

**TECHNICAL REVIEW AND EVALUATION
OF APPLICATION FOR
AIR QUALITY PERMIT No. 100459**

I. INTRODUCTION

This Class II Renewal permit is for the continued operation of Desert Gas LP, LLC's Ehrenberg facility. Permit No. 100459 renews and supersedes Permit No. 74201.

Desert Gas LP, LLC is an industrial facility that processes raw natural gas into liquefied natural gas (LNG). The facility operates two (2) boilers and one (1) heater totaling 5.9 MMBtu per hour and three (3) internal combustion engines totaling 3,294 HP, all combusting natural gas as fuel. The facility has the potential to emit significant quantities of nitrogen oxides (NO_x), and therefore in accordance with A.A.C. R18-2-302.B.2.a, a Class II permit is required.

A. Company Information

Facility Name: Desert Gas LP (DG)

Mailing Address: PO Box 240168
Anchorage, Alaska 9524

Facility Location: 50660 Colorado River Road
Ehrenberg, Arizona 85334

B. Attainment Classification

The facility is located in La Paz county. An area that is designated as attainment for all criteria pollutants.

II. PROCESS DESCRIPTION

The facility receives natural gas, removes any carbon dioxide (CO₂) and water vapor from the gas, then condenses the relatively pure methane (CH₄) into liquid natural gas (LNG). LNG is transported from the facility by trucks. The facility comprises of two (2) boilers rated at 1.5 and 4.2 MMBtu per hour, consecutively, one (1) heater rated at 0.2 MMBtu/hr, and three (3) generators with at a total rating of 3,294 HP. All the fuel burning equipment use natural gas as fuel.

III. COMPLIANCE HISTORY

The facility has undergone three (3) physical inspections during the previous permit term. The first inspection took place on June 3, 2019. No deficiencies were noted during the course of this inspection. The second inspection took place on October 29, 2019. No deficiencies were noted during the course of this inspection. The third and last inspection took place on February 4, 2022. No deficiencies were noted during the course of this inspection.

Desert Gas LP, LLC has submitted five (5) annual compliance certifications for review by ADEQ for the current permit issued in February 6, 2019. No deficiencies were noted for the remaining compliance certifications filed.

IV. EMISSIONS

Table 2 provides the facility's potential to emit. Boilers and heaters produce NO_x, Carbon Monoxide (CO), and Volatile Organic Compounds (VOCs). Tonnage per year (TPY) for these emissions calculations required emission factors from AP-42 Chapter 1.4, Tables 1 and 2 (units converted) with no control equipment. Calculation parameters for these estimates include annual operating hours and fuel heating value.

Desert Gas LP, LLC used emission factors for CO₂, VOCs, SO₂, Particulate Matter (PM), and Hazardous Air Pollutants (HAPs) from AP-42 Chapter 3.2 Table 2 for 4-stroke lean burn engines. Other emission factors are from vendor data with a safety margin added. CO is assumed to have a minimum of 70% removal from catalytic oxidizer. Calculation parameters for these estimates include equipment capacity in horsepower (HP), annual operating hours, and fuel heating value.

Table 1: Maximum Potential to Emit

Pollutant	Previous Capacity to emit (tons/yr)	Change in capacity to emit (tons/yr)	Current capacity to emit (tons/yr)	Minor NSR Triggered?
NO _x	73.7	-2.6	71.1	No
PM	0.3	-0.1	0.2	No
PM ₁₀	0.3	-0.1	0.2	No
PM _{2.5}	0.3	-0.1	0.2	No
CO	41.3	-0.1	41.2	No
SO ₂	0.1	+0.0	0.1	No
VOCs	12.8	-0.1	12.7	No
HAPs	7.9	-0.3	7.6	No

V. MINOR NEW SOURCE REVIEW (NSR)

This renewal permit does not trigger minor NSR upon the facility's PTE. ADEQ's dispersion modeling for the facility demonstrated that no NO_x emissions interfered with attainment and maintenance of NAAQS for 1-hour NO₂ emissions.

VI. APPLICABLE REGULATIONS

Table 2 identifies applicable regulations and verification as to why that standard applies. The table also contains a discussion of any regulations the emission unit is exempt from.

