

Events Scheduled

49 of 90

AIRS ID **0110036** Site Name **PORT EVERGLADES POWER PLANT**
 Permit # **0110036-005-AC** Type/Subtype **AC** / **1B** Received **04/24/2003**
 Project # **005** Project Name **(FP&L-PORT EVERGLADES PLANT)**

> Receive Request: Done

Event	Begin Date	Period	Due Date	Rmn	Status	End Date
Receive Request	04/24/2003	1	04/25/2003		Done	04/24/2003
Fee Verification	04/24/2003	2	04/26/2003		Exempt	04/26/2003
Completeness Review	04/24/2003	30	05/24/2003		Complete	04/24/2003
Determine Agency Action	04/24/2003	90	07/23/2003		Issue	06/05/2003
Mail Public Notice of Intent to Applicant and	06/05/2003	10	06/15/2003		Done	06/05/2003
Date of Publication	06/05/2003	999	02/28/2006		Published	06/18/2003
Awaiting Petition for Administrative Proce	06/18/2003	14	07/02/2003		Not Received	07/02/2003
Issue Final Permit	07/02/2003	14	07/16/2003		Issued	07/14/2003
ISSUE PERMIT	07/14/2003	1	07/15/2003		Issued	07/14/2003
STOP CLOCK	07/14/2003	1	07/15/2003		Done	07/14/2003
ARMS Data Entry	07/14/2003	40	08/23/2003		Done	03/15/2004

TECHNICAL EVALUATION
AND
FINAL DETERMINATION

Florida Power & Light Company

Port Everglades Plant

Facility ID No. **0110036**

DEP File No. **0110036-005-AC**

Pollution Control Project

Department of Environmental Protection
Division of Air Resource Management
Bureau of Air Regulation

July 15, 2003

TECHNICAL EVALUATION AND FINAL DETERMINATION

1.0. GENERAL INFORMATION

1.1. APPLICANT NAME AND ADDRESS

Florida Power & Light Company
700 Universe Boulevard
Juno Beach, FL 33408

Responsible Official: Rudy Sanchez, Plant Manager

1.2. REVIEW AND PROCESS SCHEDULE

April 24, 2003 Air Construction Permit Application received.
April 24, 2003 Application deemed complete.

2.0. FACILITY INFORMATION

The facility is located at 8100 Eisenhower Boulevard, Fort Lauderdale, Broward County; UTM Coordinates: Zone 17, 587.38 km East and 2885.25 km North; Latitude: 26° 05' 08" North and Longitude: 80° 07' 31" West.

SIC codes are:

Industry Group No.	49	Electric, Gas and Sanitary Services
Industry No.	4911	Electric Generation

This facility consists of four fossil fuel steam generators and twelve simple-cycle combustion turbines, as described below.

Unit No.	Description
001	Fossil Fuel Steam Generator, Unit 1, rated at 225 MW, 2400 mmBtu/hr for natural gas and 2300 mmBtu/hr for number 6 fuel oil, capable of burning any combination of natural gas, number 6 fuel oil, number 2 fuel oil, propane and on-specification used oil from FPL operations, with emissions exhausted through a 344 ft. stack.
002	Fossil Fuel Steam Generator, Unit 2, rated at 225 MW, 2400 mmBtu/hr for natural gas and 2300 mmBtu/hr for number 6 fuel oil, capable of burning any combination of natural gas, number 6 fuel oil, number 2 fuel oil, propane and on-specification used oil from FPL operations, with emissions exhausted through a 344 ft. stack.
003	Fossil Fuel Steam Generator, Unit 3, rated at 402 MW, 4180 mmBtu/hr for natural gas and 4000 mmBtu/hr for number 6 fuel oil, capable of burning any combination of natural gas, number 6 fuel oil, number 2 fuel oil, propane and on-specification used oil from FPL operations, with emissions exhausted through a 344 ft. stack.
004	Fossil Fuel Steam Generator, Unit 4, rated at 402 MW, 4180 mmBtu/hr for natural gas and 4000 mmBtu/hr for number 6 fuel oil, capable of burning any combination of natural gas, number 6 fuel oil, diesel fuel, propane and on-specification used oil from FPL operations, with emissions exhausted through a 344 ft. stack.
005	12 Simple Cycle Gas Turbines, GT1 through GT12, with a total capacity rated at 504 MW, 8424 mmBtu/hr, capable of burning any combination of, number 2 fuel oil and natural gas, with emissions exhausted through twelve 44 ft. stacks.

