# STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION NOTICE OF PERMIT

In the Matter of an Application for Permit by:

Mr. William Reichel, General Manager FPL Fort Myers Plant Post Office Box 430 Fort Myers, Florida 33905 DEP File No. 0710002-004-AC 1500 MW Gas Repowering Project Lee County

Enclosed is the Final Permit Number 0710002 -004AC to construct six (6) 170 megawatt General Electric MS7241FA gas-fired combustion turbine-generators with unfired heat recovery steam generators (HRSG) that will raise sufficient steam to produce approximately another 480 MW via the existing steam-driven electrical generators at the FPL Fort Myers Plant near Tice, Lee County. This permit is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, F.S., by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Legal Office; 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 of Appeal must be filed within 30 (thirty) days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

C.H. Fancy, P.E., Chief Bureau of Air Regulation

#### CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF FINAL PERMIT (including the FINAL permit) was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 11-25-96 to the person(s) listed:

Mr. William Reichel, FPL\*

Mr. Richard Piper, FPL

Ms. Peggy Highsmith, SD

Mr. Doug Neeley, EPA

Mr. John Bunyak, NPS

Mr. Ken Kosky, P.E., Golder Associates

Mr. Peter Cunningham, Esq., HGSS

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

(Clerk)

(Date)

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## FINAL DETERMINATION Florida Power & Light Company

Fort Myers Power Plant 1500 Megawatt Repowering Project

The Department distributed a public notice package on September 22, 1998 for the project to construct/install six combined cycle units to replace two (2) residual oil-fired steam generators at the Florida Power & Light (FPL) Fort Myers Plant near Tice, Lee County. The Public Notice of Intent to Issue was published in Fort Myers News-Press on September 30, 1998.

No comments were received by the Department from the public.

Comments were received from EPA by letter dated November 3, 1998 and FPL by letters and electronic correspondence dated October 28, November 2, and November 18, 1998. A meeting was held October 28, 1998 between the Department, FPL's representatives and its consultant, Ken Kosky of Golder Associates.

EPA and FPL commented only on the draft permit and not on the Technical Evaluation and Preliminary Determination. EPA and FPL's comments are keyed to the draft permit and to the Specific Conditions contained therein. The Department's responses are included following each comment. All comments are referenced to Section III - Emissions Units Specific Conditions.

Specific Condition 5 NSPS Subpart Db Applicability: SubPart Db will not apply if FPL opts to install direct fired heaters instead of a steam boiler to preheat the fuel used in the combustion turbines. FPL suggests that language to that effect be inserted.

The Department will revise the condition to reflect that Db will not apply if FPL actually installs direct fired heaters instead of a steam boiler to preheat fuel for the gas turbines.

Specific Condition 9 Turbine Capacity: FPL requests to include the term "compressor inlet temperature" instead of ambient temperature. FPL states that since inlet foggers will be used as part of this project, it is appropriate to reflect the "fogged" condition in the correction to  $I^cO$  conditions. Using the compressor inlet temperature, rather than ambient, will accomplish this. In addition, FPL also requests to increase the heat input limitation in this condition to 1,760 mmBtu/hour, FPL rationale is that this would allow for degradation of combustion turbine components. There will be no impact on the environment, since the 9 ppm and 65 lb/hour  $NO_X$  limitations will still apply.

The Department concurs with the rationale regarding the specification of compressor inlet temperature. No information was received from the manufacturer regarding the ultimate heat input requirements necessary to maintain the rated power output of the units. However, the Department accepts the professional opinion of W.L. Yeager, General Manager of Combustion Turbines at FPL. FPL has more experience with these types of units based on installations of the Westinghouse 501 F units at Fort Lauderdale and the GE 7FA units at the Martin Power Plant.

Specific Condition 10 Steam Boiler: FPL requests addition of the term "or Direct Fired Heaters" to the description. FPL may install as many as six of these heaters, but the combined heat input and emissions will be enveloped by the information that was provided to the Department on the boiler.

Final Determination FPL Ft Myers Plant 1500 MW Repowering Project Page 2 of 4<sup>†</sup>

The Department concurs and will revise the condition to reflect that condition 10 applies to "Steam Boiler or Direct-Fired Heaters."

Specific Condition 18 Steam Boiler: The table lists "Gas Heater/Roiler". "Gas Heater" needs to be plural (see comment above on Specific Condition 10).

The Department concurs and will revise the condition to reflect "Gas Heaters."

<u>Specific Condition 22 Volatile Organic Compounds (VOC) Emissions</u>: FPL believes that the background concentrations of VOC in the ambient air should be subtracted from the measured VOC in the exhaust stream.

Based on the tests conducted at the Martin Plant, emissions of VOC after tuning were below 0.5 ppm without subtraction of ambient concentrations. The turbine will destroy ambient VOCs which are probably comprised of different constituents than the VOCs emitted from the turbine. The emission level agreed to by FPL has been demonstrated and is apparently guaranteed by GE. Both the emission limit and the DLN2.6 are clearly representative of Best Available Control Technology (BACT) for VOC while firing gas. It should be noted that the stack test requirements are only initial performance tests. If the units exceed 1.4 ppm, the Department will consider at that time whether subtraction of ambient air concentrations is warranted. At such low levels, however, the accuracy of the tests for measuring VOC from the stacks and the ambient air are questionable. The difference between two very low numbers will be even less accurate.

