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PERMITTEE

Florida Power & Light Company (FPL)
Riviera Beach Energy Center

Authorized Representative:
Mr. Randall R. LaBauve, Vice President

Final Permit No. 0990042-007-AC
Air Construction Permit Revision -
Changes to: Excess Emissions Provisions for
the Gas Turbines, Maximum Heat Input for the
Process Heaters and Hours of Operation for the
Emergency Generators.

Riviera Beach Energy Center
Palm Beach County, Florida

PROJECT

This is the final air construction permit revision which revises specific conditions of Permit No. 0990042-006-AC for the 1,250 megawatt (MW) combined cycle unit at the Riviera Beach Energy Center. The revised permit conditions are related to excess emissions provisions for the gas turbines, reducing the maximum heat input for the process heaters and reducing the allowable hours of operation for the emergency generators. The existing plant is a power plant categorized under Standard Industrial Classification No. 4911. The plant is located in Palm Beach County at 200-300 Broadway, Riviera Beach. The Universal Transverse Mercator (UTM) coordinates are Zone 17, 594.249 kilometers (km) East and 2960.632 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, no changes and clarifications were made to the draft permit.

STATEMENT OF BASIS

This air pollution construction permit revision 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 revision shall be filed with the referenced permit and shall become part of the permit.

Upon issuance of this final permit revision, 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
Office of Permitting and Compliance
Division of Air Resource Management
(Electronic Signature)

PERMIT REVISION

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Final Air Permit package (including the Final Determination and Final Permit Revision) 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.

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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.

(Electronic Signature)

SECTION 1. GENERAL INFORMATION

FACILITY DESCRIPTION

The project authorized by 0090006-005-AC was a plant conversion that included the construction of a nominal 1,250 MW natural gas-fueled combined cycle unit (Unit 3) and ancillary equipment and required the permanent shutdown and dismantling of Units 1 and 2 at the facility. Unit 3 consists of:

- Three nominal 265 MW combustion turbine-electrical generators (CTG) with evaporative inlet cooling systems;
- Three supplementary-fired heat recovery steam generators (HRSG) with selective catalytic reduction (SCR) reactors;
- Three maximum 460 million Btu per hour, lower heating value (MMBtu/hr, LHV), natural gas-fueled duct burners (DB) located in the three HRSG (one DB/HRSG);
- Three 149-foot exhaust stacks; and
- One common nominal 500 MW steam-electrical generator (STG).

Unit 3 uses ultralow sulfur distillate (ULSD) fuel oil as backup fuel. Unit 3 relies on some of the existing infrastructure including one of the fuel oil storage tanks.

Additional ancillary equipment installed includes: a permanent auxiliary boiler; a temporary boiler used during the construction phase; two emergency generators; two process (fuel) heaters; a diesel fire pump; and a gas compression station.

FACILITY REGULATORY CLASSIFICATION

- This facility is a major source of hazardous air pollutants (HAP).
- This 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 213, F.A.C.
- The facility is a major stationary source in accordance with Rule 62-212.400 (PSD), F.A.C.

PROPOSED PROJECT

For the current project, the applicant has requested an air construction permit revision to change several of the underlying construction permit conditions related to the gas turbine excess emissions provisions, the heat input for the process heaters and the hours of operation for the emergency generators.

SECTION 2. PERMIT REVISIONS

The following facility unit description table and permit specific conditions are revised as indicated. ~~Strikethrough~~ is used to denote the deletion of text. Double-underlines are used to denote the addition of text.

Air Construction Permit Being Revised: Permit No. 0990042-006-AC (expiration date December 31, 2015).