Table 2: Applicable Regulations

Unit	Controls	Rule	Discussion
Boiler and Heater	None	A.A.C. R18-2-724, 40 CFR Part 63, Subpart JJJJJ	Fossil-fuel equipment is subject to A.A.C. R18-2-724. 40 CFR Part 63, Subpart JJJJJ is not subject to gas-fired boilers and is therefore not applicable.
Internal Combustion Engines (ICE)	None	A.A.C. R18-2-719, 40 CFR Part 63 Subpart ZZZZ	<p>Subject to A.A.C. R18-2-719, Standards of Performance for Existing Stationary Rotating Machinery and 40 CFR Part 63 Subpart ZZZZ. The facility is categorized as an 'existing' area source, or remote site if the facility meets the criteria for the classification. At the time of this application, the facility is subject to non-remote site requirements.</p> <p>The engines are not subject to 40 CFR Part 60 Subpart JJJJ since the engines were manufactured prior to 2008.</p>
Fugitive Dust	Water Trucks, Dust Suppressants	A.A.C. R18-2 Article 6 A.A.C. R18-2-702	These standards are applicable to all non-point sources at the facility.
Abrasive Blasting	Wet Blasting, Dust Collectors, 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	These standards are applicable to any spray-painting operation.
Demolition/Renovation	N/A	A.A.C. R18-2-1101.A.8	This standard is applicable to any asbestos related demolition or renovation operations.

VII. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

Table 3 contains an inclusive but not an exhaustive list of the monitoring, recordkeeping and reporting requirements prescribed by the air quality permit. The table below is intended to provide insight to the public for how the Permittee is required to demonstrate compliance with the emission limits in the permit. Records are required be kept for a minimum of 5 years as outlined in Section XII of Attachment “A” of the permit.

Table 3: Permit No. 100459

Emission Unit	Pollutant	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
Boilers	PM	15% opacity	Conduct monthly-opacity monitoring of the stacks of all boilers.	Records of the fuel used in all the boilers.	Report all 6-minute periods which the opacity exceeded 15%.
Engines	PM	40% opacity – for any period greater than 10 seconds	Conduct periodic opacity monitoring on a monthly basis.	Maintain records of the lower heating value of the fuel.	N/A
	CO	N/A	Install, maintain, and operates oxidation catalyst in the exhaust of each ICE.	Maintain records of the maintenance conducted on the engine.	N/A
	NOx	814-HP Engine: 7.17 lb/hr	Subsequent performance tests every two years.	N/A	N/A
1,113-HP Engine: 9.80 lb/hr		N/A		N/A	

Emission Unit	Pollutant	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
		1,367-HP Engine: 12.04 lb/hr		N/A	N/A
Fugitive Dust	PM	40% Opacity	A Method 9 observer is required to conduct a monthly survey of visible emissions.	Record of the dates and types of dust control measures employed, and if applicable, the results of any Method 9 observations, and any corrective action taken to lower the opacity of any excess emissions.	N/A
Abrasive Blasting	PM	20% Opacity	N/A	Record the date, duration and pollution control measures of any abrasive blasting project.	N/A
Spray Painting	VOCs	20% Opacity Control 96% of the overspray	N/A	Maintain records of the date, duration, quantity of paint used, any applicable MSDS, and pollution control measures of any spray-painting project.	N/A
Demolition/ Renovation	Asbestos	N/A	N/A	Maintain records of all asbestos related demolition or renovation projects including the "NESHAP Notification for Renovation and Demolition Activities" form and all supporting documents	N/A

VIII. 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.

Upon review of ADEQ's database, it was determined that there is one learning site within 2 miles of the facility. As documented in Section XI, air dispersion modeling analysis has shown that the facility's operation will not adversely affect the learning sites.

IX. LIST OF ABBREVIATIONS

A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
AQD	Air Quality Division
A.R.S.	Arizona Revised Statutes
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CO ₂ e	CO ₂ equivalent basis
EPA	Environmental Protection Agency
ft	Feet
g	Gram
HAP	Hazardous Air Pollutant
HHV	Higher Heating Value
hp	Horsepower
hr	Hour
IC	Internal Combustion
NO _x	Nitrogen Oxides
NO ₂	Nitrogen Dioxide
PM	Particulate Matter
PM ₁₀	Particulate Matter less than 10 µm nominal aerodynamic diameter
PM _{2.5}	Particulate Matter less than 2.5 µm nominal aerodynamic diameter
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
sec	Seconds
SO ₂	Sulfur Dioxide Significant Impact Levels
TPY	Tons per Year
VOC	Volatile Organic Compound
yr	Year