Florida Municipal Power Agency (FMPA)
Title V Air Operation Permit Revision
Permit No. 0870003-016-AV

APPLICANT

The applicant for this project is Florida Municipal Power Agency. The applicant's responsible official and mailing address are: Mr. Edward Garcia, Director of Generation, Keys Energy Services, Stock Island Power Plant, P.O. Box 6100, Key West, Florida 33041-6100.

FACILITY DESCRIPTION

The applicant operates the existing Stock Island Power Plant, which is located in Monroe County at 6900 Front Street in Stock Island, Florida.

This facility consists of: eight regulated emission units with a total generating capacity of 128.64 megawatts (MW). There is a diesel peaking unit, a black start diesel engine (used solely to start the combustion turbines), two regulated diesel generators, four simple cycle combustion turbines, and miscellaneous unregulated units. To reduce pollution, a combination of control techniques is used including water injection, ignition timing retardation, and low sulfur fuel oil. This facility has an Acid Rain Retired Unit Exemption (Ralph Garcia Steam Plant, which was removed from the site in 2005) and Phase II Acid Rain New Unit Exemptions: D-1 and D-2 (EU005 and EU006, respectively); and, CT-1, CT-2 and CT-3 (EU007, EU008, and EU009).

Emissions unit 003 (diesel peaking unit #2) is an existing compression ignition (CI) engine, which was reconstructed in 2010, is a Haynes Corporation AHYNN0645E3B diesel fuel fired reciprocating internal combustion engine (RICE) driven peaking generator. Having been reconstructed in 2010, this compression ignition engine is a regulated emission unit subject to 40 CFR 63 Subpart ZZZZ. Per 63.6590(c), the requirements of Subpart ZZZZ are being met by meeting the requirements of 40 CFR 60 Subpart IIII and 40 CFR 80. Air construction permit No. 0870003-013-AC limits the annual hours of operation to 2,500. Because the facility only has one fuel oil receiving tank, all fuel oil used at the site is now ultra low sulfur distillate (ULSD) oil in order to comply with the fuel limit for this engine of 0.0015% sulfur.

Emissions units 005 and 006 are each an 8.8 MW (nominal) electric Fairbanks Morse compression ignition reciprocating internal combustion engine (RICE) driven generator (Model PC-2.6V) which burns No. 2 distillate fuel oil. Each has a maximum heat input rate of 85.4 million British thermal units per hour (MMBtu/hr). Sulfur dioxide emissions are controlled by limiting the sulfur content of the No. 2 fuel oil to 0.0015% by weight. Nitrogen oxides (NO_X) emissions are controlled by ignition timing retardation and by limiting the hours of operation. NO_X emissions are continuously monitored.

Emissions unit 007 is a General Electric (GE) Frame 5 model PG5341 combustion turbine (CT) equipped with water injection for fuel oil firing. It has a rated capacity of 23.5 MW at International Organization for Standardization (ISO) conditions. The GE CT has a heat input of 312 MMBtu per hour (at 59° F) while burning oil. The CT is fired with No. 2 fuel oil with a sulfur content not to exceed 0.05% by weight. NO_X emissions are controlled by a water injection system. The water to fuel ratio is continuously monitored.

Emissions units 008 and 009 are two refurbished General Electric Model MS-5001R 19.77 MW combustion turbines. Each emissions unit has a rated capacity of 19.77 MW. The heat input for each is 305 MMBtu/hr. Each emissions unit operating hours are limited to 4,000 hour per year and the combined hours are also limited to 4,000 hours per year.

The units 007, 008 and 009 are not affected by the Acid Rain Program, since they meet the requirements of 40 CFR 72.7 by serving a generator with less than 25 MW.

