



**TECHNICAL REVIEW AND EVALUATION
OF APPLICATION FOR
AIR QUALITY PERMIT No. 79880**

I. INTRODUCTION

This Class I air quality permit is issued to North Baja Pipeline LLC (NBP), the Permittee, for the continued operation of the Ehrenberg Compressor Station. The facility is located at Ehrenberg, La Paz County, Arizona. This permit supersedes the previous Class II Permit No. 65988.

A. Company Information

Facility Name: Ehrenberg Compressor Station
Mailing Address: 201 W. North River Dr., Suite 505, Spokane, WA 99201
Facility Location: 50650 Colorado River Road, Ehrenberg, AZ 85334

B. Attainment Classification

This facility is in an area designated as nonclassifiable/attainment for all criteria pollutants.

II. PROCESS DESCRIPTION

The Ehrenberg Compressor Station transports natural gas along the pipeline by receiving low-pressure inlet natural gas and compressing the stream to increase the pressure and maintain the downstream flow. The Ehrenberg Compressor Station has the ability to operate 7 days per week, 24 hours per day. The existing primary equipment consists of 2 gas-fired, centrifugal turbines, rated at 7,700 hp. The facility also has a 1,085 hp standby generator driven by a natural gas-fired reciprocating internal combustion engine.

NBP is proposing to modify the Ehrenberg Compressor Station and install one new 29,626 hp Solar Titan 250 turbine. This new turbine will be equipped with advanced dry-low-NO_x combustion controls, known by the manufacturer as SoLoNO_x. These controls reduce nitrogen oxides (NO_x) and peak combustion temperatures through the use of a lean, premixed air/fuel mixture and advanced combustion controls. As part of this modification, NBP will also be installing one fuel gas heater rated at 0.88 MMBtu/hr and a pipeline fluids tank with a capacity of 830 gallons. The pipeline fluids tank will be an insignificant activity under A.A.C. R18-2-101(68)(a)(iii).

III. COMPLIANCE HISTORY

Since the issuance of the last Class II Permit on October 12, 2017, the facility is in compliance with the applicable permit conditions. No air quality cases or violations were issued during the permit term. There were 2 performance test conducted, 2 facility inspections and one compliance certification.

IV. EMISSIONS

The facility has a potential-to-emit (PTE) more than the major source thresholds of nitrogen oxides (NO_x) and carbon monoxides (CO). The facility's PTE is provided in

Table 1 below:

Table 1: Potential to Emit

Pollutant	Emissions (tons per year)	Emissions Current (tons per year)	Emission Change	Minor NSR Thresholds	Minor NSR Triggered?
NO _x	117.30	64.47	52.83	20	Yes
PM ₁₀	10.26	3.96	6.30	7.5	No
PM _{2.5}	10.26	3.96	6.30	5	Yes
CO	144.78	74.03	70.75	50	Yes
SO ₂	2.71	2.03	0.68	20	No
VOC	44.11	30.81	13.30	20	No
HAPs	1.75	0.77	0.98	-	NA

V. MINOR NSR REVIEW

This facility triggers Minor NSR requirements. The Permittee submitted RACT analysis with the application as per A.A.C. R18-2-334.C.1.b. ADEQ also performed an air dispersion modeling to ensure that NAAQS in this nonclassifiable/attainment area will not be violated. Section X details the ambient air impact analysis results.

VI. APPLICABLE REGULATIONS

Table 2 displays the applicable requirements for each permitted piece of equipment along with an explanation of why the requirement is applicable.

Table 2: Applicable Regulations

Unit & year	Control Device	Rule	Discussion
Facility-Wide		R18-2-Article 4, 40 CFR §52.21	PSD regulation does not apply. PTE does not exceed 250 tpy for any regulated pollutant.
Gas Turbines, GT-3 and GT-4, GT-5		40 CFR 60 Subpart KKKK	These compressor units trigger 40 CFR 60 Subpart KKKK since these were manufactured after February 18, 2005 and greater than 10 MMBtu/hr.
		40 CFR 60 Subpart GG	Requirements in Subpart GG are not applicable to these units per 40 CFR §60.4305(b).
		40 CFR 63 Subpart YYYY	40 CFR 63 Subpart YYYY for stationary combustion turbines is only applicable to major sources of HAPs per 40 CFR §63.6085; therefore, this rule is not applicable.