Specific Condition 24 Excess Emissions: FPL states that they and their design-engineering firm, Black & Veatch, have identified a requirement for extended startup excess emission allowances during startups to combined-cycle operation. FPL affirms that because of the unique configuration of the Fort Myers repowered plant, [i.e. 2,400 lb. HRSGs and a large heavy-framed steam turbine (400MW nominal)], FPL, Black & Veatch, Foster Wheeler and GE are concerned about the limitations of both the HRSGs and the 430 MW steam turbine with respect to the "ramp rate" for both steam turbine and HRSG metal temperatures. FPL believes that the suggested language allows FPL the flexibility to start up and operate the new facility and to gain operational experience with this new configuration. FPL adds that Rule 62-2\frac{1}{0}.700(5) provides a basis for this flexibility: "Considering operational variations in types of industrial equipment operations affected by this rule, the Department may adjust maximum and minimum factors to provide reasonable and practical regulatory controls consistent with the public interest." FPL states that "It is estimated that, on average, there will be approximately 12 startups to combined-cycle operation|per year."

The Department will allow excess emissions for a 12 hour duration associated with a cold start-up of the steam turbine system. When the steam turbine is already in operation, the Department's excess emission limitations given in the draft permit apply with respect to hot, warm, and cold startups of combustion turbine/heat recovery steam generator combinations.

Specific Condition 28. FPL suggests that the following should be added: EPA Method 19. "Determination of Particulate Matter, Sulfur Dioxide, and Nitrogen Oxides Emission Rates". Method 19 shall be used for the calculation of lb/mmBtu and 40 CFR 75 shall be used to calculate mmBtu/hour and lb hour emission rates from stack tests. FPL believes that this clarifies the procedure for calculating lb/hour, so that in the future, no ambiguity exists during compliance testing.

The Department concurs with FPL and this condition is revised as requested.

Final Determination FPL Ft Myers Plant 1500 MW Repowering Project Page 3 of 4

Specific Condition 31. FPL states that the requirement for three, one-hour runs for the NOx test appears to reflect the requirements of EPA Method 7E rather than Method 20. FPL notes that Method 20 is specified as the NOx test method in Specific Condition 28. Method 20 requires an  $O_2$ -CO2 traverse, then the 8 points with the lowest  $\%O_2$  are sampled for only about 1 minute each (rather than 1 hour); and that 40 CFR 60.335 requires Method 20 to be used; but Method 20 doesn't require 1-hour test runs. The same section of the CFR requires a NOx analyzer span of 0-300 ppm; however FPL wishes to retain the right to use smaller spans, such as 0-250 or even 0-25 ppm, either of which are inherently more accurate than 0-300 ppm.

The Department agrees with FPL comment and revise this condition as requested.

Specific Condition 33 Testing procedure: FPL states that the these combustion turbines will have inlet foggers which will lower the effective temperature "seen" by the combustion turbine compressor. FPL believes that it is therefore appropriate to use these values, rather than ambient values, for comparison with heat input since FPL and Black & Veatch have refined the design of the fuel gas heaters. They stated that the exact configuration could involve from 2 to 6 heaters, depending on the selected location; i.e., in the gas yard or adjacent to the combustion turbines and that the combined heat input and emissions from the gas heaters will not exceed that included in their initial application.

The Department concurs with this rationale and this condition is revised as requested with a correction for the rule citation.

Specific Condition 39 Continuous Monitoring System: FPL requests that the one-working day notification be verbal, and that FPL be allowed up to 3 working days to follow up with a written explanation. FPL states that this is a typical scenario that they use at their other facilities, and it has been acceptable to the Department previously. FPL adds that in some instances, the explanation as to why an event occurred is not readily apparent, and some investigation time is required to identify the cause. FPL states that these events don't occur often, but when they do, it has historically worked closely with the Department to identify causes and cures.

The Department considers a verbal notification to suffice for the purposes of compliance with the requirement in Rule 62-4.130 that "permittee immediately notify the Department (of plant operations problems)."

Specific Conditions 41 and 42 Monitoring Requirements: By letter dated November 3, 1998. EPA concurred with the monitoring schedule proposed for this project. However EPA advised that certain conditions needed to be included in the permit to reflect the conditions for approval of the monitoring schedule. FPL (electronic correspondence of November 18, 1998) requested that mention be made that they filed for an Acid Rain permit with EPA and sent a copy to the Department.

