Florida Department of Environmental Protection

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Lt. Governor

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Secretary

PERMITTEE

Shady Hills Power Company, LLC
800 Long Ridge Road
Stamford, Connecticut 06927

Authorized Representative:
Roy S. Belden, Vice President

Air Permit No. 1010373-017-AC (PSD-FL-280C)
Permit Expires: December 31, 2018
Minor Air Construction Permit
Shady Hills Generating Station
Minor Air Permit Revisions

PROJECT

This is the final air construction permit, which revises multiple air construction permits for the following items: combustion turbines hours of operations; combustion turbines fuel oil firing limits; and testing requirements when a combustion turbines fires 400 hour or less of a fuel subject to a fuel specific limit. Shady Hills Generating Station is an electric generating power plant categorized under Standard Industrial Classification No. 4911. The existing facility is in Pasco County at 14240 Merchant Energy Way in Shady Hills, Florida. The UTM coordinates are Zone 17, 347.0 kilometers (km) East and 3,139.0 km North.

This final permit is organized into the following sections: Section 1 (General Information) and Section 2 (Permit Revisions). As noted in the Final Determination provided with this final permit, only minor changes and clarifications were made to the draft permit.

STATEMENT OF BASIS

This air pollution construction permit is issued under the provisions of: Chapter 403 of the Florida Statutes (F.S.) and Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297 of the Florida Administrative Code (F.A.C.). This project is subject to the general preconstruction review requirements in Rule 62-212.300, F.A.C. and is not subject to the preconstruction review requirements for major stationary sources in Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality. A copy of this permit modification shall be filed with the referenced permit and shall become part of the permit.

Upon issuance of this final permit, any party to this order has the right to seek judicial review of it under Section 120.68 of the Florida Statutes by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel (Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000) and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within 30 days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.

David Lyle Read, P.E.

David Lyle Read, P.E.
2017.10.04 07:49:39 -04'00'

For:

Syed Arif, P.E., Program Administrator
Office of Permitting and Compliance
Division of Air Resource Management

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Final Air Permit package (including the Final Permit Revision, Technical Evaluation and Preliminary Determination, Final Determination, and Appendices) was sent by electronic mail, or a link to these documents made available electronically on a publicly accessible server, with received receipt requested before the close of business on the date indicated below to the following persons.

Mr. Roy S. Belden, Vice President, Shady Hills: roy.belden@ge.com
Mr. Donald L. McBride, Plant Manager, Shady Hills: donald.mcbride@naes.com
Mr. Salahuddin K. Mohammad, P.E., Golder: smohammad@golder.com
Air Program Administrator, District Office: SWD.air@dep.state.fl.us
DEP Siting Office: SCO@dep.state.fl.us
EPA Region 4 NSR/PSD: NSRsubmittals@epa.gov
EPA Region 4: R4TitleVFL@epa.gov
Lynn Scearce, DEP OPC: lynn.scearce@dep.state.fl.us
Barbara Friday, DEP OPC: barbara.friday@dep.state.fl.us

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.

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FACILITY DESCRIPTION

The Shady Hills Generating Station is an electric generating power plant consisting of three primary electrical generating units. Units 1 through 3 (EU 001 – EU 003) consist of three nominal 170 megawatt (MW) General Electric (GE) Frame 7FA combustion turbine-electrical generators (Model PG 7241FA). The simple cycle combustion turbines (SCCT) operate in simple-cycle peaking and intermittent-duty modes and are authorized to fire natural gas and distillate oil. To reduce emissions of nitrogen oxides (NO_X), each SCCT is equipped with dry low-NO_X (DLN) combustors when firing natural gas and a water injection system when firing oil. Compliance with the NO_X emission standard is demonstrated with a continuous emissions monitoring system (CEMS).

This facility also includes a 10 million British thermal unit per hour (MMBtu/hour) natural gas fired process heater, and two compression ignition (CI) internal combustion engines (ICE). The CI ICE consist of a diesel fired emergency generator (1,341 horse power (HP)) and an emergency fire pump engine (222 HP).

The facility consists of the following emission units (EU).

