

**TECHNICAL REVIEW AND EVALUATION
OF APPLICATION FOR
AIR QUALITY PERMIT No. 109672**

I. INTRODUCTION

This Class I air quality permit is issued to Yuma Cogeneration Associates (YCA), the Permittee, for the continued operation of a cogeneration facility. The facility is located at 280 North 27th Drive or approximately 4.0 miles north of Yuma, AZ. This permit renews and supersedes Permit No. 84154.

YCA was installed to supply electricity for sale and provide power for the California Independent System Operator (CAISO). It consists of a combustion turbine with a nominal net capacity of 36.7 MW and a steam turbine with nominal net capacity of 18.3 MW for a total of 55 MW. A Heat Recovery Steam Generator (HRSG) uses heat from the gas turbine to provide high pressure steam for the steam turbine as well as intermediate- and low-pressure steam. A 20 MMBtu/hr gas fired auxiliary boiler is used to generate intermediate-pressure steam for industrial customers when the combustion turbine is not in operation. The facility is a major source because its potential to emit (PTE) nitrogen oxides (NO_x) is greater than 100 tons per year. Therefore, a Class I permit is required in accordance with R18-2-101(76).

Permit No. 84154 had an expiration date of December 29, 2025, and the application for this permit renewal was submitted on May 20, 2025. This submission met the permit condition requiring that a complete and timely application be submitted by the Permittee at least six (6) months, but no earlier than eighteen (18) months, prior to the expiration date of the current permit.

A. Company Information

Facility Name: Yuma Cogeneration Associates

Mailing Address: 280 North 27th Drive
Yuma, AZ 85364

Facility Location: 280 North 27th Drive
Yuma, AZ 85364

B. Attainment Classification

The facility is located in Yuma County, and in a non-attainment area for particulate matter with a diameter less than 10 microns (PM₁₀). The area is designated attainment or unclassified for all other criteria pollutants.

II. PROCESS DESCRIPTION

A. Process Equipment

YCA's main operation consists of generating electricity for sale to Imperial Irrigation District (IID). YCA also provides low-pressure steam and intermediate-pressure steam to an industrial customer in the vicinity. The maximum process rates at YCA are summarized in Table 1.

Table 1: Equipment List

Unit	Capacity
GE Frame 6 Gas Turbine	36.7 MW
Condensing Steam Turbine Generator	18.3 MW
Duct Burner	45 MMBtu/hr
Auxiliary Boiler	20 MMBtu/hr
Cooling Tower	18,000 gpm

The General Electric Frame 6 turbine is fired by natural gas containing less than 0.8% sulfur by weight and is authorized to operate 8760 hours per year.

A HRSG uses waste heat from the gas turbine exhaust to generate -high, -intermediate, and -low pressure steam. High-pressure steam from HRSG is sent to the steam turbine generator, which generates additional electricity. Low-pressure steam from the HRSG is either condensed and returned to the HRSG or is sent to the nearby industrial customer for process heating. Intermediate-pressure steam from the HRSG is also sent to the industrial customer for process heating.