The Department concurs with EPA. The Department acknowledges receipt of a copy of the acid rain permit application submittal and will include a reference to the document in the list of relevant documents listed in Section 1 of the permit. Specific Conditions 41 and 42 of the Monitoring Requirements Section are revised as follows:

41. Continuous Monitoring System Reports: The monitoring devices shall comply with the certification and quality assurance, and any other applicable requirements of Rule 62-297.520, F.A.C., 40 CFR 60.13, including certification of each device in accordance with 40 CFR 60, Appendix B, Performance Specifications and 40 CFR 60.7(a)(5) or 40 CFR Part 75. Quality assurance procedures must conform to all applicable sections of 40 CFR 60, Appendix F or 40 CFR 75. The monitoring plan, consisting of data on CEM equipment specifications, manufacturer, type, calibration and

Final Determination FPL Ft Myers Plant 1500 MW Repowering Project Page 4 of 4

maintenance needs, and its proposed location shall be provided to the <u>DEP Emissions Monitoring Section Administrator and EPA for review no later than 45 days prior to the first scheduled certification test pursuant to 40 CFR 75.62.</u>

- 42. <u>Natural Gas Monitoring Schedule</u>: The following custom monitoring schedule for natural gas is approved in lieu of the daily sampling requirements of 40 CFR 60.334 (b)(2):
  - The permittee shall apply for an Acid Rain permit within the deadlines specified in 40 CFR 72.30.
  - The permittee shall submit a monitoring plan, certified by signature of the Designated Representative (DR), that commits to using a primary fuel of pipeline supplied natural gas (sulfur content less than 20 gr/100 scf pursuant to 40 CFR 75.11(d)(2)).
  - Each unit shall be monitored for SO<sub>2</sub> emissions using methods consistent with the requirements of 40 CFR 75 and certified by the USEPA.

Categorical Exemption: FPL and Black & Veatch have recently identified the need to add a diesel-fired water pump to the site for the purpose of fire protection. This would be a backup pump to the normal fire protection system and would only be used in an emergency or for testing required by NFPA regulations (1-2 hrs / month). It is exempt from permitting since it qualifies for a categorical exemption under State Rule 62-210.300(3)(a)22. — Fire and Safety equipment. The following emission rates and fuel consumption rates are planned by FPL for this piece of equipment:

Fuel consumption 19.7 gallons per hour VOC 170 grams per hour NO<sub>X</sub> 2850 grams per hour CO 1010 grams per hour SO<sub>2</sub> 250 grams per hour 80 grams per hour 80 grams per hour

The Department acknowledges the above. This categorical exemption would be covered under the Title V permitting process.

<u>Miscellaneous Revisions</u>: The Department revised some language in various permit conditions to clarify the meaning without changing the intent or the stringency of the conditions.

### CONCLUSION

The Final action of the Department is to issue the permit with the changes described above.



## Department of Environmental Protection

Lawton Chiles Governor Twin Towers Office Building 2600 Blair Stone Road Tallahassee, Florida 32399-2400

Virginia B. Wetherell Secretary

#### PERMITTEE:

Florida Power & Light Company Fort Myers Power Plant Post Office Box 430 Fort Myers, Florida 33905

Authorized Representative:

William Reichel Plant General Manager Permit No. 0710002-004AC

Project: 1500 MW Repowering Project •

SIC No. 4911

Expires: December 31, 2002

#### PROJECT AND LOCATION:

Permit to install six (6) combined cycle units to replace two (2) residual oil-fired steam generating units. Each unit is a 170 megawatt General Electric MS7241FA gas-fired combustion turbine-generator with an unfired heat recovery steam generator (HRSG) that will raise sufficient steam to produce another 80 MW via the existing steam-driven electrical generators. The boilers and the tall stacks associated with the existing residual oil-fired units (593 MW total capacity) will be dismantled and replaced by two relatively short stacks per unit for simple and combined operation. The project also includes a cooling tower for once-through brackish water and a small boiler or heaters with a 30-foot stack to heat the natural gas prior to use during simple cycle operation and cold start-ups.

This facility is located at 10650 State Road 80 near Tice, Lee County. UTM coordinates are: Zone:17; 422.3 km E and 2.952.9 km N.

#### STATEMENT OF BASIS:

This 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 modify 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).

#### ATTACHED APPENDICES MADE A PART OF THIS PERMIT:

Appendix GC

Construction Permit General Conditions

Howard L. Rhodes, Director Division of Air Resources

Management

#### SECTION I. FACILITY INFORMATION

#### FACILITY DESCRIPTION

Currently, this facility generates electric power from two residual fuel oil-fired steam units with a combined generating capacity of 593 megawatts (MW) and 12 distillate fuel oil-fired simple cycle combustion turbines with a combined generating capacity of 708 MW.

This permitting action (1500 MW.Repowering Project) is to install six (6) combined cycle units to replace two (2) residual oil-fired steam generating units. Each unit is a 170 megawatt General Electric MS7241FA gas-fired combustion turbine-generator with an unfired heat recovery steam generator (HRSG) that will raise sufficient steam to produce another 80 MW via the existing steam-driven electrical generators. The boilers and the tall stacks associated with the existing residual oil-fired units (593 MW total capacity) will be dismantled and replaced by two relatively short stacks per unit for simple and combined operation. The project also includes a cooling tower for once-through brackish water and a small boiler or heaters with a 30-foot stack to heat the natural gas prior to use during simple cycle operation and cold start-ups.