EU No.	FW1. Brief Description
001	SCCT Unit 1
002	SCCT Unit 2
003	SCCT Unit 3
010	Natural Gas Fuel Heater (10 MMBtu/hour)
011	Emergency Diesel Generator (1,341 HP)
012	Emergency Diesel Fire Pump (222 HP)

FACILITY REGULATORY CLASSIFICATION

- 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 (CAA).
- 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(PSD), F.A.C.
- The facility operates units subject to New Source Performance Standards (NSPS) of Title 40, Part 60, of the Code of Federal Regulations (40 CFR 60).
- The facility operates units subject to National Emissions Standards of Hazardous Air Pollutants (NESHAP) of 40 CFR 63.

PROPOSED PROJECT

The purpose of this project is to update and renew the Shady Hills Title V air operation permit based on the current facility design and activities. This permitting action revises several conditions in underlying air construction permits primarily related to: SCCT hours of operations; SCCT fuel oil firing limits; and testing requirements when a SCCT fires 400 hours or less of a fuel subject to a fuel specific limit. This revision also includes minor changes in the language of Specific Conditions to clarify the intent of the rules and regulations.

This permit addresses the following emission units at this facility:

EU No.	Brief Description
001	SCCT Unit 1
002	SCCT Unit 2
003	SCCT Unit 3

The following permit conditions are revised as indicated. ~~Strikethrough~~ is used to denote the deletion of text. Double-underlines are used to denote the addition of text. All changes are emphasized with yellow highlight.

Permit Being Modified: Permit No. 1010373-001-AC (PSD-FL-280)

Affected Emissions Units: EU 001 – EU 003

Section III, Specific Conditions 14 and 16.

14. Fuel Oil Usage: The amount of ~~back-up fuel (fuel oil) burned at the site~~distillate oil fired in these three units (in BTU's) shall not exceed the amount of natural gas fired in these three units ~~(primary fuel) burned at the site~~ (in BTU's) during any consecutive 12-month period. [Rules 62-210.200, F.A.C. (BACT)]

16. Water Injection System. Each unit shall be equipped with a water injection system to control NOx emissions when firing distillate oil. The units shall be operated with a water-to-fuel ratio that ensures compliance with the NOx standard when firing distillate oil.~~A water injection system shall be installed for use when firing No. 2 or superior grade distillate fuel oil for control of NOx emissions.~~ [Design, Rules 62-4.070 and 62-212.400, F.A.C. (BACT)]

Permit Being Modified: Permit No. 1010373-009-AC (PSD-FL-280A)

Affected Emissions Units: EU 001 – EU 003

Air Construction Permit Revisions, Specific Condition 13.

13. Maximum allowable hours: During any calendar year, ~~T~~the stationary gas turbines shall only operate an average of~~up to~~ 3,390 hours/unit, including ~~an average~~a maximum of 1,000 hours/unit on distillate~~fuel~~ oil ~~per unit during any calendar year~~. No single combustion turbine shall operate more than 5,000 hours in a single year. [Rules 62-210.200(PTE) and 62-212.400(BACT), F.A.C.; 1010373-009-AC (PSD-FL-280A)]

Permit Being Modified: Permit No. 1010373-014-AC (PSD-FL-280B)

Affected Emissions Units: EU 001 – EU 003

Section 2, Specific Condition 29.

29. Annual Compliance Tests. Unless otherwise indicated, a*nnual* compliance tests shall be performed during every federal fiscal year (October 1 - September 30) pursuant to Rule 62-297.310(7), F.A.C., on each unit by using the following reference methods as described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. No other test methods may be used for compliance testing unless prior Departmental approval is received in writing. Additional compliance tests shall also be conducted for all pollutants, except for PM/PM_{10} (VE surrogate), after any modification (and shake down period not to exceed 100 days after re-starting the combustion turbine) of the unit or air pollution control equipment and these tests are allowed to be conducted at a single load in lieu of the four loads. Annual emissions tests for CO and visible emissions is not required for each fuel-specific emissions limit, provided the fuel subject to a fuel-specific limit was not burned for more than 400 hours, other than during startup, during the calendar year. A CO and visible emissions test is not required for each fuel-specific emissions limit prior to the renewal of an air operation permit for an emissions unit provided that, in the previous 5-year period, the fuel subject to a fuel-specific limit was not burned for more than 400 hours, other than during startup, during each calendar year included in the 5-year period of permitted operation.