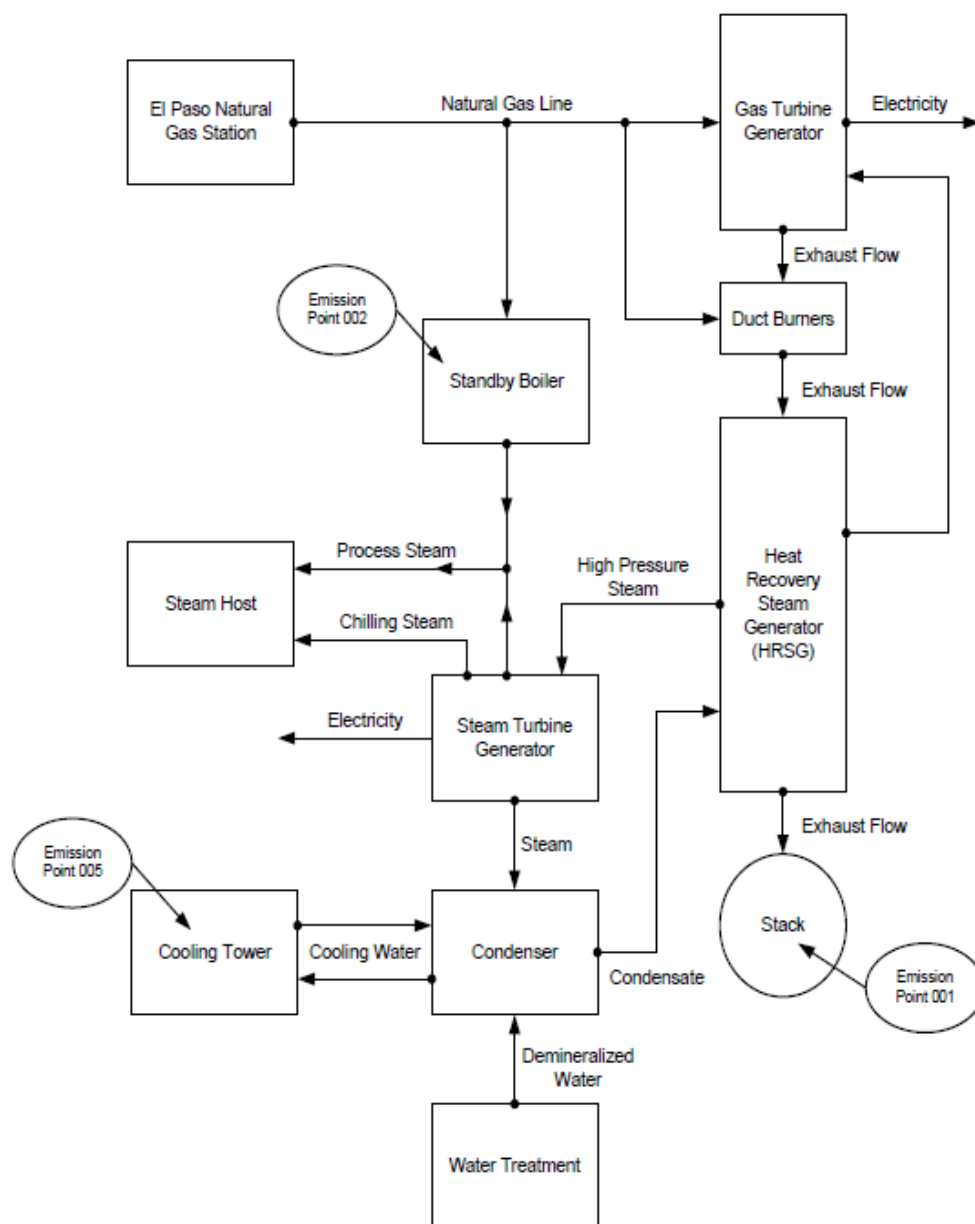
A gas-fired duct burner, fueled by natural gas, increases the temperature of the combustion turbine's exhaust thereby increasing the efficiency of steam generation in the HRSG. One 20 million Btu/hour gas fired standby boiler generates intermediate-pressure steam for the industrial customer in the event of shut down of the gas turbine.

The gas turbine and duct burner emissions along with the combustion products are exhausted into the atmosphere through an 85-foot high stack. An induced air draft cooling tower is used to complete the steam generator/condenser closed cycle by rejecting waste heat from the steam condenser to the atmosphere.

A. Control Devices

NO_x emissions from the facility are controlled by using a steam-injection system for the combined cycle gas turbine

B. Process Flow Diagram



III. COMPLIANCE HISTORY

During the permit term for LTF #84154, YCA submitted nine semiannual compliance certifications to ADEQ certifying compliance with the permit. In addition to the compliance

certification reports, YCA submitted 18 monitoring reports. These reports resulted in no Notice of Violations (NOV) or Notices of Opportunity to Correct (NOC).

Yuma Cogeneration Associates was inspected four times during the compliance period. No inspections resulted in any NOV's or NOCs.