This Project is exempt from the requirements of Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD) as discussed stated in the Technical Evaluation and Preliminary Determination dated September 18, 1998.

#### **EMISSION UNITS**

This permit addresses the following emission units:

Emission Unit No.	System	EMISSION UNIT DESCRIPTION		
018 - 023	Power Generation	Six (6) Combined Cycle Combustion Turbine-Generators with Unfired Heat Recovery Steam Generators		
024	Fuel Heating	Natural Gas Boiler or Heater(s)		
025	Water Cooling	Mechanical Draft Cooling Tower		

#### REGULATORY CLASSIFICATION

This facility, FPL Fort Myers Power Plant, 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/PM<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>X</sub>), carbon monoxide (CO), or volatile organic compounds (VOC) exceeds 100 tons per year (TPY).

This facility is within an industry included in the list of the 28 Major Facility Categories per Table 62-212,400-1, F.A.C. Because emissions are greater than 100 TPY for at least one criteria pollutant, the facility is also a Major Facility with respect to Rule 62-212,400, Prevention of Significant Deterioration (PSD).

DEP File No. 0710002-004-AC Facility I.D. No. 0710002

#### SECTION I. FACILITY INFORMATION

This facility is a major source of hazardous air pollutants (HAPs) and is also subject to the provisions of Title IV, Acid Rain, Clean Air Act as amended in 1990.

#### PERMIT SCHEDULE

- 9/30/98 Notice of Intent published in the Fort Myers News-Press
- 09/22/98 Distributed Intent to Issue Permit
- 09/04/98 Received Application
- 05/19/98 Project Presentation

#### **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 September 4, 1998
- Department's Intent to Issue and Public Notice Package dated September 22, 1998.
- EPA comments dated November 03, 1998.
- FPL's comments dated October 28 and November 2, 1998.
- FPL's submittal of revised Phase II Acid Rain application dated November 2, 1998
- FPL's letter dated November 6, 1998 to Director of Environmental Services of Lee County.

#### SECTION II. EMISSION UNIT(S) GENERAL REQUIREMENTS

#### GENERAL AND ADMINISTRATIVE REQUIREMENTS

- 1. <u>Regulating Agencies</u>: All documents related to applications for permits to construct, operate or modify an emissions unit should be submitted to the Bureau of Air Regulation (BAR). Florida Department of Environmental Protection (DEP), at 2600 Blairstone Road, Tallahassee, Florida 32399-2400 and phone number (850)488-0114. All documents related to reports, tests, and notifications should be submitted to the DEP South District office, 2295 Victoria Avenue, Suite 364, Ft Myers, Florida 33902-3381 and phone number 941/332-6975.
- 2. <u>General Conditions</u>: 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.]
- 3. <u>Terminology</u>: The terms used in this permit have specific meanings as defined in the corresponding chapters of the Florida Administrative Code.
- 4. <u>Forms and Application Procedures</u>: 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.]
- 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]
- 6. <u>Permit Extension</u>: This permit expires on December 31, 2002. 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.].
- 7. <u>Application for Title V Permit</u>: An application for a Title V operating permit, pursuant to Chapter 62-213, F.A.C., must be submitted to the DEP's Bureau of Air Regulation, and a copy sent to the Department's South District office. [Chapter 62-213, F.A.C.]
- 8. New or Additional Conditions: Pursuant to Rule 62-4.080, F.A.C., 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.]

#### SECTION II. EMISSION UNIT(S) GENERAL REQUIREMENTS

- 9. <u>Annual Reports</u>: Pursuant to Rule 62-210.370(2), F.A.C., Annual Operation Reports, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. Annual operating reports shall be sent to the DEP's South District office by March 1st of each year.
- 10. <u>Stack Testing Facilities</u>: Stack sampling facilities shall be installed in accordance with Rule 62-297.310(6), F.A.C.
- 11. <u>Quarterly Reports</u>: Quarterly excess emission reports, in accordance with 40 CFR 60.7 (a)(7) (c) (1997 version), shall be submitted to the DEP's South District office.

#### SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

#### APPLICABLE STANDARDS AND REGULATIONS:

- 1. 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; and the applicable requirements of the Code of Federal Regulations Section 40, Parts 60, 72, 73, and 75.
- 2. 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.]
- 3. These emission units shall comply with all applicable requirements of 40CFR60, Subpart A, General Provisions including:
  - 40CFR60.7, Notification and Recordkeeping
  - 40CFR60.8, Performance Tests
  - 40CFR60.11, Compliance with Standards and Maintenance Requirements
  - 40CFR60.12, Circumvention
  - 40CFR60.13, Monitoring Requirements
  - 40CFR60.19, General Notification and Reporting requirements
- 4. ARMS Emission Units 018 through 023, Power Generation, consisting of six (nominal) 170 MW combustion turbines (250 MW in combined cycle operation), shall comply with all applicable provisions of 40CFR60, Subpart GG, Standards of Performance for Stationary Gas Turbines, adopted by reference in Rule 62-204.800(7)(b), F.A.C. The Subpart GG requirement to correct test data to ISO conditions applies. However, such correction is not required to demonstrate compliance with non-NSPS permit standard(s).
- 5. ARMS Emission Unit 024, Fuel Heating, shall comply with all applicable provisions of 40°CFR60, Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units, adopted by reference in Rule 62-204.800, F.A.C. This condition shall not apply if FPL actually install direct fired heaters (DFH) instead of a steam boiler.
- 6. ARMS Emission Unit 025, Cooling Tower, is an unregulated emission unit.
- 7. All notifications and reports required by the above specific conditions shall be submitted to the DEP's South District office.

