



**GOVERNMENT OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY AREA**



Air Quality Area

**STATEMENT OF BASIS
Title V Renewal Permit
PREPA Yabucoa Gas Turbine Power Block
PFE-TV-4911-77-0707-0759**

The Puerto Rico Environmental Quality Board (EQB) is issuing a draft Title V permit pursuant to Title 40 of the Code of Federal Regulations (CFR) Part 70 and Part VI of the Regulations for the Control of Atmospheric Pollution (RCAP) for the renewal of PREPA Yabucoa Gas Turbine Power Block (PREPA Yabucoa). PREPA Yabucoa is located in Road PR-03 Km 86.5, Candelario Abajo Ward in Yabucoa, Puerto Rico. EQB received a Title V renewal permit application from PREPA Yabucoa on July 20, 2007. On June 27, 2008, the Air Quality Area acknowledged that the application was complete. The initial Title V permit for PREPA Yabucoa was issued on July 22, 2003 and expired on July 22, 2008 under the permit number TV-4911-77-0397-0019. The emissions units included in the renewal are the same units of the initial permit.

PREPA Yabucoa consists of two simple cycle combustion turbines (YAGT1-1 and YAGT1-2) built in 1973. Units YAGT1-1 and YAGT1-2 use low sulfur (no more than 0.5% by weight) distillate oil to produce electricity. This facility is a major source for atmospheric pollutants because it has the potential to emit more than 100 tons per year of nitrogen oxides (NO_x), and sulfur oxides (SO_x), which are criteria atmospheric pollutants. This facility is not a major source of hazardous air pollutant emissions.

The allowable emissions authorized under this permit are mentioned below. The source shall certify annually that its actual emissions do not exceed the allowable emissions. This certification shall be based on the actual hours of operation of the previous calendar year and using the emission factors of AP-42 (Compilation of Air Pollutant Emission Factors) effective at the time of completing the Title V application.

Criteria Pollutant	Allowable Emissions (tons /year)
PM ₁₀	9.41
SO ₂	395.87
NO _x	689.83
CO	2.59
VOC	0.32
Lead	0.011
HAP's	0.97

A summary of the emission units, the applicable requirements and the rationale for these requirements are provided below.

The following table summarizes the applicability¹ of PREPA Yabucoa with regards to the principal air pollution regulatory programs:

Regulatory Program	Applicability
RCAP- Rules 403, 406, 410	Yes
Hazardous Air Pollutants Limits	No
NSPS (40 CFR Part 60, Subpart GG)	No
NSPS (40 CFR Part 60, Subpart IIII)	Yes
NESHAP (MACT- 40 CFR Part 63 YYYY)	No
NESHAP (MACT- 40 CFR Part 63 ZZZZ)	Yes
Title V (40 CFR Part 70) and RCAP Part VI	Yes

Combustion turbines: The capacity of each turbine (YAGT1-1 and YAGT1-2) is 301.5 MMBtu/hr and has a total fuel consumption limit for distillate oil of 11,613,333 gallons for any period of 12 consecutive months. The turbines burn the fuel at a rate of 2,340 gallons/hour. The permit also requires to record and report the monthly fuel consumption and reported to the Board monthly. Since the units were built in 1973, the turbines are not affected by the New Source Performance Standards (NSPS) for Stationary Gas Turbines in 40 CFR Part 60 Subpart GG, and no control device is required for these units by any applicable requirement. Also, the turbines are not affected by the National Emission Standards for Stationary Gas Turbines under 40 CFR Part 63 Subpart YYYY since this regulation does not apply to stationary combustion turbines located on minor sources of hazardous air pollutants. Although no federal requirements are applicable to these units, the units are subject to following RCAP limitations.