This facility is classified as a Major or Title V Source of air pollution because emissions of at least one regulated air pollutant, such as particulate matter (PM/PM₁₀), sulfur dioxide (SO₂), nitrogen

TECHNICAL EVALUATION AND FINAL DETERMINATION

oxides (NO_x), carbon monoxide (CO), or volatile organic compounds (VOC) exceed 100 tons per year (TPY). This facility is also a major source of hazardous air pollutants (HAPs).

The facility is located in an area (Broward County) designated "unclassifiable" for PM₁₀, "air quality maintenance" for ozone, and "attainment" for all the other criteria pollutants (Rule 62-204.340, F.A.C.).

The facility's existing initial Title V Air Operation Permit has an effective date of January 1, 1998, and will expire on December 31, 2003.

3.0. PROJECT DESCRIPTION

The Florida Department of Environmental Protection (DEP), local environmental authorities, and interested citizen groups have expressed increased concern to FPL over the levels of particulate matter emissions from the Port Everglades Plant, as well as the need to ensure the plant's continued compliance with the National Ambient Air Quality Standards and Hazardous Air Pollutant MACT requirements. These concerns have been the subject of negotiations between DEP and FPL over the appropriate air pollution emission controls to be incorporated into FPL's Title V Permit for the plant. As a result, FPL is subject to new permit conditions requiring lower limits for particulate matter emissions at the Port Everglades Plant equivalent to New Source Performance Standards.

In order to meet the lower particulate matter emissions, FPL will install electrostatic precipitators (ESPs) and flue gas temperature controls which are required on all four fossil-fueled steam boilers at the facility. The project includes the engineering, design, modeling, fabrication, assembly, erection, and optimization of the ESPs. The ESPs will replace the existing mechanical dust collectors, which will either be removed or abandoned in place. Since the ESPs will require a larger footprint than the existing dust collectors, special consideration will be made to optimize the design and installation, and minimize the impact on the operation and availability of the station. (As an example, the ESPs may be built on top of the existing dust collectors/ductwork to the stack, in order to reduce outage time requirements and avoid layout interference between the units.)

The project plan is to begin the installation of the first ESP on Unit 002 in conjunction with the Spring outage of 2005, or sooner, absent any unexpected delays in engineering, procurement, or other factors. It is expected that the remaining three units' ESP installations will be completed within the following two years, with the last ESP installed during the Spring outage of 2007. During the construction for each unit, the existing mechanical dust collectors will be removed and flue gas temperature controls which are required will be added. It is anticipated that a commissioning and optimization period of 180 days will be required following each unit's return to service. Please refer to the table below.

Due to the high collection efficiency of the ESPs, it is expected that the quantity of flyash by-product at the plant will increase significantly. The applicant estimates that there will be a need to dispose of approximately 900 to 1,100 tons per year of flyash (this is the equivalent of one dump truck load per week). The handling of flyash shall be controlled using engineering techniques to minimize particulate matter fugitive emissions (this may include the use of bagfilters for flyash handling and enclosed trucks). These techniques will be defined, and an effective approach determined, during the design engineering phase. Commercial use of the flyash will also be investigated.

TECHNICAL EVALUATION AND FINAL DETERMINATION

Emissions Unit	Estimated completion date of on-site construction	Estimated date of compliance certification
Unit 002	4/01/05	10/31/05
Unit 001	11/01/05	5/31/06
Unit 004	11/01/06	5/31/07
Unit 003	4/01/07	10/31/07

4.0. PROJECT EMISSIONS & RULE APPLICABILITY

There will be a *decrease* in the allowable emissions of particulate matter (PM) as a result of implementing this project. Noted below are the existing limits and the proposed changes:

Pollutant	Existing limits	Proposed limits
Particulate Matter (PM) Steady state operation	0.1 pounds per mmBtu heat input	0.03 pounds per mmBtu heat input
Particulate Matter (PM) Soot blowing and load change	0.3 pounds per mmBtu heat input	0.1 pounds per mmBtu heat input

Estimated emissions reductions:

Using the appropriate maximum heat input values for the four boilers affected, and the existing and proposed emissions limits for PM noted above, results in a calculation of the expected reduction of potential particulate matter emissions of about *4,800 tons per year*. This is equivalent to a 70% reduction from current allowable limits. Please refer to attached Table 1 and Table 2.

