



**TECHNICAL REVIEW AND EVALUATION
OF APPLICATION FOR
AIR QUALITY PERMIT NO. 96392**

I. INTRODUCTION

This Class I air quality permit is issued to UNS Electric (UNSE), Inc., the Permittee, for the continued operation of a peaking power plant identified as Black Mountain Generating Station (BMGS). BMGS is located approximately 11 miles southwest of the town of Kingman, Arizona. This permit renews and supersedes Permit No. 69273.

Without the limits or controls specified in the permit, BMGS has the capacity to emit nitrogen oxide (NO_x) and carbon monoxide (CO) in excess of major source thresholds. It has taken a limit on NO_x and CO to avoid Prevention of Significant Deterioration (PSD) requirements. BMGS is a minor source for hazardous air pollutants (HAPs) as individual and combined HAPs are less than 10 and 25 tons per year, respectively.

Therefore, the facility qualifies for a Class I permit under Arizona Administrative Code (A.A.C.) R18-101.75.c.

A. Company Information

Facility Name: UNS Electric, Inc. – Black Mountain Generating Station
Facility Location: Approximately 11 Miles Southwest of Kingman, AZ
Mailing Address: P.O. Box 711, Mail Stop HQW705

B. Attainment Classification

The facility is located Mohave County. An area designated as attainment or unclassified for all criteria pollutants.

II. PROCESS DESCRIPTION

A. Process Description

BMGS was installed to supply peaking power and/or backup power as well as voltage stabilization for the UNSE service territory in Mohave County. It consists of two simple cycle combustion turbine/generator units with a nominal net capacity of 45 MW each for a total of 90 MW. These are known as Gas Turbine Units 1 and 2, and are fired exclusively on natural gas.

Moreover, the facility includes ancillary equipment, a black start generator, a fire pump, a chiller cooling tower, a wastewater evaporation pond, access and plant roads, office and control facilities, a substation along with associated distribution lines, warehouses for electric service and an outside storage area for transformers and other equipment.

B. Control Devices

Gas Turbine Units 1 and 2 use water injection systems to control NO_x emissions. Moreover, the cooling tower is quipped with a drift eliminator.

III. LEARNING SITE EVALUATION

In accordance with the 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 in K-12 levels, 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 the Arizona Department of Environmental Quality (ADEQ).

This permit renewal will not result in an increase in emissions and thus, this permitting action is exempt from a learning site evaluation.

IV. COMPLIANCE HISTORY

Since the issuance of Permit No. 69273, ADEQ has conducted four (4) facility inspections. No compliance deficiencies were noted during the course of these inspections. The last facility inspection took place on November 8, 2022.

Moreover, the facility has submitted ten (10) semiannual compliance certifications. In addition, it has reported four (4) excess emissions. The last one was submitted on July 7, 2021. There have been no additional violations since then.

V. EMISSIONS

The facility's potential to emit (PTE) was calculated using AP-42, *Compilation of Emission Factors*, as well as voluntarily accepted emission limitations. NO_x and CO emission limitations of 244 tons per year were taken to avoid PSD requirements. Moreover, emissions from the emergency diesel generator and the fire pump engine were derived based on 500 hours of operation per year.

The facility's PTE is illustrated in Table 1 below:

Table 1: PTE (typ)

Pollutant	PTE
PM ₁₀	26.43
PM _{2.5}	26.43
NO _x	244.00
CO	244.00
SO ₂	7.28
VOCs	7.59

HAPs	3.57
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VI. VOLUNTARILY ACCEPTED EMISSION LIMITATIONS

The permit contains the following voluntary emission limitations:

Emission Limitations

- A. The facility accepted a voluntary emission limitation not to exceed 244 tons per year of total combined emissions of NO_x from the Gas Turbine Units 1 and 2, Emergency Diesel Generator Engine, and Fire Pump Engine. The emission limitation was incorporated into Permit No. 42864 which was issued back in 2007.
- B. The facility accepted a voluntary emission limitation not to exceed 244 tons per year of total combined emissions of CO from the Gas Turbine Units 1 and 2, Emergency Diesel Generator Engine, and Fire Pump Engine. The emission limitation was incorporated into Permit No. 42864 which was issued back in 2007.