Unit & year	Control Device	Rule	Discussion
Emergency Generator		<p>A.A.C. R18-2-719</p> <p>40 CFR 63 Subpart ZZZZ</p>	<p>Engines constructed prior to 2006 are subject to Existing Stationary Rotating Machinery standards under A.A.C. R18-2-719.</p> <p>The National Emission Standard for Hazardous Air Pollutants (NESHAP) Subpart ZZZZ is applicable to reciprocating internal combustion engines (RICE) located at major and area sources of HAPs.</p>
Fuel Gas Heater		<p>A.A.C. R18-2-724</p> <p>40 CFR 60 Subpart Dc</p>	<p>Standards of Performance for Fossil-fuel Fired Industrial and Commercial Equipment is applicable to any industrial and commercial installations which are less than 250 million Btu/hr, but in the aggregate on any premises are rated at greater than 500,000 Btu/hr. This unit is rated at 0.88 MMBtu/hr.</p> <p>Steam generating units are defined in 40 CFR §60.41c as devices that combust fuel and heat water or any heat transfer medium. This NSPS is applicable to steam generating units with a maximum design heat input capacity of greater than or equal to 10 MMBtu/hr, but less than or equal to 100 MMBtu/hr, which are constructed, modified or reconstructed after June 9, 1989 [per 40 CFR §60.40c(a)]. The proposed fuel gas heater is rated at 0.88 MMBtu/hr, so this NSPS is not applicable.</p>

Unit & year	Control Device	Rule	Discussion
Crude Oil and Natural Gas Facilities		40 CFR 60 Subpart OOOOa	NSPS for crude oil and natural gas facilities in 40 CFR 60 Subpart OOOOa. The Ehrenberg Compressor Station was not previously subject to Subpart OOOOa as the equipment and processes potentially subject to the regulation were installed prior to the applicability date of Subpart OOOOa. However, “fugitive emissions component” of the turbines as defined in 40 CFR §60.5430a will be subject to the requirements of Subpart OOOOa per 40 CFR §60.5365a(j).
Fugitive dust sources	Water Trucks Dust Suppressants	A.A.C. R18-2 Article 6 A.A.C. R18-2-702	These standards are applicable to all fugitive dust sources at the facility.
Abrasive Blasting	Wet blasting; Dust collecting equipment; Other approved methods	A.A.C. R-18-2-702 A.A.C. R-18-2-726	These standards are applicable to any abrasive blasting operation.
Spray Painting	Enclosures	A.A.C. R18-2-702 A.A.C. R-18-2-727	This standard is applicable to any spray painting 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.

VII. PREVIOUS PERMIT AND CONDITIONS

Permit No. 65988 was issued on October 12, 2017, for the continued operation of this facility. Table 3 below illustrates if a section in Permit No. 65988 was revised or deleted.

Table 3: Previous Permit Conditions

Section No.	Determination		Comments
	Revised	Delete	
Att. “A”	X		General Provisions: Revised to represent the most recent template language.
Att. “B” Section I	X		Facility wide requirements: Revised to represent the most recent template language.
Section II	X		Revised to incorporate requirements for new turbine GT-5.
Section III	X		This section was revised with a newer template.

Section No.	Determination		Comments
	Revised	Delete	
Section IV	X		This section for fugitive dust requirements was renumbered as section VI. Fuel gas heater requirements are included in section IV.
Section V		X	Mobile source requirements were deleted. ADEQ's air quality permits do not regulate mobile sources. NSPS Subpart OOOOa requirements are included in section V.
Section VI	X		Other Periodic activities was renumbered as section VII.
Att. "C"	X		Equipment List revised to reflect the most recent equipment operating at the facility and to include equipment information provided.

