ADEQ Arizona Department of Environmental Quality

DRAFT TECHNICAL SUPPORT DOCUMENT

TECHNICAL REVIEW AND EVALUATION
OF APPLICATION FOR
AIR QUALITY PERMIT NO.62714
AS AMENDED BY SIGNIFICANT REVISION NO. 63698

Yuma Cogeneration Associates

I. INTRODUCTION

This Significant Revision No. 63698 to Operating Permit No. 62714 incorporates acid rain provisions into Attachment "D" of the permit. In addition, the 40 CFR 60 Subpart GG NO_x CEMS requirements were replaced with 40 CFR 75 NO_x CEMS requirements.

A. Company Information

1. Facility Name: Yuma Cogeneration Associates

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

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

B. Attainment Classification

This source is located in a non-attainment area for particulate matter with a diameter less than 10 microns (PM_{10}). The area is designated attainment or unclassified for all other criteria pollutants.

II. PROCESS DESCRIPTION

YCA generates electricity and intermediate-pressure steam. 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.

III. EMISSIONS

This revision addresses regulatory requirements in which the Permittee has become subject to since the issuance of Operating Permit No. 62714. No changes in emissions are expected as the process at YCA remains unchanged.

YCA has a potential to emit significant amounts of nitrogen oxides (NO_x). Table 1 includes the potential to emit for NO_x as well as for all other emissions.

Table 1: Potential Emissions

Pollutant	Emissions (tons per year)
PM	28.46
PM_{10}	28.46
$PM_{2.5}$	28.46
NO_x	238.62
CO	87.50
SO_2	0.67
VOC	5.89
GHG (expressed as CO_2e)	276,752
HAPs	2.66

IV. APPLICABLE REGULATIONS

As a qualifying facility, Yuma Cogeneration Associates was exempt from the Acid Rain Program. Prior to 2015, Yuma Cogeneration Associates would run longer than dispatched by San Diego Gas & Electric to offset start-up inefficiencies. The contract with San Diego Gas & Electric at that time allowed this practice. This was done to maintain better than the 45% efficiency required to maintain Yuma Cogeneration Associates' qualifying facility status.

In August 2014, Yuma Cogeneration Associates and San Diego Gas & Electric agreed on an Amended and Restated Purchase Power Contract. Under the Amended and Restated Purchase Power Contract, Yuma Cogeneration Associates can only operate when dispatched by San Diego Gas & Electric. This contract became effective December 2015. Yuma Cogeneration Associates' 2015 efficiency was calculated at 44.15%, below the qualifying facility requirement of 45%. Given this, and knowing that Yuma Cogeneration Associates will no longer be in control of efficiency, Yuma Cogeneration Associates relinquished its qualifying facility status effective January 1, 2016.

40 CFR 72.6 (a)(3)(v) states that a unit is subject to the acid rain program if it was an exempt qualifying facility under paragraph (b)(5) but, at any time after the later of November 15, 1990 or the date the facility commences commercial operation, fails to meet the definition of qualifying facility.

In addition, 40 CFR 60.334(b)(3)(iii) states that a facility that has installed a NOx CEMS which

meets the requirements of 40 CFR 75 can use that monitor to fulfill the monitoring requirements of 40 CFR 60 Subpart GG. Therefore, the monitoring requirements of 40 CFR 60 Subpart GG were removed from the permit and the monitoring requirements of 40 CFR 75 were included in the permit.

V. MONITORING REQUIREMENTS

A. GE Frame 6 Turbine

NO_x: The unit is subject to the NO_x standard of 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).

Monitoring requirements include recording on a monthly basis the amount of NO_x emissions in tons per year (on a twelve month rolling total basis) and the amount of fuel fired. This condition will ensure that NO_x emissions are below 230 tpy. The facility has CEMS for monitoring of NO_x emissions.

SO_2: 40 CFR Subpart GG stipulates combustion of fuels containing sulfur below 0.8% by weight in the gas turbine.

Monitoring for the sulfur content requirement includes maintaining the contractual agreement with the vendor limiting the sulfur content of the fuel. In addition, the Permittee must notify the Director within 30 days of any changes to the contractual agreement.

VI. CONTINUIOUS EMISSIONS MONITORS (CEMS)

The NO_x CEMS at YCA are considered "Compliance CEMS" in accordance with the installation permit. Therefore, excess emissions indicated by the CEM system are considered violations of the applicable emission limit.

VII. ACID RAIN PROGRAM

YCA is no longer considered a qualifying facility and therefore is not exempt from the requirements of the acid rain program. This significant revision incorporates the requirements of 40 CFR 75 for the NO_x CEMS. Attachment D requires YCA to acquire and hold allowances for emissions of sulfur dioxide.

VIII. LIST OF ABBREVIATIONS

AAAQG ..... Arizona Ambient Air Quality Guideline
A.A.C. ..... Arizona Administrative Code
ADEQ ..... Arizona Department of Environmental Quality
ADHS ..... Arizona Department of Health Services
AQD ..... Air Quality Division
AQG ..... Air Quality Guidelines
Btu/ft^3 ..... British Thermal Units per Cubic Foot
CEMS ..... Continuous Emissions Monitoring System
CO ..... Carbon Monoxide
CO_2 ..... Carbon Dioxide

DEGF ..... Degrees Fahrenheit
DEGK ..... Degrees Kelvin
FERC ..... Federal Energy Regulatory Commission
ft ..... Feet
g ..... Grams
HAP ..... Hazardous Air Pollutant
hp ..... Horsepower
hr ..... Hour
IC ..... Internal Combustion
lb ..... Pound
m ..... Meter
MMBtu ..... Million British Thermal Units
□g/m^3 ..... Microgram per Cubic Meter
MMCFD ..... Million Cubic Feet Per Day
NAAQS ..... National Ambient Air Quality Standard
NO_x ..... Nitrogen Oxide
NO_2 ..... Nitrogen Dioxide
O_3 ..... Ozone
Pb ..... Lead
PM ..... Particulate Matter
PM_{10} ..... Particulate Matter Nominally less than 10 Micrometers
Psia ..... Pounds per square Inch (absolute)
PTE ..... Potential-to-Emit
s ..... Seconds
SO_2 ..... Sulfur Dioxide
TPY ..... Tons per Year
TSP ..... Total Suspended Particulate
USEPA ..... United States Environmental Protection Agency
VOC ..... Volatile Organic Compound
yr ..... Year