VII. APPLICABLE REGULATIONS

Table 2 identifies applicable regulations and why that standard applies:

Table 2: Applicable Regulations

Emission Unit	Control Device	Rule	Discussion
Gas Turbine Units 1 and 2	Water Injection Systems	NSPS 40 CFR Part 60 Subpart A; NSPS 40 CFR Part 60 Subpart GG	Gas Turbine Units 1 and 2 are subject to NSPS 40 CFR Part 63 Subpart A for General Provisions and NSPS 40 CFR Part 60 Subpart GG for Stationary Gas Turbines. This is because they were manufactured after October 3, 1977 and each one has a maximum capacity greater than 10 MMBtu/hr. However, they are not subject to NSPS 40 CFR 60 Subpart KKKK for Stationary Combustion Turbines because they were manufactured prior to February 18, 2005, or NESHAP 40 CFR Part 63 Subpart UUUUU for Electric Utility Steam Generating Units because they use natural gas.
Cooling Tower	N/A	A.A.C. R18-2-730	The cooling tower is subject to A.A.C. R18-2-730 for Unclassified Sources.

Emission Unit	Control Device	Rule	Discussion
Emergency Diesel Generator and Fire Pump Engine	N/A	NSPS 40 CFR Part 60 Subpart III	The emergency diesel generator and fire pump engine are subject to NSPS 40 CFR Part 60 Subpart III for Stationary Compression Ignition Internal Combustion Engines because they were manufactured after 2006.
Fugitive Dust	Water Trucks; Dust Suppressants; Other Approved Methods	A.A.C. R18-2-Article 6	Any non-point source of fugitive dust is subject to A.A.C. R18-2-Article 6.
Abrasive Blasting	Wet Blasting; Dust Collecting Equipment; Other Approved Methods	A.A.C. R-18-2-702; A.A.C. R-18-2-726	Any abrasive blasting operation is subject to these rules.
Use of Paints	Enclosures	A.A.C. R18-2-702; A.A.C. R-18-2-727	Any spray painting operation is subject to these rules.
Demolition and Renovation	N/A	A.A.C. R18-2-1101.A.12	Any asbestos related demolition or renovation is subject to these rules.

VIII. PREVIOUS PERMIT REVISIONS AND CONDITIONS

A. Previous Permit Revisions

There were two (2) permit revisions during the previous permit term:

1. **Administrative Amendment No. 72208**

On July 3, 2018, the facility requested a change in opacity for fugitive dust requirements due to a typographical error.

2. **Facility Change without a Permit Revision No. 86064**

On October 15, 2020, the facility requested to upgrade its control system.

B. Changes to Current Renewal

Table 3 addresses the changes made to the sections and conditions from Permit No. 69273:

Table 3: Previous Permit Conditions

Section No.	Determination			Comments
	Added	Revised	Deleted	
Att. "A"		X		General Provisions – Updated emissions inventory questionnaire, permit deviations reporting and testing requirements.
Att. "B", Section I		X		Facility-Wide Requirements – Added applicability statement. Revised opacity, monitoring, recordkeeping, and reporting requirements. Updated citations and cross-references.
Att. "B", Section II		X		Gas Turbine Unit Requirements – Revised applicability statement. Updated general provisions. Updated citations and cross-references.
Att. "B", Section III		X		Cooling Tower Requirements – Revised applicability statement. Updated cross-reference.
Att. "B", Section IV		X		Emergency Diesel Generator and Fire Pump Engine Requirements – Revised applicability statement and fuel requirements. Confirmed emission standards. Updated operation and maintenance requirements. Updated citations and cross-references.
Att. "B", Section V		X		Fugitive Dust Requirements – Revised survey of visible emissions and air pollution control requirements. Updated citation and cross-reference.
Att. "B", Section VI			X	Mobile Source Requirements – Deleted as it is no longer applicable.
Att. "B", Section VII		X		Other Periodic Activities – Revised survey of visible emissions requirements. Updated citations and cross-references.
Att. "C"		X		Equipment List – Updated equipment list. Added "A.A.C. / NSPS / NESHAP" column.

