

**TECHNICAL REVIEW AND EVALUATION
OF APPLICATION FOR
AIR QUALITY PERMIT No. 94111**

I. INTRODUCTION

This Class I permit renewal is for the continued operation of Arizona LNG, LLC’s Needle Mountain Liquefied Natural Gas (LNG) Plant. Permit No. 94111 renews and supersedes Permit No. 66295. A Class I permit is required because the facility’s potential to emit (PTE), without controls or operating limitations, of air pollutants exceeds the Title V threshold of 100 tons per year for the emissions of nitrogen oxides (NOx).

A. Company Information

Facility Name: Needle Mountain LNG Plant
Mailing Address: 5499 West Needle Mountain Road, Topock, AZ 86436
Facility Location: 5499 West Needle Mountain Road, Topock, AZ 86436

B. Attainment Classification

This facility is in Mohave County, which has no currently recognized nonattainment areas.

II. PROCESS DESCRIPTION

- A.** Process Equipment – Heat exchanger, gas turbines, compressors, demethanization units, amine absorbers, boilers, and slop oil tanks.
- B.** Control Devices – None.
- C.** Process Flow Diagram – Available in Appendix A.

III. COMPLIANCE HISTORY

There have been no records of compliance violation during this permit term. Four performance tests were conducted on the gas turbines with no reported failures.

Table 1: Performance Test Results

Emission Unit	Pollutant	Date of Test	Results of Performance Test
Solar Taurus 60 A-01 Engines	NOx	10/12-13/2017	Pass
Solar Centaur T4700 Engines	NOx	10/10/2019	Pass

Emission Unit	Pollutant	Date of Test	Results of Performance Test
Solar Centaur T4700 Engines	NO _x	10/09/2020	Pass
Solar Centaur T4700 Engines	NO _x	9/27/2021	Pass

IV. EMISSIONS

The PTE was calculated using manufacturer’s specification data, emission factors from 40 CFR Part 60 Subpart KKKK, global warming potential values from 40 CFR 98 Table A-1, and emission factors from EPA-453/R-95-017 applied to the flow rates and composition of process gas in the system.

The facility has a potential-to-emit (PTE) more than the Title V thresholds of 100 tons per year for NO_x. The facility’s PTE is provided in Table 2 below:

Table 2: Potential to Emit (tpy)

Pollutant	PTE
NO _x	202.44
PM ₁₀	7.88
PM _{2.5}	7.88
CO	41.08
SO ₂	22.51
VOC	4.78
HAPs	1.08 (single)/ 1.14(Total)
GHG (CO ₂ e)	50,375

V. APPLICABLE REGULATIONS

Table 3 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 3: Applicable Regulations

Unit & year	Control Device	Rule	Discussion
Solar Centaur Gas Turbine T4700 - 2009	N/A	40 CFR 60 Subpart KKKK	The gas turbine was rebuilt in 2009 resulting in an increase in horsepower rating. The effective date of Subpart KKKK is February 18, 2005. The unit is greater than 10 MMBtu/hr heat input. This turbine would be subject to the modified or reconstructed turbine standard of 150 ppm of NOx emissions under Subpart KKKK. The turbine is not subject to Subpart YYYY since the facility is not a major source of HAPs. The unit is also not subject to Part 64. Stationary combustion turbines regulated under Subpart KKKK are exempt from the requirements of Subpart GG.
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	These standards are 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.

VI. PREVIOUS PERMIT REVISIONS AND CONDITIONS

A. Previous Permit Revisions

No revisions were made to permit No. 66295.

B. Changes to Current Renewal

No revisions were made to permit No. 94111.

VII. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

Table 4 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.

Table 4: Permit No. 94111

Emission Unit	Pollutant	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
Stationary Combustion Turbines/Engines (subject to state regulations)	NO _x	150 ppm at 15% O ₂ or 1,100 ng/J (8.7lb/MWh).	Annual performance tests in accordance with A.A.C. R18-2-312.	Maintain records of performance tests and deviations.	The Permittee must submit a written report of the results of each performance test.
	SO ₂	110 ng/J (0.90 lb/MWh) or 26 ng/J (0.060 lb/MMBtu).	The Permittee shall monitor the total sulfur content of the fuel being fired in the turbine.	Permittee shall maintain fuel quality characteristics in a current, valid purchase contract, tariff sheet, or transportation contract for the fuel, specifying that the maximum total sulfur content in the natural gas is 20 grains of sulfur or less per 100 standard cubic feet and has potential sulfur emissions of less than 26 ng SO ₂ /J heat input.	The Permittee must submit a written report of the results of each performance test and report to the Director any daily period which the sulfur content exceeds 0.8%.
	PM	40% opacity – for any period greater than 10 seconds.	A Method 9 observer is required to conduct a monthly survey of visible emissions.	Maintain records of the lower heating value of the fuel.	Report all 6-minute periods which the opacity exceeded 15%.

