engines are not located at a Major Source of HAPs.

**XII. 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
CAM	Continuous Assurance Monitoring
CFR	Code of Federal Regulations
CO	Carbon Monoxide
EPA	Environmental Protection Agency
FAR	Field Activity Report
FERC	Federal Energy Regulatory Commissions (FERC)
GE	General Electric
HAP	Hazardous Air Pollutant
hp	Horsepower
IC	Internal Combustion
lb/hr	Pound per Hour
MACT	Maximum Achievable Control Technology
NO <sub>x</sub>	Nitrogen Oxides
NSPS	New Source Performance Standard
O <sub>2</sub>	Oxygen
PM	Particulate Matter
PM <sub>10</sub>	Particulate Matter Nominally less than 10 Micrometers
PSD	Prevention of Significant Deterioration
SO <sub>x</sub>	Sulfur oxides
SO <sub>2</sub>	Sulfur Dioxide
TWP	Transwestern Pipeline Company
VOC	Volatile Organic Compound