VIII. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

A. Facility Wide

1. The Permittee is required to conduct an instantaneous survey of visible emissions, at the specified frequency, from the process stack sources, when in operation, and fugitive dust sources.
2. Based on the appearance of the plume on an instantaneous basis, if less than or equal to the applicable opacity standard, then the Permittee is required to keep a record of the name of the observer, the date on which the instantaneous survey was made, and the results of the instantaneous survey.
3. If the plume on an instantaneous basis appears greater than the applicable opacity standard, then the Permittee is required to immediately conduct a six-minute observation of the plume and document the results.

B. Combustion Turbines Requirements

1. The Permittee must maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment is inoperative.
2. The Permittee is required to submit excess emissions and monitoring systems performance reports and/or summary report forms on a semi-annual basis.
3. The Permittee must operate and maintain the gas turbines, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including startup, blowdown, shutdown, and malfunction.

C. Emergency Generator

1. The Permittee must keep records of fuel supplier certifications documenting the lower heating value of the fuel and available to ADEQ upon request.

2. The Permittee is required to keep records of hours of operation, maintenance performed on the generator, including associated air pollution control equipment and monitoring equipment.

D. Fuel Gas Heater

The Permittee is required to keep records, of fuel supplier certifications that contain information regarding the name of fuel supplier and lower heating value of the fuel.

E. GHG and VOC Fugitive Emissions

1. The Permittee is required to develop an emissions monitoring plan that covers the collection of fugitive emissions components at compressor stations within each company-defined area in accordance with criteria as defined in the monitoring plan.
2. The Permittee is required to keep records of monitoring plans and monitoring survey.

F. Fugitive Dust

1. The Permittee is required to keep record of the dates and types of dust control measures employed.
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.

G. 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, quantity of paint used, any applicable SDS, 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.

IX. TESTING REQUIREMENTS

- A.** Permittee is required to conduct a performance test on the stacks of the gas turbine compressors to determine compliance with CO emission rate once during every permit term.
- B.** Permittee is required to perform annual performance tests for NOx emission. If the results from the performance test is less than or equal to 75 percent of the NOx emission limit for

the turbine, the Permittee may reduce the frequency of subsequent performance tests to once every 2 years (no more than 26 calendar months following the previous performance test). If the results of any subsequent performance test exceed 75 percent of the NO_x emission limit for the turbine, the Permittee must resume annual performance tests.

X. AMBIENT AIR IMPACT ANALYSIS

NBP has elected to demonstrate compliance with the minor NSR pollutant program by evaluating RACT. As specified in R18-2-334, notwithstanding the Permittee's election to conduct a RACT analysis for minor NSR pollutants, modeling may be required for such pollutants if the source or modification could interfere with attainment or maintenance of the NAAQS based on the Director's discretion. NBP has a relatively high facility-wide PTE of NO_x (117 tpy). Additionally, Desert Gas LLC, a natural gas liquefaction facility, is immediately adjacent to NBP. Therefore, ADEQ performed a cumulative impact analysis including both NBP and Desert Gas to determine whether the proposed project would interfere with attainment or maintenance of the 1-hour NO₂ NAAQS or not.

A. Model Selection

ADEQ used the most recent version (v19191) of American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) for the ambient impact analysis. AERMOD is the EPA-preferred model for estimating impacts at receptors located in simple terrain and complex terrain (within 50 km of a source) due to emissions from industrial sources. The AERMOD Modeling System consists of three major components: AERMAP, used to process terrain data and develop elevations for receptors; AERMET, used to process the meteorological data; and AERMOD, used to estimate the ambient pollutant concentrations.

B. Source Inputs

ADEQ modeled four emission sources within the NBP Ehrenberg facility (GT-3, GT-4, GT-5 and fuel gas heater) along with four emission sources within the Desert Gas facility. The emergency generator in the NBP Ehrenberg facility was exempted from 1-hour NO₂ modeling based on ADEQ Modeling Guidance. ADEQ obtained the emission rates and stack release parameters of the Ehrenberg sources from NBP. The source inputs for Desert Gas were based on the previous permit modeling.