Emission Unit	Pollutant	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
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.	Report all 6-minute periods which the opacity exceeded 15%.
Abrasive Blasting	PM	20% Opacity		Record the date, duration and pollution control measures of any abrasive blasting project.	
Spray Painting	VOC	20% Opacity Control 96% of the overspray		Maintain records of the date, duration, quantity of paint used, any applicable MSDS, and pollution control measures of any spray painting project.	
Demolition/ Renovation	Asbestos			Maintain records of all asbestos related demolition or renovation projects including the "NESHAP Notification for Renovation and Demolition Activities" form and all supporting documents	

VIII. COMPLIANCE ASSURANCE MONITORING (CAM)

The CAM rule applies to pollutant-specific emission units (PSEU) at a major Title V source if the unit meets all of the following criteria:

- A. The unit is subject to an emission limit or standard for the applicable regulated air pollutant;
- B. The unit uses a control device to achieve compliance with the emission limit or standard; and
- C. The unit has "potential pre-control device emissions" of the applicable regulated air pollutant equal to or greater than 100% of the amount (tons/year) required for a source to be classified as a major source. "Potential pre-control device emissions" means potential to emit (PTE, as defined in Title V) except emissions reductions achieved by the applicable control device are not considered.

The general purpose of monitoring required by the CAM rule is to assure compliance with emission standards by ensuring that control devices meet and maintain the assumed control efficiencies. Compliance is ensured through requiring monitoring of the operation and maintenance of the control equipment and, if applicable, operating conditions of the pollutant-specific emissions unit. For the PSEUs that have post control potential to emit equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source, for each parameter monitored, the owner shall collect four or more data values equally spaced over each hour. Such units are defined as "large" PSEUs. For all other PSEUs ("small" PSEUs), the monitoring shall include some data collection at least once per 24-hour period.

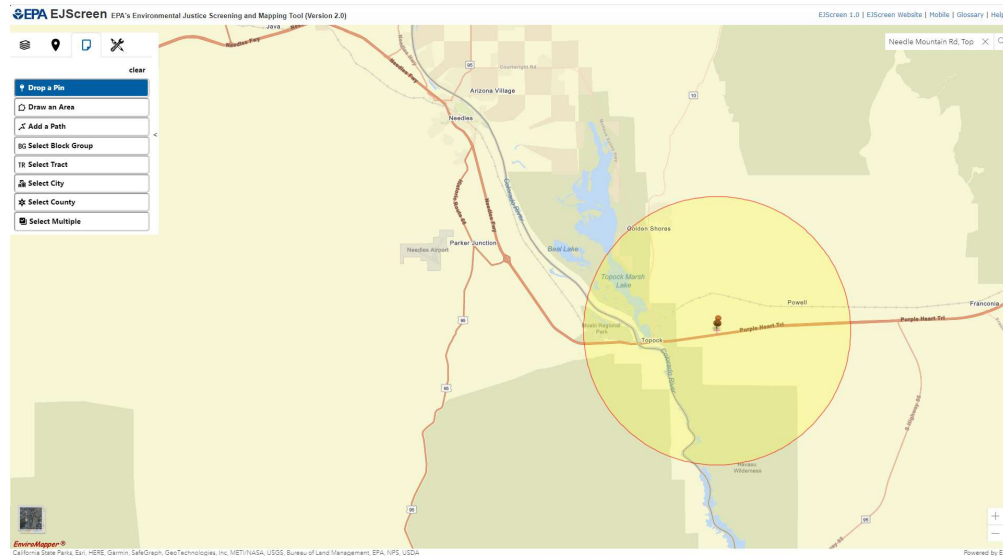
There are no CAM-applicable units at the Site.

IX. ENVIRONMENTAL JUSTICE ANALYSIS

The EPA (Environmental Protection Agency) defines Environmental Justice (EJ) to include the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and polices. The goal of completing an EJ assessment in permitting is to provide an opportunity for overburdened populations or communities to allow for meaningful participation in the permitting process. Overburdened is used to describe the minority, low-income, tribal and indigenous populations or communities that potentially experience disproportionate environmental harms and risks due to exposures or cumulative impacts or greater vulnerability to environmental hazards. The permit renewal does not allow or permit any increases in emissions and will not result in any additional impacts.

The EPA developed EJSCREEN, a publicly available tool that uses nationally consistent data, to produce maps and reports detailing environmental and demographic indicators that can be used to evaluate EJ concerns. The EPA selected an 90th percentile threshold for this action to evaluate the potential for EJ concerns in a community, meaning that if the area of interest exceeds the 90th percentile for one or more of the EJ indexes, the EPA considers that area to have a high potential for EJ concerns. The ADEQ mapped the location of the Needle Mountain Gas Plant and reviewed

a five-mile radius around the facility for potential environmental justice concerns (see Figure 1 below).