No Permit Deviations or Excess Emissions were submitted during the compliance period.

There were four performance tests conducted during the compliance period. Table 2 shows the results and dates of the performance tests.

Table 2: Performance Test Results

#	Emission Unit	Pollutant	Date of Test	Limit	Results	
1	Frame 6 Combustion Turbine	NO _x	June 2, 2020	25 ppm	22.7 ppm	Pass
2	Frame 6 Combustion Turbine	NO _x	July 2, 2019	25 ppm	22.9 ppm	Pass
3	Frame 6 Combustion Turbine	NO _x	May 1, 2018	25 ppm	21.9 ppm	Pass
4	Frame 6 Combustion Turbine	n/a	June 4, 2016	RATA* only	RATA* only	Pass

*Relative Accuracy Test Audit

IV. EMISSIONS

Emissions calculations for all pollutants primarily used AP-42. Emission calculations for NO_x emissions from the gas turbine used performance testing results. PM₁₀ and PM_{2.5} for cooling towers used AP-42 for the total PM and a size distribution test to determine the percentage of PM that was PM₁₀ and PM_{2.5}.

There were no changes in emissions from Permit No. 84154. The method used in this and the prior application is the more conservative emission factors for SO₂ used in earlier permits for YCA.

The facility has a potential-to-emit (PTE) more than the major source threshold of NO_x and more than the significant thresholds for PM₁₀, PM_{2.5} and CO. The facility's PTE is provided in Table 3 below:

Table 3: Potential to Emit (tpy)

Pollutant	Current PTE
NO _x	237.73

PM ₁₀	22.12
PM _{2.5}	15.86
CO	85.48
SO ₂	1.44
VOC	5.90
HAPs	2.65
GHG (CO ₂ e)	276,665

V. MINOR NEW SOURCE REVIEW (NSR)

Minor new source review was not required for this permitting action since there is no increase in emissions or changes to the method of operations being implemented with this permitting action.

VI. VOLUNTARILY ACCEPTED EMISSION LIMITATIONS AND STANDARDS

The permit contains the following voluntarily accepted emission limitations and standards:

NOx: The unit is subject to the NOx standard prescribed in the New Source Performance Standard for Stationary Gas Turbines (40 CFR Subpart GG). The emission limit calculated by the equation is 98 ppm. However, the unit will be limited to the guaranteed performance emission rate provided by the manufacturer. This limit is 25 parts per million, at 15% oxygen (on a 3-hour average).

VII. APPLICABLE REGULATIONS

Table 4 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 4: Applicable Regulations

Unit	Control Device	Rule	Discussion
GE Frame 6 gas turbine 36.7 MW	Steam Injection System	New Source Performance Standards (NSPS) Subpart GG National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart YYYYY	Subpart GG is applicable to stationary gas turbines that started after October 3, 1977, and with a heat input at peak load equal to or greater than 10.7 gigajoules (10 million Btu) per hour, based on the lower heating value of the fuel fired. The unit commenced construction after October 3, 1977 and is greater than 10 MMBtu/hr capacity. Therefore, NSPS Subpart GG is applicable. Subpart YYYYY is applicable to stationary combustion turbines located at a major source of HAPs emissions. YCA is not a major source of HAPs and therefore NESHAP Subpart YYYYY is not applicable.
Duct Burner 45 MMBtu/hr Auxiliary Boiler 20 MMBtu/hr	None	NSPS Subpart Dc	This subpart is applicable to steam generating units that commenced construction, modification, or reconstruction after June 9, 1989, and have heat capacity between 10 and 100 MMBtu/hr. The Duct burner and auxiliary boiler, were manufactured in the years 1998 and 1993, have heat capacities fall in the range of 10 to 100 MMBtu/hr. Therefore NSPS Subpart Dc is applicable.

