TECHNICAL EVALUATION
&
PRELIMINARY DETERMINATION

APPLICANT

Shady Hills Power Company, LLC
14240 Merchant Energy Way
Spring Hill, Florida 34610

Shady Hills Generating Station
Facility ID No. 1010373

PROJECT

Project No. 1010373-014-AC (PSD-FL-280B)
Application for Minor Source Air Construction Permit
Permit Modification

COUNTY

Pasco County, Florida

PERMITTING AUTHORITY

Florida Department of Environmental Protection
Division of Air Resource Management
Office of Permitting and Compliance
2600 Blair Stone Road, MS#5505
Tallahassee, Florida 32399-2400

August 31, 2012

1. GENERAL PROJECT INFORMATION

Air Pollution Regulations

Projects at stationary sources with the potential to emit air pollution are subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The statutes authorize the Department of Environmental Protection (Department) to establish regulations regarding air quality as part of the Florida Administrative Code (F.A.C.), which includes the following applicable chapters: 62-4 (Permits); 62-204 (Air Pollution Control – General Provisions); 62-210 (Stationary Sources – General Requirements); 62-212 (Stationary Sources – Preconstruction Review); 62-213 (Operation Permits for Major Sources of Air Pollution); 62-296 (Stationary Sources - Emission Standards); and 62-297 (Stationary Sources – Emissions Monitoring). Specifically, air construction permits are required pursuant to Chapters 62-4, 62-210 and 62-212, F.A.C.

In addition, the U. S. Environmental Protection Agency (EPA) establishes air quality regulations in Title 40 of the Code of Federal Regulations (CFR). Part 60 specifies New Source Performance Standards (NSPS) for numerous industrial categories. Part 61 specifies National Emission Standards for Hazardous Air Pollutants (NESHAP) based on specific pollutants. Part 63 specifies NESHAP based on the Maximum Achievable Control Technology (MACT) for numerous industrial categories. The Department adopts these federal regulations in Rule 62-204.800, F.A.C.

Glossary of Common Terms

Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of this permit.

Facility Description and Location

The Shady Hills Generating Station is an existing simple-cycle combustion turbine power plant, which is categorized under Standard Industrial Classification (SIC) No. 4911. The existing power plant is located in Pasco County at 14240 Merchant Energy Way, Shady Hills, Florida. The map coordinates are: UTM Zone 17, 347.0 kilometers East and 3139.0 kilometers North; Latitude 28° 22’ 00” North and Longitude 82° 33’ 30” West. This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to Ambient Air Quality Standards (AAQS).

Facility Regulatory Categories

- The facility is not a major source of hazardous air pollutants (HAP).
- The facility operates units subject to the acid rain provisions of the Clean Air Act.
- The facility is a Title V major source of air pollution in accordance with Chapter 62-213, F.A.C.
- The facility is a major stationary source in accordance with Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

Project Description

On May 18, 2012, the Department received an application requesting renewal of the Title V air operation permit for this facility and concurrent processing of an air construction permit modification to make changes to underlying permit conditions. Previously, the Department issued Permit No. 1010373-012-AC (PSD-FL-402A) to expand the Shady Hills Generating Station by constructing two new combustion turbines. Although construction on these units has not yet begun, the applicant requests a revision of Permit No. 1010373-009-AC/PSD-FL-280A for the existing units to be consistent with the following provisions specified for the new units:

1. Move the maximum heat input rates in the specific conditions to the emissions unit descriptions as a design heat input rate.
2. Identify the NOx data exclusion procedures for compliance with the emission standards based on the Best Available Control Technology established in accordance with the procedures prescribed by the State

Implementation Plan (SIP).

3. Include specific CEMS requirements for determining compliance with the NOx emission standard.
4. Identify the natural gas fuel heater as a regulated unit.

2. PSD APPLICABILITY

General PSD Applicability

For areas currently in attainment with the AAQS or areas otherwise designated as unclassifiable, the Department regulates major stationary sources of air pollution in accordance with Florida's PSD preconstruction review program as defined in Rule 62-212.400, F.A.C. Under preconstruction review, the Department first must determine if a project is subject to the PSD requirements ("PSD applicability review") and, if so, must conduct a PSD preconstruction review. A PSD applicability review is required for projects at new and existing major stationary sources. In addition, proposed projects at existing minor sources are subject to a PSD applicability review to determine whether potential emissions *from the proposed project itself* will exceed the PSD major stationary source thresholds. A facility is considered a major stationary source with respect to PSD if it emits or has the potential to emit:

- 250 tons per year or more of any regulated air pollutant; or
- 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the specified 28 PSD-major facility.