A. Demographics

The ADEQ relied on data from the EPA EJ Screen tool to assess the demographics of the communities near the location of the facility. The EJSCREEN report shows that the Demographic Indicators; Minority Population, Linguistically Isolated Population, Low Income Population, and Population Under 5 years of age are below the 90th percentile threshold. Population over 64 years of age are above the 90th percentile threshold. The Demographic Indicator for Population with Less Than High School Education was in the 58th percentile compared to the USA average and Population over Age 64 was over the 98th percentile compared to USA average and 93rd percentile compared to the Arizona average. ADEQ posts a notice in two newspapers of general circulation within the surrounding community, as well as publishes the notice electronically to ensure that the community has ample opportunity to provide comments on the draft documents prior to a final permitting decision.

B. Summary of Air Quality

The ADEQ relied on data from the EPA EJ Screen tool to assess the pollution and sources with regards to air quality for the communities near the location of the facility. The Ozone indicator was in the 91st percentile compared to the USA average, but in the 48th percentile compared to the Arizona average. All other air quality indicators were under the 90th percentile compared to the USA and Arizona averages. Additionally, the permittee conducted AERSCREEN modeling analysis with their original permit application to demonstrate compliance with the NAAQS. The table below lists the modeling summary. Based on the modeling analysis results, ADEQ has determined that the issuance of the air quality permit renewal will not interfere with attainment of the NAAQS, and will not have an adverse impact on the community.

Table 5: Modeling Results

Pollutant	Averaging Period	Modeled Concentration ($\mu\text{g}/\text{m}^3$)	Background Concentration ($\mu\text{g}/\text{m}^3$)	Modeled + Background ($\mu\text{g}/\text{m}^3$)	NAAQS ($\mu\text{g}/\text{m}^3$)	Exceed NAAQS?
PM ₁₀	24-Hour	2.1	56.7	59	150	No
PM _{2.5}	Annual	0.4	6.6	7.0	15	No
	24-Hour	2.1	13.1	15.2	35	No
SO ₂	3-Hour	13.2	39.3	52.5	1,300	No
	24-Hour	5.9	13.1	19.0	365	No
	Annual	1.2	6.6	7.7	80	No
NO _x	Annual	2.7	53.2	56	100	No
CO	8-Hour	18.8	5,587	5,606	10,000	No
	1-Hour	26.8	6,928	6,955	40,000	No

C. Conclusion

The ADEQ concludes that the protections afforded by Arizona Revised Statutes (A.R.S.) § 49-426, which is imposed through the permit, ensure that the public health and environment in Arizona are protected and that the public notice and comment opportunities afforded to the community on this new permit application satisfy the public participation component of the EPA EJ Guidance. The dispersion modeling ADEQ conducted further concludes that Arizona LNG, LLC demonstrates compliance with the NAAQS and that the emissions from the facility will not result in any significant environmental or public health impacts.

X. LEARNING SITE EVALUATION

In accordance with ADEQ’s Environmental Permits and Approvals near Learning Sites Policy, the Department is required to conduct 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.

This permit renewal will not result in any increase in emissions as there are no changes to any equipment. Hence the facility is exempt from the learning sites evaluations.

XI. LIST OF ABBREVIATIONS

- A.A.C..... Arizona Administrative Code
- ADEQArizona Department of Environmental Quality
- AERMODAMS/EPA Regulatory Model
- AERMET AERMOD Meteorological Preprocessor
- AMS..... American Meteorological Society

AQD.....	Air Quality Division
AQRV	Air Quality Related Values
ARM	Ambient Ratio Method
A.R.S.....	Arizona Revised Statutes
BACT.....	Best Available Control Technology
Btu/ft ³	British Thermal Units per Cubic Foot
CAM	Compliance Assurance Monitoring
CEMS.....	Continuous Emissions Monitoring System
CFR.....	Code of Federal Regulations
CH ₄	Methane
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CO ₂ e.....	CO ₂ equivalent basis
EPA	Environmental Protection Agency
FERC	Federal Energy Regulatory Commission
FLM.....	Federal Land Manager
°F.....	degrees Fahrenheit
ft.....	Feet
g	Gram
GHG.....	Greenhouse Gases
HAP	Hazardous Air Pollutant
HHV.....	Higher Heating Value
hp	Horsepower
hr.....	Hour
IC	Internal Combustion
kW.....	Kilowatt
MW.....	Megawatts
NAAQS.....	National Ambient Air Quality Standard
NO _x	Nitrogen Oxides
NO ₂	Nitrogen Dioxide
N ₂ O	Nitrous Oxide
NSPS.....	New Source Performance Standards
O ₃	Ozone
Pb	Lead
PM.....	Particulate Matter
PM10.....	Particulate Matter less than 10 µm nominal aerodynamic diameter
PM2.5.....	Particulate Matter less than 2.5 µm nominal aerodynamic diameter
PSD	Prevention of Significant Deterioration
psia.....	Pounds per square Inch (absolute)
PTE	Potential to Emit
sec	Seconds
SF ₆	Sulfur Hexafluoride
SIA.....	Significant Impact Area
SIL	Significant Impact Level
SO ₂	Sulfur Dioxide Significant Impact Levels
TPY.....	Tons per Year
VOC.....	Volatile Organic Compound
yr.....	Year