#### GENERAL OPERATION REQUIREMENTS

- 8. <u>Fuels</u>: Only pipeline natural gas shall be fired in these units. [Applicant Request, Rule 62-210.200, F.A.C. (Definitions Potential Emissions)]
- 9. <u>Turbine Capacity</u>: The maximum heat input rates, based on the lower heating value (LHV) of the fuel to *each* combustion turbine at compressor inlet conditions of 59°F, 60% relative

### SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

humidity, 100% load, and 14.7 psia shall not exceed 1,760 million Btu per hour (MMBtu/hr). This maximum heat input rate will vary depending upon turbine inlet conditions and the combustion turbine characteristics. Manufacturer's curves corrected for site conditions or equations for correction to other compressor inlet conditions shall be provided to the Department of Environmental Protection (DEP) within 45 days of completing the initial compliance testing. [Design, Rule 62-210.200, F.A.C. (Definitions - Potential Emissions)]

- 10. Steam Boiler (SB) or Direct Fired Heaters (DFHs). The maximum heat input rate, based on the lower heating value (LHV) of the fuel to the SB or DFHs at ambient conditions of 59°F, 60% relative humidity, 100% load, and 14.7 psia shall not exceed 132 MMBtu per hour.
- 11. <u>Unconfined Particulate Emissions</u>: 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.
- 12. <u>Plant Operation</u> 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 DEP South District office 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.]
- 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.]
- 14. <u>Circumvention</u>: The owner or operator shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]
- 15. <u>Maximum Annual Allowable Hours</u> of operation for each of the six combustion turbines, the cooling tower, and the gas heaters/boiler (ARMS Emission Units 018 025) are 8760. [Applicant Request, Rule 62-210.200, F.A.C. (Definitions Potential Emissions)]

#### Control Technology

16. Dry Low NO<sub>X</sub> (DLN) combustor shall be installed on each stationary combustion turbine to control nitrogen oxides (NO<sub>X</sub>) emissions. [Design, Rule 62-4.070, F.A.C.]

#### SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

17. The permittee shall provide manufacturer's emissions performance versus load diagrams for the DLN systems prior to their installation. DLN systems shall each be tuned upon initial operation to optimize emissions reductions and shall be maintained to minimize NO<sub>X</sub> emissions and CO emissions. [Rule 62-4.070, and 62-210.650 F.A.C.]

#### EMISSION LIMITS AND STANDARDS

18. Following are the emission limits determined for this project assuming full load. Values for NO<sub>X</sub> are corrected to 15% O<sub>2</sub>. These limits or their equivalents in terms of pounds per hour, as well as the applicable averaging times, are followed by the applicable specific conditions. [Applicant Requests, Rules 62-204.800(7)(b) (Subparts GG and Db), 62-210.200 (Definitions-Potential Emissions), F.A.C.].

Emission Unit	NO <sub>X</sub>	со	voc	PM/Visibility (% Opacity)	Technology and Comments
Combustion Turbines (each)	9 ppm (30 day) 75/110 ppm (NSPS)	12 ppm	1.4 ppm	10	Dry Low NO <sub>X</sub> Combustors Natural Gas, Good Combustion
Gas Heaters/ Boiler	0.10 lb/mmBtu	0.15 lb/mmBtu		10	Low NO <sub>X</sub> Burners

## 19. Nitrogen Oxides (NOX) Emissions:

- The concentration of NO<sub>X</sub> concentrations in the exhaust gas of each CT shall not exceed 9 ppmvd at 15%O<sub>2</sub> on a 30-day rolling average basis as measured by the CEMS (maintained in accordance with 40 CFR 75). Based on CEMS data at the end of each operating day, a new 30-day average rate is calculated from the arithmetic average of all valid hourly emission rates during the previous 30 operating days. In addition, NO<sub>X</sub> emissions calculated as NO<sub>2</sub> (at ISO conditions) shall exceed neither 9 ppm @15% O<sub>2</sub> nor 65 lb/hr to be demonstrated by initial performance test.
- When NO<sub>X</sub> monitoring data is not available, substitution for missing data shall be handled as required by Title IV (40 CFR 75) to calculate the 30 day rolling average emission rate.
- NO<sub>X</sub> emission limit from the gas heaters/boiler shall not exceed 0.10 lb/mmBtu (at ISO conditions) to be demonstrated by stack test.
- 20. <u>Visible Emissions (VE)</u>: VE emissions shall not exceed 10 percent opacity. Visible emissions from the gas heaters/steam boiler shall not exceed 10 percent opacity.
- 21. <u>Carbon Monoxide (CO) emissions</u>: The concentration of CO (@15% O<sub>2</sub> in the exhaust gas shall not exceed 12 ppmvd as measured by EPA Method 10. CO emissions (at ISO conditions) shall not exceed 43 lb/hr (per CT) to be demonstrated by stack test.

#### SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

- 22. <u>Volatile Organic Compounds (VOC) Emissions</u>: The concentration of VOC in the exhaust gas shall not exceed 1.4 ppmvd as determined by EPA Methods 18 or 25 A. VOC emissions (at ISO conditions) shall not exceed 2.9 lb/hr per CT to be demonstrated by initial stack test.
- 23. <u>Sulfur Dioxide (SO<sub>2</sub>) emissions</u>: As per Condition 8.

#### **EXCESS EMISSIONS**

- 24. Excess Emissions Requirements:
  - Excess emissions resulting from startup, shutdown, or malfunction of the combustion turbines and heat recovery steam generators shall be permitted provided that best operational practices are adhered to and the duration of excess emissions shall be minimized. Excess emissions occurrences shall in no case exceed two hours in any 24-hour period except during both "cold start-up" to or shutdowns from combined cycle operation. During cold start-up to combined cycle operation, up to four hours of excess emissions are allowed. During shutdowns from combined cycle operation, up to three hours of excess emissions are allowed. Cold start-up is defined as a startup to combined cycle operation following a complete shutdown lasting at least 48 hours.
  - Excess emissions from the combustion turbines resulting from startup of the *steam turbines* system shall be permitted provided that best operational practices are adhered to and the duration of excess emissions shall be minimized. Excess emissions occurrences shall in no case exceed 12 hours per cold startup of the steam turbine system.
    - [Applicant Request (FPL estimates that, on average, there will be approximately 12 startups to combined-cycle operation per year), G.E. Combined Cycle Startup Curves Data and Rules 62-210.700, 62-4.130 F.A.C.].
- 25. Excess emissions entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction, shall be prohibited pursuant to Rule 62-210.700, F.A.C.
- 26. Excess Emissions Report: If excess emissions occur for more than two hours due to malfunction, the owner or operator shall notify DEP's South District office 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. Pursuant to the New Source Performance Standards, all excess emissions shall also be reported in accordance with 40 CFR 60.7, Subpart A. Following this format, 40 CFR 60.7, periods of startup, shutdown, malfunction, and fuel switching shall be monitored, recorded, and reported as excess emissions when emission levels exceed the permitted standards listed in Specific Condition No. 18 and 19. [Rules 62-4.130, 62-204.800, 62-210.700(6), F.A.C., and 40 CFR 60.7 (1997 version)].

#### SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

#### **COMPLIANCE DETERMINATION**

- 27. Compliance with the allowable emission limiting standards shall be determined within 60 days after achieving the maximum production rate at which each unit will be operated, but not later than 180 days following initial operation of the unit, and annually thereafter as indicated in this permit, by using the following reference methods as described in 40 CFR 60, Appendix A (1997 version), and adopted by reference in Chapter 62-204.800, F.A.C.
- 28. Initial (I) performance tests shall be performed pursuant to 40 CFR Subpart GG. Annual (A) 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 CT as indicated. The following reference methods shall be used. No other test methods may be used for compliance testing unless prior DEP approval is received in writing.
  - EPA Reference Method 9, "Visual Determination of the Opacity of Emissions from Stationary Sources" (I, A).
  - EPA Reference Method 10, "Determination of Carbon Monoxide Emissions from Stationary Sources" (I, A).
  - EPA Reference Method 20, "Determination of Oxides of Nitrogen Oxide, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines." Initial test only for compliance with 40CFR60 Subpart GG.
  - EPA Reference Method 18, and/or 25A, "Determination of Volatile Organic Concentrations." Initial test only.
  - ¡EPA Reference Method 19. "Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxides Emission Rates". Method 19 'shall be used only for the calculation of lb/mmBtu and 40CFR75 shall be used to calculate 'mmBtu/hr and lb/hr emissions rates from stack tests. Initial test only.
- 29. Continuous compliance with the NO<sub>X</sub> emission limits: Continuous compliance with the NO<sub>X</sub> emission limits shall be demonstrated with the CEM system based on a 30-day rolling average. Based on CEMS data, a separate compliance determination is conducted at the end of each operating day and a new 30 day average emission rate is calculated from the arithmetic average of all valid hourly emission rates during the previous 30 operating days. Valid hourly emission rates shall not include periods of startup, shutdown, or malfunction. A valid hourly emission rate shall be calculated for each hour in which at least two NO<sub>X</sub> concentrations are obtained at least 15 minutes apart. [Rules 62-4.070 F.A.C., 62-210.700, F.A.C., and 40CFR75]
- 30. Compliance with the SO<sub>2</sub> and PM/PM<sub>10</sub> emission limits: Notwithstanding the requirements of Rule 62-297.340, F.A.C., the use of pipeline natural gas is the method for determining compliance for SO<sub>2</sub> and PM<sub>10</sub>.

#### SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

For the purposes of demonstrating compliance with the 40 CFR 60.333, natural gas supplier data may be submitted or the natural gas sulfur content referenced in 40 CFR 75 Appendix D may be utilized. Gas analysis, if conducted, may be performed by the owner or operator, a service contractor retained by the owner or operator, the fuel vendor, or any other qualified agency pursuant to 40 CFR 60.335(e) (1997 version). However, the applicant is responsible for ensuring that the procedures in 40 CFR 60.335 or 40 CFR 75 are used for determination of fuel sulfur content if gas analysis is done.

- 31. Compliance with CO emission limit: An initial test for CO, shall be conducted concurrently with the initial NO<sub>X</sub> test while operating at permitted capacity. These initial NO<sub>X</sub> and CO test results shall be the average of three runs. Annual compliance testing for CO may be conducted at less than capacity when compliance testing is conducted concurrent with the annual NO<sub>X</sub> RATA testing which is performed pursuant to 40 CFR 75.
- 32. <u>Compliance with the VOC emission limit</u>: An initial test is required to demonstrate compliance with the VOC emission limit. Thereafter, CO emission limit will be employed as a surrogate and no annual testing is required.
- 33. Testing procedures: Testing of emissions shall be conducted with the combustion turbine operating at permitted capacity. Permitted capacity is defined as 95-100 percent of the maximum heat input rate allowed by the permit, corrected for the average compressor inlet temperature during the test (with 100 percent represented by a curve depicting heat input vs. compressor inlet temperature). If it is impracticable to test at permitted capacity, the source may be tested at less than permitted capacity. In this case, subsequent operation is limited by adjusting the entire heat input vs. compressor inlet temperature curve downward by an increment equal to the difference between the maximum permitted heat input (corrected for compressor inlet temperature) and 105 percent of the value reached during the test until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purposes of additional compliance testing to regain the permitted capacity. Test procedures shall meet all applicable requirements (i.e., testing time frequency, minimum compliance duration, etc.) of Chapter 62-204 and 62-297 F.A.C.
- 34. <u>Test Notification</u>: The DEP's South District office shall be notified, in writing, at least 30 days prior to the initial performance tests and at least 15 days before annual compliance test(s).
- 35. <u>Special Compliance Tests</u>: The DEP may request a special compliance test pursuant to Rule 62-297.310(7), F.A.C., when, after investigation (such as complaints, increased visible emissions, or questionable maintenance of control equipment), there is reason to believe that any applicable emission standard is being violated.
- 36. <u>Test Results</u>: Compliance test results shall be submitted to the DEP's South District office no later than 45 days after completion of the last test run.

#### SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

#### NOTIFICATION, REPORTING, AND RECORDKEEPING

- 37. <u>Records</u>: All measurements, records, and other data required to be maintained by the permittee shall be recorded in a permanent form and retained for at least five (5) years following the date on which such measurements, records, or data are recorded. These records shall be made available to DEP representatives upon request.
- 38. Emission Compliance Stack Test Reports: A test report indicating the results of the required compliance tests shall be filed with the DEP South District Office as soon as practical, but no later than 45 days after the last sampling run is completed. [Rule 62-297.310(8), F.A.C.]. The test report shall provide sufficient detail on the tested emission unit and the procedures used to allow the Department to determine if the test was properly conducted and if the test results were properly computed. At a minimum, the test report shall provide the applicable information listed in Rule 62-297.310(8), F.A.C.

#### MONITORING REQUIREMENTS

- 39. Continuous Monitoring System: The permittee shall install, calibrate, maintain, and operate a continuous emission monitor in the stack to measure and record the nitrogen oxides emissions from each CT. Thirty day rolling average periods when NO<sub>X</sub> emissions (ppmvd @ 15% oxygen) are above the standards, listed in Specific Condition No 18 and 19, shall be provided to the DEP South District Office within one working day (verbally) followed up by a written explanation not later than three (3) working days (alternately by facsimile within one working day). [Rule 62-210.700 and 62-4.130, F.A.C].
- 40. <u>CEMS for reporting excess emissions</u>:, The NO<sub>X</sub> CEMS may be used in lieu of the requirement for reporting excess emissions in 40 CFR 60.334(c)(1), Subpart GG (1997 version). Upon request from DEP, the CEMS emission rates for NO<sub>X</sub> on each CT shall be corrected to ISO conditions to demonstrate compliance with the NO<sub>X</sub> standard established in 40 CFR 60.332.
- 41. Continuous Monitoring System Reports: The monitoring devices shall comply with the certification and quality assurance, and any other applicable requirements of Rule 62-297.520, F.A.C., 40 CFR 60.13, including certification of each device in accordance with 40 CFR 60, Appendix B, Performance Specifications and 40 CFR 60.7(a)(5) or 40 CFR Part 75. Quality assurance procedures must conform to all applicable sections of 40 CFR 60, Appendix F or 40 CFR 75. The monitoring plan, consisting of data on CEM equipment specifications, manufacturer, type, calibration and maintenance needs, and its proposed location shall be provided to the DEP Emissions Monitoring Section Administrator and EPA for review no later than 45 days prior to the first scheduled certification test pursuant to 40 CFR 75.62.
- 42. <u>Natural Gas Monitoring Schedule</u>: The following custom monitoring schedule for natural gas is approved in lieu of the daily sampling requirements of 40 CFR 60.334 (b)(2):

#### SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

- The permittee shall apply for an Acid Rain permit within the deadlines specified in 40 CFR 72.30.
- The permittee shall submit a monitoring plan, certified by signature of the Designated Representative (DR), that commits to using a primary fuel of pipeline supplied natural gas (sulfur content less than 20 gr/100 scf pursuant to 40 CFR 75.11(d)(2)).
- Each unit shall be monitored for SO<sub>2</sub> emissions using methods consistent with the requirements of 40 CFR 75 and certified by the USEPA.