In addition, allowable visible emissions (VE) will also be *decreased* as noted below:

Pollutant	Existing limits	Proposed limits
Visible Emissions (VE) Steady state operation	40 percent opacity	20 percent opacity
Visible Emissions (VE) Soot blowing and load change	60 percent opacity during 3 hours in any 24-hour period	40 percent opacity during 3 hours in any 24-hour period

The Port Everglades units are anticipated to remain as cycling and load-following units after the installation of the ESPs. Therefore, it is expected that there will be periods coincident with the startup and shutdown activities when the ESPs may be marginally effective until reaching the appropriate operating conditions, i.e., temperatures, flows, etc. FPL will strive to minimize the impact of startup/shutdown activities on ambient air quality by using best operating practices during those periods.

In summary, the addition of ESPs to the four boilers will reduce visible emissions and the emissions of PM and not involve any other changes related to emissions of other pollutants or operational parameters (e.g., stack volumetric flow or temperature). It has been determined by the Department that

TECHNICAL EVALUATION AND FINAL DETERMINATION

the project is a Pollution Control Project, as defined in 40 CFR 52.21(b)(32), and meets the requirements of Rule 62-212.400(2)(a)2., F.A.C., and 40 CFR 52.21(b)(2)(iii)(h). Therefore, the project is not defined as a modification under Department regulations.

The emission units affected by this permit shall comply with all applicable provisions of the Florida Administrative Code (including applicable portions of the Code of Federal Regulations incorporated therein), and all specific conditions of the facility's existing Title V Air Operation Permit No. 0110036-003-AV.

5.0. CONCLUSION

Based on the foregoing technical evaluation of the application and additional information submitted by the applicant and other available information, the Department has made a determination that the proposed project will comply with all applicable state and federal air pollution regulations. The Department will issue a Final Air Construction Permit to the applicant that provides for the above changes at the facility.

Final Air Construction Permit No. 0110036-005-AC

Permittee

Florida Power & Light Company Port Everglades Plant	File No. 0110036-005-AC Facility
700 Universe Boulevard Juno Beach, FL 33408	ID No. 0110036 SIC No. 4911
<i>Authorized Representative:</i> Rudy Sanchez Plant Manager	Permit No. 0110036-005-AC Expires: April 1, 2007

Project and Location

This is an Air Construction Permit for the installation of electrostatic precipitators (ESPs) and flue gas temperature controls which are required on all four existing fossil-fueled steam boilers at the facility. The project includes the engineering, design, modeling, fabrication, assembly, erection, and optimization of the ESPs. The ESPs will replace the existing mechanical dust collectors, which shall either be removed or abandoned in place. *Implementing this project will result in a significant decrease in both visible potential emissions and particulate matter potential emissions from the boilers.* The boilers are located at the Port Everglades Plant, 8100 Eisenhower Boulevard, Fort Lauderdale, Broward County; UTM Coordinates: Zone 17, 587.38 km East and 2885.25 km North.

Statement of Basis

This Air 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.). The above named permittee is authorized to install the ESPs at the facility in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department of Environmental Protection (Department).

The attached appendix is made a part of this permit:

Appendix GC

Construction Permit General Conditions

Joseph Kahn, P.E., Acting Director,
Division of Air Resource Management

Facility Description

This facility consists of four existing fossil fuel steam generators (boilers) and twelve simple-cycle combustion turbines.

Emissions Units

This permit addresses the installation of ESPs at the following emissions units:

Emission Unit No.	System	Emission Unit Description
001	Power Generation	225 MW Fossil Fuel Steam Generator
002	Power Generation	225 MW Fossil Fuel Steam Generator
003	Power Generation	402 MW Fossil Fuel Steam Generator
004	Power Generation	402 MW Fossil Fuel Steam Generator

Regulatory Classification

The facility is classified as a Major or Title V Source of air pollution because emissions of at least one regulated air pollutant, such as particulate matter (PM/PM₁₀), sulfur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO), or volatile organic compounds (VOC) exceed 100 tons per year (TPY).

The addition of ESPs to the four existing boilers will reduce PM and visible potential emissions and not involve any other changes related to emissions of other pollutants or operational parameters (e.g., stack volumetric flow or temperature). It has been determined by the Department that the project is classified as a Pollution Control Project, as defined in 40 CFR 52.21(b)32, and meets the requirements of Rule 62-212.400(2)(a)2., F.A.C., and 40 CFR 52.21(b)(2)(iii)(h). Therefore, the project is not defined as a modification under Department regulations.

Permit Schedule

- 06/18/03 Notice of Intent published
- 06/05/03 Distributed Intent to Issue Permit
- 04/24/03 Application deemed complete
- 04/24/03 Received Application

Relevant Documents

The documents listed below are the basis of the permit. They are specifically related to this permitting action, but not all are incorporated into this permit. These documents are on file with the Department.