- PM emission limit: Rule 406 of the RCAP establishes an emission limit of 0.3 lb of particulate matter per MMBtu of heat input demonstrated by emission factors and fuel consumption.
- Sulfur content: Rule 410 of the RCAP provides for sulfur content limit in fuel. The distillate oil used shall not have a sulfur content of more than 0.5% by weight. The same Rule and also the permit require the sulfur content to be monitored daily and reported to the Board monthly. PREPA shall sample the fuel upon every delivery at the site for transfer to the storage tanks at the facility from any other source to verify sulfur content from supplier's invoice.
- Opacity: As required by Rule 403 of the RCAP, the units shall not discharge visible emissions of opacity of up to 20% in 6-minutes average. The permit requires one

¹ Is important to mention that not all of the permit conditions need to be explained in this document, because the legal and factual bases for the conditions are self-evident as stated in the Title V Operating Permit. This means, that all the applicable requirements are cited in the Title V permit with a reference to the requirement. For example: if the restriction came from a construction permit, the condition will cite the construction permit number, if it came from the regulation it will cite the RCAP specific rule, and if the restriction came from a federal standard, the condition will cite the federal standard or regulation. If the restriction came from the emissions calculation and a cumulative increase, the condition will establish that. Also, state only requirements are clearly identified.

opacity reading to each stack of each combustion turbine during the first year of the permit using EPA Test Method 9 and subsequent opacity visual inspections every 14 days using a visible emissions reader certified by a school approved by EPA or the Board.

PREPA Yabucoa may be allowed to operate units YAGT1-1 and YAGT1-2 with propane and natural gas as alternate operating scenarios, after a construction permit process under Rule 203 of the RCAP has been approved. If the change to this scenario results in a significant emission as defined in Rule 102 of the RCAP, the permittee shall obtain the approval of location in accordance to Rule 201 of RCAP before operating under this scenario. If the change to this scenario is considered affected by Prevention of Significant Deterioration (PSD), the permittee shall obtain a federal permit of pre-construction (PSD) before operating under the scenario. Furthermore, the permittee shall incorporate to the Title V operation permit, the construction permits and the revisions issued, according to Rule 606 of RCAP. For the alternative operating scenario, PREPA Yabucoa shall comply with all the applicable requirements (monitoring, test methods and reporting) of the Normal Operating Scenario of the permit.

Electric Generator: The electric generator will be used only for emergencies. The power of the engine in the electric generator (GE-YA-1) is 40.2 hp. The engine uses diesel fuel to operate and will be limited to a maximum of 500 hours for any period of 12 consecutive months. According to the RCAP, the unit shall not emit opacity of visible emissions over 20% on average of 6 minutes. The permit also requires registering and reporting to the Board monthly sulfur content and fuel consumption. The engine is also affected by the following federal regulations:

- National Emission Standards for Hazardous Air Pollutants for internal combustion engines (40 CFR Part 63 Subpart ZZZZ): The engine of unit GE-YA-1 will meet the requirements of Subpart ZZZZ complying with the requirements of 40 CFR Part 60 subpart IIII.
- New Source Performance Standards for stationary compression ignition internal combustion engines (40 CFR Part 60 Subpart IIII): Under this subpart, the engine in unit GE-YA-1 must comply with the emission limits for NMHC + NO_x, CO, and PM for the life of the engine. Moreover, the sulfur content is limited to 0.05% by weight and the cetane number to 40 (minimum) or the aromatic content is limited to 35% by volume (maximum).

All the monitoring, record keeping, and reporting provisions are applicable pursuant to Rule 603 of the RCAP that requires that these elements shall be included in the Title V permit issued.

As established in Appendix B of the RCAP, PREPA Yabucoa provided a list of insignificant activities (tanks YATK1 and YATK2, fuel oil truck unloading, two lube oil tanks, two gas turbines fuel tanks, and one fuel tank for meter calibration) because of size or production rate.

EQB found that PREPA Yabucoa Gas Turbine Power Block - Title V Draft Permit (owned by Puerto Rico Electric Power Authority) satisfies the requirements of Part VI of the RCAP.