Unit	Control Device	Rule	Discussion
Reciprocating Internal Combustion Engine	None	A.A.C. R18-2-719 NSPS Subpart IIII National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart ZZZZ	These regulations are applicable to internal combustion engines. Applicability date for NSPS Subpart IIII for compression ignition engines is April 11, 2006. NSPS Subpart IIII is not applicable for this engine. YCA is an area source for HAPs. Since the construction of the RICE commenced before June 12, 2006, this engine is classified as 'existing' and is subject to the requirements of NESHAP Subpart ZZZZ.
Cooling Tower	None	A.A.C. R18-2-702.B.1 A.A.C. R18-2-730.A.1 A.A.C. R18-2-730.D A.A.C. R18-2-730.G	These regulations are applicable to all unspecified sources.
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.

VIII. PREVIOUS PERMIT REVISIONS AND CONDITIONS

Changes to Current Renewal

Table 6 addresses the changes made to the sections and conditions from Permit No. 84154:

Table 5: Previous Permit Conditions

Section No.	Determination			Comments
	Added	Revised	Deleted	
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
Att. "B" Section II		X		GE Frame 6 Turbine Requirements: Updated general provisions. Updated NOx Monitoring, Reporting, and Recordkeeping. Updated citations and cross-references. Updated electronic federal reporting requirement.

IX. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

Table 7 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 6: Permit No. 109672

Emission Unit	Pollutant	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
GE 6 Frame Turbine	NOx	25 ppmv	CEMS	Performance testing.	Quarterly Monitoring Report.
	SO ₂	Natural gas which contains sulfur up to 0.8 percent by weigh.	N/A	Vendor-provided copy of that part of the FERC-approved Tariff agreement that limits transmission to pipeline quality natural gas of sulfur content less than 0.8 percent by weight.	Report to the Director any daily period which the sulfur content exceeds 0.8%.
	CO	N/A	Daily hours of operation	Rolling 12-month total of hours of operation.	Conduct performance test if hours of operation exceeds 4,650 in rolling 12-month total.
Auxiliary Boiler	n/a	Burn only natural gas.	N/A	Amount of natural gas combusted in each calendar month.	N/A
Engines (subject to state regulations)	PM	40% opacity – for any period greater	Conduct periodic opacity monitoring on a quarterly basis.	Maintain records of the lower heating value of the fuel.	Report all 6-minute periods which the opacity exceeded 40%.

Emission Unit	Pollutant	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
		than 10 seconds			
	SO ₂	1.0 lb/MMBtu	N/A	Record the daily sulfur content of the fuel used in the engines.	Report to the Director any daily period which the sulfur content exceeds 0.8%.
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 40%.
Abrasive Blasting	PM	20% Opacity	N/A	Record the date, duration and pollution control measures of any abrasive blasting project.	N/A
Spray Painting	VOC	20% Opacity Control 96% of the overspray	N/A	Maintain records of the date, duration, quantity of paint used, any applicable SDS, and pollution control measures of any spray painting project.	N/A

Emission Unit	Pollutant	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
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

X. 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 taken into account.

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 facility 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.

YCA proposes to operate CEMS to monitor emissions of NO_x and O₂ (or CO₂) in order to demonstrate compliance with the applicable emissions limitations. These CEMS will be required in a Class I permit as the 'continuous compliance demonstration'. Therefore, in accordance with 40 CFR 64.2(b)(1)(vi), the combustion turbines at YCA are not subject to the CAM rule.

XI. LEARNING SITE EVALUTATION

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 in 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.

Since this Class I Renewal Permit will not result in an increase in emissions a learning sites evaluation does not apply.

XII. LIST OF ABBREVIATIONS

A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
CEMS	Continuous Emissions Monitoring System
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CO ₂ e	CO ₂ equivalent basis
FERC	Federal Energy Regulatory Commission
GHG	Greenhouse Gases
HAP	Hazardous Air Pollutant
hp	Horsepower
hr	Hour
MW	Megawatts
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOC	Notices of Opportunity to Correct
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
PTE	Potential to Emit
SO ₂	Sulfur Dioxide Significant Impact Levels
TPY	Tons per Year
VOC	Volatile Organic Compound
YCA	Yuma Cogeneration Associates
yr	Year