- Application received on April 24, 2003.
- The Department's Technical Evaluation and Final Determination issued concurrently with this permit.

PROJECT DESCRIPTION

The permittee shall install electrostatic precipitators (ESPs) and flue gas temperature controls which are required on all four fossil-fueled steam boilers at the facility. The project includes the engineering, design, modeling, fabrication, assembly, erection, and optimization of the ESPs. The ESPs will replace the existing mechanical dust collectors, which will either be removed or abandoned in place. Since the ESPs will require a larger footprint than the existing dust collectors, special consideration shall be made to optimize the design and installation, and minimize the impact on the operation and availability of the station. (As an example, the ESPs may be built on top of the existing dust collectors/ductwork to the stack, in order to reduce outage time requirements and avoid layout interference between the units.)

The project plan is to begin the installation of the first ESP on Unit 002 in conjunction of the Spring outage of 2005, or sooner, absent any unexpected delays in engineering, procurement, or other factors. It is expected that the remaining three units' ESP installations will be completed within the following two years, with the last ESP installed during the Spring outage of 2007. During the construction for each unit, the existing mechanical dust collectors shall be removed and flue gas temperature controls which are required shall be added. It is anticipated that a commissioning and optimization period of 180 days will be required following each unit's return to service. Please refer to the table below.

Due to the high collection efficiency of the ESPs, it is expected that the quantity of flyash by-product at the plant will increase significantly. The applicant estimates that there will be a need to dispose of approximately 900 to 1100 tons per year of flyash (this is the equivalent of one dump truck load per week). The handling of flyash shall be controlled using engineering techniques to minimize particulate matter fugitive emissions (this may include the use of bagfilters for flyash handling and enclosed trucks). These techniques shall be defined and an effective approach determined during design engineering.

Emissions Unit	Estimated completion date of on-site construction	Estimated date of compliance certification
Unit 002	4/01/05	10/31/05
Unit 001	11/01/05	5/31/06
Unit 004	11/01/06	5/31/07
Unit 003	4/01/07	10/31/07

ADMINISTRATIVE REQUIREMENTS

A.1. Regulating Agencies. All documents related to applications for permits to construct, operate or modify an emissions unit should be submitted to the Bureau of Air Regulation, Florida Department of Environmental Protection, at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400 and phone number (850) 488-0114. All documents related to reports, tests, and notifications should be submitted to the Broward County Department of Planning and Environmental Protection, Air Quality Division, and copies of those submittals shall be sent to the Department of Environmental Protection, Southeast District Office.

Florida Power & Light Company
Port Everglades Plant

Air Construction Permit No. **0110036-005-AC**
Facility ID No. **0110036**

Addresses and telephone numbers are:

Broward County Department of Planning and Environmental Protection
Air Quality Division
218 SW 1st Avenue
Ft. Lauderdale, FL 33301
Phone: 954/519-1220

Department of Environmental Protection
Southeast District Office, Air Section
P.O. Box 15425
West Palm Beach, FL 33416
Phone: 561/681-6600

A.2. General Conditions. The owner and operator is subject to, and shall operate under the attached General Permit Conditions **G.1.** through **G.15.** listed in Appendix GC of this permit. General Permit Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes.
[Rule 62-4.160, F.A.C.]

A.3. Terminology. The terms used in this permit have specific meanings as defined in the corresponding chapters of the Florida Administrative Code (F.A.C.).

A.4. Forms and Application Procedures. The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C., and follow the application procedures in Chapter 62-4, F.A.C.
[Rule 62-210.900, F.A.C.]

A.5. Modifications. The permittee shall give written notification to the Department when there is any modification to this facility. This notice shall be submitted sufficiently in advance of any critical date involved to allow sufficient time for review, discussion, and revision of plans, if necessary. Such notice shall include, but not be limited to, information describing the precise nature of the change; modifications to any emission control system; production capacity of the facility before and after the change; and the anticipated completion date of the change.
[Chapters 62-210 and 62-212, F.A.C.]

A.6. New or Additional Conditions. For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time.
[Rule 62-4.080, F.A.C.]

A.7. Permit Extension. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit.
[Rule 62-4.080, F.A.C.]

Applicable Standards and Regulations

A.8. Unless otherwise indicated in this permit, the construction and operation of the subject emission unit(s) shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of Chapter 403, F.S., and Florida Administrative Code Chapters 62-4, 62-103, 62-204, 62-210, 62-212, 62-213, 62-214, 62-296, and 62-297.

A.9. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements or regulations.
[Rule 62-210.300, F.A.C.]