IX. 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 facility is required to demonstrate compliance with the emission limits and standards in the permit.

Table 4: Permit No. 96392

Emission Unit	Pollutant	Emission Limitation	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
Gas Turbine Units 1 and 2	NO _x , CO	<p>< 244 Tons Per Year of NO_x</p> <p>< 244 Tons Per Year of CO</p>	<p>Monitor NO_x and diluent (O₂ or CO₂) concentrations using a CEMS.</p> <p>Monitor CO and diluent (O₂ or CO₂) concentrations using a CEMS.</p> <p>Monitor fuel flow rates.</p>	<p>Record the occurrence and duration of any startup, shutdown, or malfunction, any malfunction of air pollution control equipment, or any periods during which a continuous monitoring system or monitoring device is inoperative.</p> <p>Maintain 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 standard cubic feet or less.</p>	Report any NO _x and/or CO exceedance.
Cooling Tower	PM	Refer to A.A.C. R18-2-730.A	Conduct a quarterly survey	N/A	N/A

Emission Unit	Pollutant	Emission Limitation	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
			of visible emissions.		
Emergency Diesel Generator and Fire Pump Engine	Products of Combustion	Refer to Table 4 of NSPS 40 CFR Part 60 Subpart IIII		Keep records of fuel supplier certifications. Keep records of the hours of operation that are recorded through the non-resettable hour meter on a 12-month rolling total.	N/A
Fugitive Dust	PM	40 Percent Opacity	Conduct a quarterly survey of visible emissions.	Record the dates and types of dust control measures employed.	N/A
Abrasive Blasting	PM	20 Percent Opacity	Conduct a survey of visible emissions (if applicable).	Record the date, duration and type of control measures employed for any abrasive blasting project.	N/A
Use of Paints	VOCs	20 Percent Opacity	Conduct a survey of visible emissions (if applicable).	Record the date, duration and type of control measures employed, Safety Data Sheets for all paints and solvents used and the amount of paint consumed for any spray painting operation.	N/A

Emission Unit	Pollutant	Emission Limitation	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
Demolition and Renovation	Asbestos	N/A	N/A	Maintain records of all asbestos related demolition and renovation.	N/A

X. COMPLIANCE ASSURANCE MONITORING (CAM)

The CAM rule applies to pollutant-specific emission units (PSEUs) at a Title V source if a 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 in tons per year required for a source to be classified as a major source. "Potential pre-control device emissions" means potential to emit except emission reductions achieved by the applicable control device are not taken into account.

Gas Turbine Units 1 and 2 are subject to emission limitations for NO_x and CO. The PSEUs have potential pre-control device emissions equal to or greater than 100 percent of the amount, in tons per year, required for a facility to be classified as a major source. However, the facility uses CEMS with the water injection systems and thus, the CAM rule does not apply to these PSEUs.

XI. ENVIRONMENTAL JUSTICE ANALYSIS

This permit renewal will not result in an increase in emissions and thus, an environmental justice analysis was not conducted.

XII. LIST OF ABBREVIATIONS

A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
BMGS	Black Mountain Generating Station
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emissions Monitoring System
CFR	Code of Federal Regulations
CO	Carbon Monoxide
EPA	Environmental Protection Agency
HAPs	Hazardous Air Pollutants
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOV	Notice of Violation
NO _x	Nitrogen Oxides
NSPS	New Source Performance Standards
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
PSEUs	Pollutant-Specific Emission Units
PTE	Potential to Emit
SO ₂	Sulfur Dioxide
tpy	Tons Per Year

UNSE UNS Electric
VOCs Volatile Organic Compounds