#### 43. Determination of Process Variables:

- The permittee shall operate and maintain equipment and/or instruments necessary to determine process variables, such as process weight input or heat input, when such data is needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.
- Equipment and/or instruments used to directly or indirectly determine such process variables, including devices such as belt scales, weigh hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value [Rule 62-297.310(5), F.A.C]
- 44. <u>Subpart Db Monitoring</u>: The Permittee shall comply with the applicable monitoring requirements of 40CFR60, Subpart Db for the steam boiler.

FPL Fort Myers Plant 1500 MW Repowering Project DEP File No. 0710002-004-AC Facility I.D. No. 0710002

#### APPENDIX GC

#### GENERAL PERMIT CONDITIONS [F.A.C. 62-4.160]

- G.1 The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
- G.2 This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings or exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
- G.3 As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
- G.4 This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
- G.5 This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
- G.6 The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
- G.7 The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:
  - a) Have access to and copy and records that must be kept under the conditions of the permit;
  - b) Inspect the facility, equipment, practices, or operations regulated or required under this permit, and.
  - c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

- G.8 If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
  - a) A description of and cause of non-compliance; and
  - b) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

#### GENERAL PERMIT CONDITIONS [F.A.C. 62-4.160]

- The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.
- G.9 In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extend it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.
- G.10 The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
- G.11 This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
- G.12 This permit or a copy thereof shall be kept at the work site of the permitted activity.
- G.13 This permit also constitutes:
  - a) Determination of Best Available Control Technology ()
  - b) Determination of Prevention of Significant Deterioration non-applicablity (X); and
  - c) Compliance with New Source Performance Standards (X).
- G.14 The permittee shall comply with the following:
  - a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
  - b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
  - c) Records of monitoring information shall include:
    - 1. The date, exact place, and time of sampling or measurements;
    - 2. The person responsible for performing the sampling or measurements;
    - 3. The dates analyses were performed;
    - 4. The person responsible for performing the analyses;
    - 5. The analytical techniques or methods used; and
    - 6. The results of such analyses.
- G.15 When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

#### Memorandum

## Florida Department of **Environmental Protection**

TO:

Howard Rhodes

THRU:

FROM:

Clair Fancy CHCO

A. A. Linero Caller Marco

DATE:

November 20, 1998

SUBJECT:

FPL Ft. Myers 1500 MW Repowering Project

DEP File No. 0710002-004-AC

Attached is the final permit for the Ft. Myers Repowering Project. The application is for installation of six (6) 250 megawatt (MW) combined cycle units to replace two (2) residual oil-fired steam generators at the Fort Myers Plant.

Each unit is a 170 megawatt General Electric PG7241FA gas-fired combustion turbine-generator with an unfired heat recovery steam generator (HRSG) that will raise sufficient steam to produce another 80 MW via the existing steam-driven electrical generators. The boilers and the tall stacks associated with existing residual oil-fired units (593 MW total capacity) will be dismantled. The project also includes: a cooling tower for once-through brackish water; a small boiler or heaters to heat the natural gas prior to use; and two relatively short stacks per unit for simple and combined (with HRSG) operation.

Nitrogen Oxides (NO<sub>X</sub>) emissions will be controlled by Dry Low NO<sub>X</sub> (DLN-2.6) combustors capable of achieving emissions of 9 parts per million (ppm) by volume at 15 percent oxygen. Emissions of carbon monoxide (CO) will be controlled to 12 ppm, while emissions of volatile organic compounds (VOC) will be less than 1.4 ppm. Emissions of sulfur dioxide (SO<sub>2</sub>), sulfuric acid mist (SAM), and particulate matter (PM/PM<sub>10</sub>) will be very low because of the switch to inherently clean pipeline quality natural gas. There will be no provisions for firing fuel oil.

There are very substantial emission reductions for all pollutants except VOC. The project netted out of PSD and no BACT was required. The lower NO<sub>X</sub> emissions will reduce ozone (smog) formation potential and nitrate fallout. The lower PM/PM<sub>10</sub>, SO<sub>2</sub> and SAM emissions will reduce visible emissions, fine particulate generation, and acid smut fallout. An air quality impact analysis was conducted. Impacts due to the proposed project emissions are all favorable and the net effect is a "creation of available increment" in the PSD Class I (Everglades) and Class II areas.

I recommend your approval.

AAL/th

Attachments