Emission Unit Descriptions

ID	Emission Unit Description
007	Unit 5A – one nominal 265 mega watt (MW) combustion turbine generator (CTG) with supplementary-fired heat recovery steam generator (HRSG)
008	Unit 5B – one nominal 265 MW CTG with supplementary-fired HRSG
009	Unit 5C – one nominal 265 MW CTG with supplementary-fired HRSG
010	One nominal 85,000 pounds per hour (lb/hr) auxiliary boiler (99.8 MMBtu/hr)
011	Two maximum design 40 <u>9.9</u> MMBtu/hr natural gas-fired process heaters (one is a spare)
012	Seven nominal 1,340 horsepower (hp) natural gas compressors
013	Two nominal 2,250 kilowatts (kW) liquid fueled emergency generators
014	One nominal 300-hp emergency diesel fire pump engine and 500 gallon fuel oil storage tank
015	One temporary 110 MMBtu/hr natural gas-fueled boiler to be used only during construction
016	One nominal 6.3 million gallon distillate fuel oil storage tank

1. Affected Emissions Units: Combustion Turbine Generators (CTG) and Heat Recovery Steam Generators (HRSG) (E.U. ID Nos. 007 - 009)

Specific Conditions **A.12., 15., 17., 24.** and **31.** of Permit No. 0990042-006-AC are hereby changed as follows (the remainder of the permit remains unchanged as a result of this permitting action):

A.12. Alternate Visible Emissions Standard: Visible emissions due to startups, shutdowns, fuel switches and malfunctions shall not exceed 10% opacity except for up to ten, 6-minute averaging periods during a calendar day, which shall not exceed 20% opacity. [Applicant Request and Rule 62-4.070(3), F.A.C.]

A.15. Excess Emissions Allowed: As specified in this condition, excess emissions resulting from startup, shutdown, fuel switching and documented malfunctions are allowed provided that operators employ the best operational practices to minimize the amount and duration of emissions during such incidents. ~~For each CTG/HRSG system, excess emissions of NO_x and CO resulting from startup, shutdown, or documented malfunctions shall not exceed two hours in any 24-hour period except for the specific cases listed below.~~ For each CTG/HRSG System, excess emissions of NO_x and CO resulting from startup, shutdown, or malfunction may be excluded from CEMS data in any 24-hour period (“any 24-hour period” means a calendar day, midnight to midnight) for the following conditions (these conditions are considered separate events and each event may occur independently within any 24-hour period):A “documented malfunction” means a malfunction that is documented within one working day of detection by contacting the Compliance Authority by telephone, facsimile transmittal, or electronic mail.

- a. ~~STG/HRSG System Cold Startup:~~ Steam Turbine Cold Startup: For cold startup of the steam turbine system, ~~NO_x and CO emission data exclusions~~ excluded emissions for any CTG/HRSG system shall not exceed eight (8) hours in any 24-hour period. A cold “startup of the steam turbine system” is defined as startup of the “3 on 1” combined cycle unit following a shutdown of the steam turbine lasting at least 48 hours.

{Permitting note: During a cold startup of the ~~STG system~~ steam turbine, each CTG/HRSG system is sequentially brought on line at low load to gradually increase the temperature of the ~~STG~~ steam-electrical turbine and prevent thermal metal fatigue. Note that shutdowns and documented malfunctions are separately regulated in accordance with the requirements of this condition.}