C. Meteorological Data

ADEQ used AERMET meteorological preprocessor to process five-years (2014-2018) of surface meteorological data obtained from Blythe Airport, California along with concurrent upper air radiosonde data obtained from the Las Vegas Airport, Nevada. ADEQ determined that the Blythe Airport data were representative of transport and dispersion conditions in the project area.

D. Background Concentration

ADEQ used the ambient NO₂ monitoring data collected from Buckeye, Arizona as background concentrations. ADEQ estimated the background concentrations based on 98

percentile of the Seasonal Hour-Of-Day, taking diurnal and seasonal patterns of ambient air quality monitoring data into account.

E. Building Downwash

ADEQ evaluated building downwash effects based on building and stack location and dimensions, and the EPA's Building Profile Input Program Plume Rise Model Enhancements (BPIPPRME).

F. Ambient Air Boundary and Receptor Network

ADEQ used the perimeter fence line as the ambient air boundary for modeling purposes. ADEQ set up a receptor network to determine areas of maximum predicted concentrations. ADEQ used the AERMAP terrain processor to process the National Elevation Data (NED) data to generate the receptor elevations and hill heights.

G. One-Hour NO₂ Modeling Methodology

Per Appendix W Section 4.2.3.4-d, the EPA recommends three-tiered approach for 1-hour NO₂ modeling. Plume Volume Molar Ratio Method (PVMRM) and Ozone Limiting Method (OLM) are available as regulatory options in AERMOD as the preferred Tier 3 screening methods for NO₂ modeling. ADEQ selected PVMRM for 1-hour NO₂ modeling since the sources in the project site are elevated point sources. There are two key model inputs for PVMRM, namely in-stack ratios of NO₂/NO_x emissions and background ozone concentrations.

1. In-Stack Ratio

For gas turbines, ADEQ used an in-stack ratio of 0.17, which was used for 1-hour NO₂ modeling for El Paso Natural Gas Company (EPNG) Willcox Compressor Station. ADEQ used an in-stack ratio of 0.1 for other sources.

2. Ozone Data

ADEQ used five-years (2014-2018) of hourly ozone background concentrations obtained from the Blythe Airport, CA. For missing hours, ADEQ calculated the maximum ozone concentration for each diurnal hour for each month and then used these hourly maximum concentrations to fill in their corresponding missing diurnal hours.

H. Modeled Results

Table 4 summarizes the modeled results for 1-hour NO₂. As shown in Table 4, NO_x emissions from both NBP Ehrenberg and Desert Gas sites will not cause or contribute to a violation of the NAAQS for 1-hour NO₂.

Table 4: AERMOD Results

NAAQS Pollutant	Averaging Time	NAAQS ($\mu\text{g}/\text{m}^3$)	Maximum Ambient Concentration	Pass/Fail
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			(modeled plus background) ($\mu\text{g}/\text{m}^3$)	
NO ₂	1-hour	189	172	Pass

XI. LIST OF ABBREVIATIONS

A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
AERMAP	Terrain data preprocessor for AERMOD
AERMET	Meteorological data preprocessor for AERMOD
AERMOD	American Meteorological Society/EPA Regulatory Model
BPIP	Building Profile Input Program
Btu/hr	British Thermal Units per Hour
CFR	Code of Federal Regulations
CO	Carbon Monoxide
GHG	Greenhouse Gas
HAP	Hazardous Air Pollutant
hp	Horsepower
LNG	Liquefied Natural Gas
MMBtu	Million Btu
NAAQS	National Ambient Air Quality Standard
NED	National Elevation Data
NO _x	Nitrogen Oxides
NSR	New Source Review
NSPS	New Source Performance Standards
OLM	Ozone Limiting Method
PM	Particulate Matter
PM ₁₀	Particulate Matter Nominally less than 10 Micrometers
PRIME	Plume Rise Model Enhancements
PSD	Prevention of Significant Deterioration
PTE	Potential-to-Emit
PVMRM	Plume Volume Molar Ratio Method
RACT	Reasonable Available Control Technology
SDS	Safety Data Sheets
SO ₂	Sulfur Dioxide
tpy	Tons per Year
VOC	Volatile Organic Compound