Title V Air Operation Permit Revision
Permit No. 0490015-016-AV

APPLICANT

The applicant for this project is Hardee Power Partners Limited. The applicant's responsible official and mailing address is: Ralph E. Randall, Regional Plant Director, Hardee Power Partners Limited, Hardee Power Station, 6695 North County Road 663, Bowling Green, Florida 33834.

FACILITY DESCRIPTION

The applicant operates the existing Hardee Power Station, which is located in Hardee County at 6695 North County Road 663 in Bowling Green, Florida.

The existing facility is a nominal 370 megawatt (MW) electric power plant. It consists of four 75 MW combustion turbine-electric generators designated as Units CT-1A, CT-1B, CT2-A and CT2-B that use natural gas and distillate fuel oil as a restricted auxiliary fuel. Hot turbine exhaust gases from CT1-A and CT1-B pass through respective unfired heat recovery steam generators (HRSGs) prior to exhausting through separate stacks. The steam is used to power a single nominal 70 MW steam turbine-electric generator. Units CT2-A and CT2-B operate in simple cycle mode (i.e. without further heat recovery). The plant includes a 4.4 million gallon storage tank (EU-004) for distillate oil as well as other miscellaneous unregulated and insignificant activities.

Nitrogen oxides (NO_X) emissions from Units CT-1A, CT-1B and CT2-A are controlled by water injection into the combustors when burning natural gas or distillate fuel oil. Unit CT-2B, the subject of this revision, incorporates dry low-NO_X (DLN) combustors to minimize the formation of NO_X emissions when firing natural gas and water injection when firing distillate fuel oil. NO_X emissions are monitored and recorded by a continuous emissions monitoring system (CEMS).

PROJECT DESCRIPTION

The purpose of this permitting project is to issue a Title V air operation permit revision for the above referenced facility to incorporate the standards and requirements established in air construction permit No. 0490015-015-AC, processed concurrently with this revision. The requested revision to the permits is to:

- To allow excess emissions related to tuning of the DLN combustors.
- Reduce annual carbon monoxide (CO) and visible emissions compliance testing requirements for Unit CT2-B when operating less than 400 hours on natural gas; and

The annual compliance reports for the past ten years indicate that Unit CT-2B consistently complies with the applicable CO and visible emission standards. The occasional tuning sessions optimize combustion turbine operation within the constraints of the continuously monitored NO_X limit and the CO emissions limit. The changes do not increase emissions and a minor source construction permit was required and issued before the Title V operation Permit revision is finalized by issuance or operation of the law.

PROCESSING SCHEDULE AND RELATED DOCUMENTS

Application for a Title V Air Operation Permit Revision received 8/17/2012.

Draft/Proposed Title V Air Operation Permit Revision issued 09/19/2012.

Public Notice of Intent to Issue Air Permits published 09/27/2012.

Related Air Construction Permit Revision No. 0490015-015-AC (PSD-FL-140D) issued on 10/12/2012.

PRIMARY REGULATORY REQUIREMENTS

Title I, Section 111, NSPS: The facility operates units subject to the New Source Performance Standards (NSPS) of 40 Code of Federal Regulations (CFR) 60, Subpart GG (Stationary Gas Turbines).

Title I, Section 112, NESHAP: The facility is a major source of hazardous air pollutants (HAP). The facility operates equipment (a 208 horsepower fire pump engine) that is subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) of 40 CFR 63, Subpart ZZZZ.

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 Major Stationary Source with respect to the provisions for Prevention of Significant Deterioration (PSD) contained in Rule 62-212.400, F.A.C.

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

CAM: A Compliance Assurance Monitoring (CAM) plan was included in the Title V Operation Permit renewed effective January 1, 2010 and is retained in the permit revision. The CAM plan applies to combustion turbines CT-1A, CT-1B and CT-2A to identify proper operation of the water injection systems used to reduce NO_X emissions. A CAM plan is not required for combustion turbine CT-2B since the unit is equipped with a CEMS to determine continuous compliance with the NO_X standards.

GHG: The facility is identified as a major source of greenhouse gas (GHG) pollutants.

PROJECT REVIEW

To incorporate and reflect the revised requirements established by permit No. 0490015-015-AC (PSD-FL-140D), the following conditions of permit No. 0490015-011-AV have been changed as described below. Changes to the permit made as part of this revision are shown in strike through (~~strike through~~) format for deletions and in double underline format for additions. For ease of identification, all changes have also been highlighted in yellow within this document.

1. To allow excess emissions related to tuning of the DLN combustors, Specific Condition B.12 is modified as Follows:

   B.12. Excess Emissions.

   a. *Excess Emissions Allowed*. Excess emissions resulting from startup, shutdown, or malfunction of the combustion turbine shall be permitted provided that best operational practices are adhered to and the duration of excess emissions shall be minimized. Excess emissions resulting from startup to simple cycle mode shall not exceed one hour. In no case shall excess emissions from startup, shutdown, and malfunction exceed two hours in any calendar day. If excess emissions occur due to malfunction, the owner or operator shall notify the Compliance Authority within one working day of: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and, the actions taken to correct the problem. [Rule 62-210.700, F.A.C. and PSD-FL-140C]

   b. *Excess Emissions Prohibited*. Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction, shall be prohibited. These emissions shall be included in the calculation of the 24-hour NO_X averages for compliance determinations. [Permit No. PSD-FL-140A]

   c. *Combustion System Tuning*. Excess emissions resulting from combustion system tuning of the combustion turbine shall be permitted provided that best operational practices are adhered to and the duration of excess emissions shall be minimized. Excess emissions shall not exceed a total of 15 hours per tuning session. The Compliance Authority shall be notified of the schedule for conducting each tuning session at least 15 days prior to the tuning session. Within 45 days of completing each tuning session, a report summarizing the hourly NO_X emissions shall be submitted.
   [Rule 62-210.700, F.A.C. and PSD-FL-140D]

2. To reflect the reduction of annual CO and visible emissions compliance testing requirements for Unit CT2-B when operating less than 400 hours on natural gas, Specific Condition B.15 is modified as follows:

B.15. Annual Performance Tests: Annual compliance tests shall be conducted during each federal fiscal year (October 1 to September 30) for CO and visible emissions ~~from the combustion turbine shall be conducted when firing natural gas~~. The permittee shall conduct the annual compliance test for each fuel that is fired for more than 400 hours per year in the preceding federal fiscal year. ~~In addition, the permittee shall conduct the annual compliance tests for CO and visible emissions when firing low sulfur distillate oil if low sulfur distillate oil is fired for more than 400 hours in the preceding federal fiscal year. Tests required on an annual basis shall be conducted at least once during each federal fiscal year (October 1st to September 30th).~~ The CEMS data shall be used to demonstrate continuous compliance with the concentration-based NO_X emissions standards. When requested by the Department, the permittee shall determine the NO_X mass emission rate (lb/hour) from CEMS data to demonstrate compliance with the corresponding permit limits.
[Rule 62-297.310(7)(a)4., F.A.C.; Permit Nos. PSD-FL-140C and PSD-FL-140D]

3. Appendix H is revised to reflect the three most recent permitting actions prior to the present revision.

CONCLUSION

This project revises Title V air operation permit No. 0490015-011-AV, which was effective on January 1, 2010. This Title V air operation permit is issued under the provisions of Chapter 403, Florida Statues (F.S.), and Chapters 62-4, 62-210, 62-213 and 214, F.A.C.