SECTION 2. PERMIT REVISIONS

- b. ~~Shutdown Steam Turbine System~~ Combined Cycle Operation: For shutdown of ~~steam turbine system combined cycle operation~~, ~~NO_x and CO emission data exclusions~~ excluded emissions from any CTG/HRSG system shall not exceed three (3) hours in any 24-hour period.
 - c. CTG /HRSG System Cold Startup: For cold startup of a CTG/HRSG system, ~~NO_x and CO emission data exclusions~~ excluded emissions shall not exceed four (4) hours in any 24-hour period. “Cold startup of a CTG /HRSG system” is defined as a startup after the pressure in the high-pressure (HP) steam drum falls below 450 pounds per square inch gauge (psig) for at least a one-hour period.
 - d. Fuel Switching: For fuel switching, ~~excess NO_x and CO emission data exclusions~~ excluded emissions shall not exceed 2 hours in any 24-hour period for each fuel switch and no more than four hours in any 24-hour period for any CTG/HRSG system. This provision applies to each individual CTG/HRSG system.
 - e. CTG/HRSG System Warm Startup: For warm startup of a CTG/HRSG system, excluded emissions shall not exceed two hours in any 24-hour period. “Warm startup of a CTG/HRSG system” is defined as a startup after the pressure in the high-pressure (HP) steam drum is above 450 psig.
 - f. CTG/HRSG System Shutdown: For shutdown of the CTG/HRSG operation, excluded emissions from any CTG/HRSG system shall not exceed two hours in any 24-hour period.
 - g. Documented Malfunction: For the CTG/HRSG system, excess emissions of NO_x and CO resulting from documented malfunctions shall not exceed two hours in any 24-hour period. A "documented malfunction" means a malfunction that is documented within one working day of detection by contacting the Compliance Authority by telephone, facsimile transmittal, or electronic mail.
- A.17. DLN Tuning**: CEMS data collected during initial or other major DLN tuning sessions and during manufacturer required Full Speed No Load (FSNL) trip tests may be excluded by the permittee from the CEMS compliance demonstration provided the tuning session is performed in accordance with the manufacturer’s specifications. A “major tuning session” may occur after completion of initial construction, a major repair or other similar circumstances. Prior to performing any major tuning session, where the intent is to exclude data from the CEMS compliance demonstration, the permittee shall provide the Compliance Authority with an advance notice of at least ~~7 days~~ one working (business) day that details the activity and proposed tuning schedule. The notice may be by telephone, facsimile transmittal, or electronic mail.
[Design; Rule 62-4.070(3), F.A.C.]
- A.23. Continuous Emissions Monitoring System(s) (CEMS)**: ...
- a. CO Monitors. The CO monitors shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 4 or 4A within 60 calendar days of achieving permitted capacity as defined in Rule 62-297.310(2), F.A.C., but no later than 180 calendar days after initial startup. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, or 40 CFR Part 75, and the Data Assessment Report in Section 7 shall be made each calendar quarter, and reported semiannually to the Compliance Authority. The RATA tests required for the CO monitor shall be performed using EPA Method 10 in Appendix A of 40 CFR 60 and shall be based on a continuous sampling train. The CO monitor span values shall be set appropriately considering the allowable methods of operation and corresponding emission standards.

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A.30. Excess Emissions Reporting:

- a. *Malfunction Notification:* If emissions in excess of a standard (subject to the specified averaging period) occur due to malfunction, the permittee shall notify the Compliance Authority within (1) 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. In addition, the Department may request a written summary report of the incident.
- b. *SIP Quarterly Permit Limits Excess Emissions Report:* Within 30 days following the end of each calendar-quarter, the permittee shall submit a report to the Compliance Authority summarizing periods of CO and NO_x emissions in excess of the SIP-based permit emissions standards, and the amounts of authorized data excluded following the NSPS format in 40 CFR 60.7(c), Subpart A Figure XSE attached to this permit. Periods of startup, shutdown ~~and~~, malfunction, fuel switching and tuning shall be monitored, and recorded at all times and reported as excess emissions when emission levels exceed the standards specified in this permit. In addition, the report shall summarize the CEMS systems monitor availability for the previous quarter.
- c. *NSPS Semi-Annual Excess Emissions Reports:* For purposes of reporting emissions in excess of NSPS Subpart KKKK, excess emissions from the gas turbine are defined as: a specified averaging period over which either the NO_x emissions are ~~higher than the applicable emission limit in 60.4320~~ greater than 15 ppm at 15% O₂ on a 30-day rolling average while firing natural gas and greater than 42 ppm at 15% O₂ on a 30-day rolling average while firing ultra low sulfur distillate; or the total sulfur content of the fuel being combusted in the affected facility exceeds the limit specified in 40 CFR 60.4330. Within thirty (30) days following each calendar semi-annual period, the permittee shall submit a report on any periods of excess emissions that occurred during the previous semi-annual period to the Compliance Authority.