Emissions unit 011 is a General Electric LM 6000 PC SPRINT Combustion Turbine-Electrical Generator with spray intercooling and water injection. It has a rated capacity of 48 MW at ISO conditions. The maximum heat input to the combustion turbine from firing No. 2 fuel oil is 434 MMBtu per hour lower heating value (LHV) based on the following: 100% base load, lower heating value of No. 2 fuel oil, and a compressor inlet air temperature of 41° F. The CT is fired with No. 2 fuel oil with a sulfur content not to exceed 0.05% by weight. NO_X emissions are controlled by a spray cooling and water injection system when operational hours are less than

or equal to 2,500 hours based on a 12 month rolling total. If operational hours exceed 2,500 hours a selective catalytic reduction (SCR) system must be installed to help control NO_X emissions. The water to fuel ratio is continuously monitored.

All emissions units at the Stock Island Power Plant are for peaking or emergency purposes only. This facility is used when the loads peak, usually during the summer, and when there are emergency situations such as hurricanes.

This facility has one existing compression ignition (CI) engine: Diesel peaking unit #2, EU 003. This CI engine is subject to regulation pursuant to 40 CFR 63 Subpart ZZZZ, as an existing engine, and is also subject to 40 CFR 60 Subpart IIII, since it has recently been reconstructed and 40 CFR 80. Air construction permit No. 0870003-013-AC limits the yearly hours of operation to 2,500. Because the facility only has one fuel oil receiving tank, all fuel oil used at the site is now ultra low sulfur distillate (ULSD) oil in order to comply with the fuel limit for this engine of 0.0015% sulfur.

Also included in this permit are miscellaneous unregulated/insignificant emissions units and/or activities.

PROJECT DESCRIPTION

The purpose of this permit is to revise the Title V air operation permit for the above referenced facility to incorporate the requirements of 40 CFR 63, Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, which will be applicable to emissions units 005 and 006 on May 3, 2013.

PROCESSING SCHEDULE AND RELATED DOCUMENTS

Application for a Title V Air Operation Permit Revision received September 27, 2012.

Draft/Proposed Permit Revision package issued November 26, 2012.

PRIMARY REGULATORY REQUIREMENTS

HAP: The facility is not identified as a major source of hazardous air pollutants (HAP).

Title IV: The facility operates units subject to the acid rain provisions of the Clean Air Act.

Title V: The facility is a Title V major source of air pollution in accordance with Chapter 62-213, Florida Administrative Code (F.A.C.).

PSD: The facility is a Prevention of Significant Deterioration (PSD)-major source of air pollution in accordance with Rule 62-212.400, F.A.C.

NSPS: The facility operates units subject to the New Source Performance Standards (NSPS) of 40 Code of Federal Regulations (CFR) 60.

NESHAP: The facility operates units subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) of 40 CFR 63.

CAIR: The facility is subject to the Clean Air Interstate Rule (CAIR) set forth in Rule 62-296.470, F.A.C.

Siting: None of the emission units were originally certified pursuant to the power plant siting provisions of Chapter 62-17, F.A.C.

CAM: Compliance Assurance Monitoring (CAM) does not apply to any of the units at the facility. None of the units at the facility are subject to an emission limitation or standard other than NSPS, NESHAP, acid rain requirements, or a limitation for which the permit specifies continuous compliance. Also, none of the emission units use a control device to achieve compliance with any emission limitation or standard, or have potential pre-control device emissions of a regulated air pollutant that is 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.

GHG: The facility is a major source of green house gas pollutants.

PROJECT REVIEW

Changes to the Title V permit are noted by ~~strikethrough~~ for text deletion and double underline for text addition. All changes throughout the draft/proposed permit are further highlighted in yellow for ease of location. Changes made as part this revision include:

1. The addition of, or revision to, specific conditions of Section III, Subsection A, required by implementation of provisions of 40 CFR 63, Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, which will be applicable to emissions units 005 and 006 on May 3, 2013.
2. The Facility Description, Summary of Emissions Units, and the Applicable Regulations sections are revised to reflect the above changes (see highlighted areas in permit).

CONCLUSION

This project revises Title V air operation permit No. 0870003-011-AV, which was effective on January 1, 2010. This Title V air operation permit revision is issued under the provisions of Chapter 403, Florida Statues (F.S.), and Chapters 62-4, 62-210, 62-213 and 62-214, F.A.C.