    - EPA Reference Method 9, "Visual Determination of the Opacity of Emissions from Stationary Sources".
    - EPA Reference Method 10, "Determination of Carbon Monoxide Emissions from Stationary Sources". Compliance testing for CO may be conducted at less than capacity when compliance testing is conducted concurrent with the annual Relative Accuracy and Test Audit (RATA) testing for the NOx CEMS required pursuant to 40 CFR 75.

- EPA Reference Method 7E, "Determination of Oxides of Nitrogen Oxide Emissions from Stationary Gas Turbines." Since a CEMS is required by permit to demonstrate compliance with the NOx standards, an annual compliance test is not required; however, the permittee shall conduct periodic Relative Accuracy Test Assessments (RATA) in accordance with the applicable monitoring provisions in 40 CFR 75.
- EPA Reference Method 18, 25 and/or 25A, "Determination of Volatile Organic Concentrations." Initial test only.

[Rule 62-297.310(8)(a)5, F.A.C.; Permit Nos. 1010373-009-AC/PSD-FL-280A; and 1010373-001-AC/PSD-FL-280 amendment]

30. Continuous Compliance with the NOx Emission Limits: To demonstrate continuous compliance with the NOx emission SIP standards, the permittee shall calibrate, maintain, and operate a CEMS to measure and record NOx emissions from each combustion turbine. The CEMS shall comply with the monitoring provisions of the federal Acid Rain Program in 40 CFR 75. Compliance with the BACT standards shall be determined in accordance with the following provisions:~~Continuous compliance with the NOx emission limits: Continuous compliance with the NOx emission limits shall be demonstrated with the CEM system based on the applicable averaging time and the following monitoring requirements.~~

    a. *Data Collection*: Except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, emissions shall be monitored and recorded during all operation including startup, shutdown, and malfunction.

    b. *Operating Hours and Operating Days*: An hour is the 60-minute period beginning at the top of each hour. Any hour during which an emissions unit is in operation for more than 15 minutes is an operating hour for that emission unit. A day is the 24-hour period from midnight to midnight. Any day with at least one operating hour for an emissions unit is an operating day for that emission unit.

    c. *Valid Hour*: Each CEMS shall be designed and operated to sample, analyze, and record data evenly spaced over the hour at a minimum of one measurement per minute. All valid measurements collected during an hour shall be used to calculate a 1-hour block average that begins at the top of each hour.

        (1) Hours that are not operating hours are not valid hours.

        (2) For each operating hour, the 1-hour block average shall be computed from at least two data points separated by a minimum of 15 minutes. If less than two such data points are available, there is insufficient data and the 1-hour block average is not valid.

        (3) During fuel switching an hour in which fuel oil is fired is attributed towards compliance with the permit standards for oil firing.

    d. *24-hour Block Averages*: A 24-hour block shall begin at midnight of each operating day and shall be calculated from 24 consecutive valid hourly average concentration values. If a unit operates less than 24 hours during the block, or there are less than 24 valid hourly averages available, the 24-hour block average shall be the average of all available valid hourly average concentration values for the 24-hour block. *{Permitting Note: For purposes of determining compliance with the 24-hour CEMS standards, the missing data substitution methodology of 40 CFR Part 75, Subpart D, shall not be utilized. Instead, the 24-hour block average shall be determined using the remaining hourly data in the 24-hour block and periods of missing CEMS data are to be reported as monitor downtime in the excess emissions and monitoring performance reports. For example, the "24-hr block average" may consist of only 6 valid operating hours for the day.}*

    e. *3-hour Rolling Averages*: A 3-hour rolling average is the arithmetic average of the average emission concentration measured by the CEMS for a given hour and the two-unit operating hour average concentrations immediately preceding that unit operating hour.

f. *Data Exclusion*: Each CEMS shall monitor and record emissions during all operations including episodes of startup, shutdown, malfunction, DLN tuning, and fuel switches. Some of the CEMS emissions data recorded during these episodes may be excluded from the corresponding CEMS compliance demonstration subject to the provisions of this section. *{Permitting Note: Conditions related to data exclusion apply only to the SIP-based NO_X emissions standards specified in this section. These requirements cannot vary or supersede any federal provision of the NSPS or Acid Rain programs. Additional reporting and monitoring may be required by the individual subparts.}*

g. *Availability*: The quarterly excess emissions report shall identify monitor availability for each quarter in which the unit operated.

[Rules 62-4.070(3) and 62-210.200(BACT), F.A.C.]