{Note: If there are no periods of excess emissions as defined in NSPS Subpart KKKK, a statement to that effect may be submitted with the SIP Quarterly Report to suffice for the NSPS Semi-Annual Report.}

[Rules 62-4.130, 62-204.800, 62-210.700(6), F.A.C., and 40 CFR 60.7, and 60.4420]

- 2. Affected Emissions Unit:** Two nominal 10 MMBtu/hr natural gas-fired process heaters (one is a spare) (E.U. ID No. 011).

Specific Condition Nos. **C.3. C.4., C.5. and C.6.** from Permit No. 0990042-006-AC are hereby changed as follows:

ID	Emission Unit Description
011	Two maximum design 10 <u>9.9</u> MMBtu/hr natural gas-fired process heaters (one is a spare)

Equipment: The permittee is authorized to install, operate, and maintain two maximum design ~~10~~ 9.9 MMBtu/hr process heaters for the purpose of heating the natural gas supply to the CTG. [Applicant Request and Rule 62-210.200(PTE), F.A.C.]

- C.3. ~~Reserved, NSPS Subpart De Applicability:~~** Each process heater is subject to all applicable requirements of 40 CFR 60, Subpart De which applies to Small Industrial, Commercial, or Institutional Boiler. Specifically, each emission unit shall comply with 40 CFR 60.48c Reporting and Recordkeeping Requirements. [~~40 CFR 60, NSPS Subpart De Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, attached as Appendix De~~]

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C.4. Reserved Emission Limits: ~~Each natural gas fired process heater shall comply with the following emission limits:~~

NO_x	CO	VOC, SO₂, PM/PM₁₀
0.095 lb/mmBtu	0.08 lb/mmBtu	2 gr S/100 SCF natural gas spec and 10% Opacity

~~[Applicant request; Rule 62-4.070(3), F.A.C.]~~

~~{Permitting note: There are no Subpart Dc emission standards for gas fired process heaters fueled by natural gas.}~~

C.5. Reserved Testing Requirements: ~~Each unit shall be stack tested to demonstrate initial compliance with the emission standards for CO, NO_x and visible emissions. The tests shall be conducted within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after the initial startup. As an alternative, a Manufacturer certification of emissions characteristics of the purchased model that are at least as stringent as the emission limits values can be used to fulfill this requirement. [Rule 62-297.310(7)(a)1, F.A.C.]~~

~~**Test Methods:** Any required tests shall be performed in accordance with the following reference methods.~~

Method	Description of Method and Comments
7E	Determination of Nitrogen Oxide Emissions from Stationary Sources
9	Visual Determination of the Opacity of Emissions from Stationary Sources
10	Determination of Carbon Monoxide Emissions from Stationary Sources

C.6. Notification, Recordkeeping and Reporting Requirements: ~~The permittee shall maintain records of the amount of natural gas used in the process heaters and shall comply with the notification, recordkeeping and reporting requirements pursuant to 40 CFR 60.48c and 40 CFR 60.7. These records shall be submitted to the Compliance Authority on an annual basis or upon request. [Rule 62-4.070(3), F.A.C.; 40 CFR 60, Subparts A and De]~~

3. Affected Emissions Unit: Two nominal 2,250 kilowatts (kW) liquid fueled emergency generators (E.U. ID No. 013).

Specific Condition No. **E.2.** from Permit No. 0990042-006 is hereby changed as follows:

E.2. Hours of Operation and Fuel Specifications: ~~The hours of operation shall not exceed 160 hours per year per generator~~ 100 hours per year for each engine for the purpose of maintenance checks and readiness testing with unlimited operation for emergency use. The generators shall burn ultralow sulfur diesel fuel oil (0.0015% sulfur). [Applicant Request and Rule 62-210.200(PTE), F.A.C.]