A.10. The facility is subject to all of the requirements specified in Title V Air Operation Permit No. 0110036-003-AV.

General Operation Requirements

A.11. Unconfined Particulate Emissions. During the construction period, unconfined particulate matter emissions shall be minimized by dust suppressing techniques such as covering and/or application of water or chemicals to the affected areas, as necessary.
[Rule 62-296.320(4)(c), F.A.C.]

A.12. Plant Operation – Problems. If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the owner or operator shall notify the Broward County Department of Planning and Environmental Protection as soon as possible, but at least within (1) working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; the steps being taken to correct the problem and prevent future recurrence; and where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit and the regulations.
[Rule 62-4.130, F.A.C.]

A.13. Operating Procedures. Operating procedures shall include good operating practices and proper training of all operators and supervisors. The good operating practices shall meet the guidelines and procedures as established by the equipment manufacturers. All operators (including supervisors) of air pollution control devices shall be properly trained in plant specific equipment.
[Rule 62-4.070(3), F.A.C.]

A.14. Circumvention. The owner or operator shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly.
[Rules 62-210.650, F.A.C.]

Control Technology

A.15. The permittee shall install electrostatic precipitators (ESPs) and flue gas temperature controls which are required on all four existing fossil-fueled steam boilers at the facility.
[Rules 62-204.220 and 62-4.070(3), F.A.C.]

Emission Limits and Standards

A.16. Visible Emissions – Steady State Operation. Visible emissions shall not exceed 20 percent opacity. Emissions units governed by this visible emissions standard shall conduct a compliance test for visible emissions annually using EPA Reference Method 9.
[Rules 62-204.220 and 62-4.070(3), F.A.C.]

A.17. Visible Emissions – Soot Blowing and Load Change. Visible emissions shall not exceed 40 percent opacity during the 3-hours in any 24-hour period of excess emissions allowed for boiler cleaning (soot blowing) and load change.

A load change occurs when the operational capacity of a unit is in the 10 percent to 100 percent capacity range, other than startup or shutdown, which exceeds 10 percent of the unit's rated capacity and which occurs at a rate of 0.5 percent per minute or more.

Visible emissions above 40 percent opacity shall be allowed for not more than 4, six (6)-minute periods, during the 3-hour period of excess emissions allowed by this condition.

Note: these units have operational continuous opacity monitors.
[Rules 62-210.700(3), 62-204.220, and 62-4.070(3), F.A.C.]

A.18. Particulate Matter – Steady State Operation. Particulate matter emissions shall not exceed 0.03 pound per million Btu heat input, as measured by applicable compliance methods.
[Rules 62-204.220 and 62-4.070(3), F.A.C.]

A.19. Particulate Matter – Soot Blowing and Load Change. Particulate matter emissions shall not exceed an average of 0.1 pound per million Btu heat input during the 3-hours in any 24-hour period of excess emissions allowed for boiler cleaning (soot blowing) and load change.
[Rules 62-204.220 and 62-4.070(3), F.A.C.]

Compliance Determination

A.20. Compliance with the allowable emission limiting standards shall be determined not later than 180 days following installation of the ESPs for each unit, and annually thereafter as indicated in the facility's Title V Air Operations Permit, by using the appropriate EPA reference test methods, or Department test methods.
[0110036-003-AV, Specific Conditions A.10., B.10., D.10.; and Rules 62-204.220 and 62-4.070(3), F.A.C.]

A.21. Compliance with the allowable emission limiting standards specified in this Air Construction Permit shall be determined using the appropriate specific conditions of the facility's existing Title V Air Operation Permit No. 0110036-003-AV.
[0110036-003-AV, Specific Conditions A.13. and B.13.]

A.22. Test Results. Compliance test results shall be submitted to the Broward County Department of Planning and Environmental Protection and the Department no later than 45 days after completion of the last test run.
[Rule 62-297.310(8), F.A.C.]

Notification, Reporting, and Recordkeeping

A.23. Emission Compliance Stack Test Reports. A test report indicating the results of the required compliance tests shall be filed as per Specific Condition **A.22**. The test report shall provide sufficient detail on the tested emission unit and the procedures used to allow the compliance authority to determine if the test was properly conducted and if the test results were properly computed.
[Rule 62-297.310(8), F.A.C.]

Compliance Assurance

A.24. Compliance Assurance Monitoring (CAM). The permittee shall evaluate the applicability of CAM to each emissions unit and, if applicable, submit a CAM plan as a revision to the Title V permit.
[40 CFR 64; and Rule 62-204.800, F.A.C.]