Once it is determined that a project is subject to PSD preconstruction review, the project emissions are compared to the "significant emission rates" defined in Rule 62-210.200, F.A.C. for the following pollutants: carbon monoxide (CO); nitrogen oxides (NO_X); sulfur dioxide (SO_2); particulate matter (PM); particulate matter with a mean particle diameter of 10 microns or less (PM_{10}); volatile organic compounds (VOC); lead (Pb); fluorides (F); sulfuric acid mist (SAM); hydrogen sulfide (H_2S); total reduced sulfur (TRS), including H_2S; reduced sulfur compounds, including H_2S; municipal waste combustor organics measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans; municipal waste combustor metals measured as particulate matter; municipal waste combustor acid gases measured as SO_2 and hydrogen chloride (HCl); municipal solid waste landfills emissions measured as non-methane organic compounds (NMOC); and mercury (Hg). In addition, significant emissions rate also means any emissions rate or any net emissions increase associated with a major stationary source or major modification which would construct within 10 kilometers of a Class I area and have an impact on such area equal to or greater than 1 $\mu g/m^3$, 24-hour average.

If the potential emission equals or exceeds the defined significant emissions rate of a PSD pollutant, the project is considered "significant" for the pollutant and the applicant must employ the Best Available Control Technology (BACT) to minimize the emissions and evaluate the air quality impacts. Although a facility or project may be *major* with respect to PSD for only one regulated pollutant, it may be required to install BACT controls for several "significant" regulated pollutants.

PSD Applicability for Project

The existing simple-cycle combustion turbine power plant emits more than 250 tons/year of a regulated pollutant and is an existing major source of air pollution. The power plant was constructed in accordance with permit No. PSD-FL-280, as modified. This project will not change actual emissions and therefore, does not trigger PSD preconstruction review; however, this is a modification of the PSD permit.

3. DEPARTMENT REVIEW

Heat Input Rates

Request: The applicant requests that the maximum heat input rates specified in Condition No. 8 be removed and identified as the design heat input rates in the emissions unit descriptions.

Response: For combustion turbines, this request is acceptable. The design heat input rates can be used to identify

the capacity and be a measure for future equipment modifications or operational changes. In addition, actual heat input rates for combustion turbines are highly variable depending on an assortment of parameters including the compressor inlet temperature and ambient conditions.

NOx CEMS Requirements

Request: The applicant requests that the permit identify the NOx data exclusion procedures for compliance with the emission standards based on the Best Available Control Technology established in accordance with the procedures prescribed by the State Implementation Plan (SIP). Allowed data exclusion is for limited periods of startup, shutdown, malfunction, tuning and fuel switching. Also, the application requests specific CEMS requirements to clarify compliance with the NOx emission standard.

Response: The Department agrees and incorporated these provisions into existing Condition 25 by creating Condition 25a (Excess Emissions), 25b (Authorized NOx Data Exclusions), and 25c (NOx Data Exclusion Procedures) and revising Condition 30 (Continuous Compliance with the NO_X Emission Limits). See the Draft Permit for details.

Natural Gas Fuel Heater

Request: The applicant requests that the existing natural gas fuel heater is identified as a regulated unit.

Response: The existing natural gas fuel heater is subject to minor provisions in NSPS Subpart Dc for notification and recordkeeping. Originally, this unit was identified as an insignificant emissions unit. The Department agrees to identify this unit as a regulated unit (EU-010) and add Condition 47 to identify that the unit is subject to NSPS Subpart Dc.

Other Miscellaneous Changes by the Department

1. NSPS Subpart GG References: The combustion turbines were originally subject to NSPS Subpart GG for NOx and SO_2 emissions; however, Permit No. 1010373-009-AC (PSD-FL-280A) increased the maximum heat input rates and triggered the new NSPS Subpart KKKK provisions for these units. Therefore, the Department revised Conditions 4, 5, 7, 31, 40, 42, 44, and 45 to remove the obsolete NSPS Subpart GG references.
2. PM/PM_{10} and SO_2 BACT Emissions Standards: The original permit is confusing. It establishes BACT for PM/PM_{10} and SO_2 as the fuel sulfur specifications for natural gas and distillate oil. However, it also sets "lb/hour" limits based on ISO conditions at peak load with compliance based on stack testing, which may be demonstrated by fuel sulfur analyses and actual firing rates and visible emissions as a surrogate for PM/PM_{10}. The Department revised Conditions 22, 23, and 31 to clarify that BACT for PM/PM_{10} and SO_2 is the fuel sulfur specifications for the authorized fuels of pipeline natural gas and distillate oil. The corresponding mass emissions rates for these pollutants are identified in the permitting note.
3. Annual Stack Testing: The Department added a note to Condition 29 to clarify that an annual stack test for NOx is not required since compliance is demonstrated continuously by monitor. Method 7E will be used when conducting the periodic Relative Accuracy Test Assessments (RATA).

See draft permit for changes.

4. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the draft permit. No air quality modeling analysis is required because the project does not result in a significant increase in emissions. Jeff Koerner is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting the project engineer at the Department's Office of Permitting and Compliance at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.