# TECHNICAL EVALUATION
# AND
# PRELIMINARY DETERMINATION

## APPLICANT

Florida Power and Light Company (FPL)

700 Universe Blvd.
Juno Beach, Florida 33408

West County Energy Center
Facility ID No. 0990646

## PROJECT

Draft Permit Revision No. 0990646-006-AC/PSD-FL-396A

Excess Emissions Provisions for the Gas Turbines of Combined Cycle Unit 3

## COUNTY

Palm Beach 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

February 2, 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 Rules 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 on a quarterly basis in Rule 62-204.800, F.A.C.

### Facility Description and Location

This facility is an existing power plant, which is categorized under Standard Industrial Classification Code No. 4911. This existing plant is located in Palm Beach County at 20505 State Road 80 in Loxahatchee, Florida. The UTM Coordinates are: Zone 17, 562.19 km East and 2953.04 km North; Latitude: 26° 41’ 54.98” North and Longitude: 80° 22’ 29.54” West.

This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to state and federal Ambient Air Quality Standards (AAQS).

### Facility Regulatory Categories

- The 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.
- The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- The facility is 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

The applicant requested an air construction permit revision to change several conditions related to excess emissions provisions for the gas turbines of Combined Cycle Unit 3 at the facility.

### Application Processing Schedule

Application for an Air Construction Permit Revision received on November 7, 2011, and deemed complete.

### Relevant Documents

- Permit No. 0990646-006-AC/PSD-FL-396 (currently active, with expiration date December 31, 2013).

## 2. PSD APPLICABILITY

### General PSD Applicability

For areas currently in attainment with the state and federal 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:

- 5 tons per year or more of lead;
- 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 following 28 PSD-major facility categories: fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), Kraft pulp mills, portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants, fossil fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants and charcoal production plants.

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 PM; 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 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 project will revise permit conditions related to excess emissions provisions for the gas turbines (clarified), the maximum heat input for the process heaters (decreased) and the hours of operation (decreased) for the emergency generators. There will be no emissions increases and the project is not subject to PSD preconstruction review.

## 3. DEPARTMENT REVIEW

### Response to Requested Revisions

The applicant requested changes to the current construction permit (0990643-002-AC) by application received on November 7, 2011, as explained below:

Gas Turbines

1. Specific Conditions **A.14., 17.** and **25.** of the current permit describe various permit requirements including visible emissions limitations, excess emissions allowed and continuous emissions monitoring system (CEMS) data that may be excluded from the appropriate averaging period.

   Applicant's Requested Changes:

   a. The applicant requested that the current air construction permit be revised to include allowable visible emissions for fuel switch operations.

   b. The applicant requested that the permit conditions reflect normal startup, shutdown and documented malfunctions of the combustion turbine/HRSG system.

   c. The applicant requested clarifications of which emissions data are allowed to be omitted from reporting of excess emissions.

   d. The applicant requested that the permit allow the use of 40 CFR Part 75 monitoring procedures for CO emissions.

   Department's Responses:

   The Department agrees with these changes. Specifically:

   a. Although the emissions unit description and specific conditions in 0990646-002-AC allow different methods of operation, e.g., fuel switches, the current permit does not include defined periods of normal operation of the combustion turbine/HRSG system for warm startup, shutdown and malfunction. Therefore, defined periods for "Gas Turbine/HRSG System Warm Startup," "Shutdown Gas Turbine/HRSG System," and "Documented Malfunction" for the combustion turbine/HRSG system are added to the permit language.

   b. The word "excess" is changed to "excluded" to clearly indicate which data are allowed to be excluded from the averaging period.

   c. Excess emissions of $NO_X$ and CO resulting from startup, shutdown, or malfunction shall be excluded from CEMS data. The requested clarifications are made as shown in the draft permit revision document.

2. Specific Condition **A.19.** addresses tuning sessions and lead time for notification to the compliance authority prior to start.

   Applicant's Requested Changes:

   The applicant requested that manufacturer required Full Speed No Load (FSNL) trip tests be added to the Specific Condition for exclusion from CEMS compliance demonstration and that the advanced notice lead time changed from 7 days to one working day.

   Department's Responses:

   The Department agrees and the changes were made in the draft permit.

3. Specific Condition **A.25.** addresses continuous emissions monitors.

   Applicant's Requested Changes:

   The applicant requested the permit allow the use of 40 CFR Part 75 monitoring for CO emissions.

Department's Responses:

The Department agrees and the changes were made in the draft permit.

4. Specific Condition **A.32.b.,** contains excess emissions reporting requirements and specifies the format to be used when reporting quarterly State Implementation Plan (SIP) excess emissions.

   Applicant's Requested Changes:

   a. The request is to clarify SIP excess emissions reporting.

   b. A modified NSPS Figure 1, entitled "Figure XSE" was proposed for use.

   Department's Responses:

   a. The requested clarifications are made as shown in the draft permit revision document.

   b. The Department agrees that the proposed figure is more appropriate for SIP use than using the NSPS Figure 1, therefore, a new "Figure XSE" is attached to the draft permit revision for use.

5. Although not specifically requested as a change, the permit application for the current permitting action notes that the process heaters (E.U. ID No. 017) are rated at 8.3 MMBtu/hr, not 10 MMBtu/hr as specified in permit 0990643-002-AC. This change ensures that the process heaters will not be subject to either 40 CFR 60, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units or 40 CFR 63, Subpart DDDDD—National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters. Therefore, this change was made in the revised air construction permit.

**Revisions**

The approved revisions are shown in ~~strikethrough~~ (for deletions) and double-underlines (for additions) format within the draft permit revision itself.

## 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.

Dr. Tom Cascio is the project engineer responsible for reviewing the application and drafting the permit revision. Additional details of this analysis may be obtained by contacting him by telephone at 850/717-9077 or by e-mail at tom.cascio@dep.state.fl.us in the Department's Office of Permitting and Compliance at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.