

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF FINAL PERMIT MODIFICATION

In the Matter of an
Application for Permit Modification


Mr. W. Jeffrey Pardue
Director of Environmental Services Dept.
Florida Power Corporation *Hines*
3201 34th Street South
St. Petersburg, Florida 33733

Permit: PSD-FL-195A / PA-92-33

Enclosed is the Final Permit Modification which reflects the use of SCR and the technical specifications of the new Westinghouse combined cycle combustion turbines. This permit is issued pursuant to Chapter 403, Florida Statutes and 62-4 through 297 F.A.C and 40 CFR 52.21-Prevention of Significant Deterioration (PSD).

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

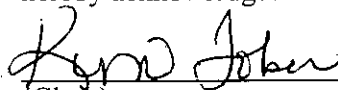
CERTIFICATE OF SERVICE

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 9-29-98 to the person(s) listed:

Mr. W Jeffrey Pardue *
Mr. Doug Neeley, EPA
Mr. John Bunyak, NPS
Mr. Bill Thomas, SWD
Mr. Hamilton Oven, OSC

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) 9-29-98
(Date)

FINAL DETERMINATION

Florida Power Corporation

Permit Modification for Westinghouse CTs with SCR and Other Changes
Hines Energy Complex
Combined Cycle Project
Power Block 1

Polk County

Construction Permit No. PSD-FL-195A / PA-92-33

Florida Power Corporation submitted an application to modify permit No. PSD-FL-195 to install a Selective Catalytic Reduction (SCR) system and to reflect the technical specifications of the combustion turbines installed at its Combined Cycle Facility located near Fort Meade, Polk County.

No comments were received during the public notice period. With this action the Department modifies the construction permit in accordance with the Intent To Issue PSD Permit Modification with the following minor changes:

1. The custom fuel monitoring schedule has been revised to reflect recent guidance from EPA.
2. Minor clarifications were made to certain Specific Conditions regarding testing.

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3. Article Addressed to:

Mr. Jeffrey Pardue
Fla. Power Corp.
3201 34th Street So.
St. Petersburg, FL

4a. Article Number

Z 333 612 520

5. Received By: (Print)

OCT 01 1998

6. Signature: (Add)

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PS Form 3800, April 1995

PSD-FI-195A
PA 92-33



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 Corporation
3201 34th Street South
St. Petersburg, FL 33733

Permit Number: PSD-FL-195A/PA-92-33
Issued: 3/1/94 **Revised:** 9/28/98
Expiration Date: November 1, 2000
County: Polk
Latitude/Longitude: 27°47'19"N/81°52'10"W
Project: 485 MW Combined Cycle

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-212 and 62-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and specifically described as follows:

For two combined cycle combustion turbines (CTs) with maximum allowable heat input based on the higher heating value (HHV) at 59°F of 1,757 MMBtu/hr/unit (natural gas) and 1,846 MMBtu/hr/unit (oil) to be located at the Hines Energy Complex near Fort Meade, Florida. Power Block 1 consists of two combined cycle combustion turbines for a total of 485 MW, a 99 MMBtu/hr auxiliary boiler (Subpart Dc), a 1,300 KW diesel generator and a 97,570 barrel fuel oil storage tank (Subpart Kb). The combustion turbines are Westinghouse Model 501FC or equivalent and rated at approximately 165 MW in simple cycle and equipped with dry low NO_x combustors and/or Selective Catalytic Reduction (SCR) for natural gas firing and wet injection for fuel oil firing. Each combustion turbine will incorporate an unfired heat recovery steam generator.

The source shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Howard L. Rhodes, Director
Division of Air Resources
Management

Relevant documents are listed below:

1. Florida Power Corporation (FPC) application received August 4, 1992.
2. The Department's letters dated August 31 and November 13, 1992.
3. FPC's letters dated October 13 and November 30, 1992; June 27 and September 9, 1996; February 18 and June 30, 1998; and the SCR Technical Specification received August 3, 1998.

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

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4. Westinghouse 501FC tables or curves showing Heat Input vs. Compressor Inlet Temperature and Nitrogen Oxide Emissions vs Compressor Inlet Temperature shall be attachments to and are part of this permit.

GENERAL CONDITIONS:

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.
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, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any 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 of 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.
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.
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.
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.
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 any 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.

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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 description of and cause of non-compliance; and
 - 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.

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.

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 extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.
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.
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.
12. This permit or a copy thereof shall be kept at the work site of the permitted activity.
13. This permit also constitutes:
- (X) Determination of Best Available Control Technology (BACT)
 - (X) Determination of Prevention of Significant Deterioration (PSD)
 - (X) Compliance with New Source Performance Standards(NSPS)

14. The permittee shall comply with the following:
- 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.
 - 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 for 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.
 - Records of monitoring information shall include:
 - the date, exact place, and time of sampling or measurements;
 - the person responsible for performing the sampling or measurements;

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- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

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.
16. Circumvention. No person shall circumvent any air pollution control device, or allow the emission of air pollutants without the applicable air pollution control device operating properly pursuant to Rule 62-210.650 F.A.C.

SPECIFIC CONDITIONS:

The construction and operation of the Hines Energy Complex (Project) shall be in accordance with all applicable provisions of Chapters 62-210 to 297, F.A.C. and NSPS Subparts GG, Dc, and Kb. The following emission limitations and conditions reflect BACT determinations for the Power Block 1- 485 MW (two combined cycle combustion turbines and auxiliary equipment) of generating capacity for which the need has been determined. BACT determinations for the remaining phases will be made upon review of supplemental applications. In addition to the foregoing, the Project shall comply with the following conditions of certification as indicated.

A. General Requirements

1. The maximum heat input (HHV) to each combustion turbine (CT) at an ambient temperature of 59° F shall neither exceed 1,757 MMBtu/hr while firing natural gas, nor 1,846 MMBtu/hr while firing fuel oil. Heat input may vary depending on ambient conditions and the CT characteristics. Manufacturer's curves or equations for correction to other temperatures shall be provided to DEP for review 90 days after selection of the CT. Subject to approval by the Department for technical validity applying sound engineering principles, the manufacturer's curves shall be used to establish heat input rates over a range of temperatures for the purpose of compliance determination.
2. Each of the two CTs in Power Block 1 may operate continuously, i.e., 8,760 hrs/year.
3. Only natural gas (NG) or low sulfur fuel oil shall be fired in each combustion turbine. Only low sulfur fuel oil shall be fired in the diesel generator. The maximum sulfur content of the low sulfur fuel oil shall not exceed 0.05 percent, by weight. Only natural gas shall be fired in the auxiliary boiler.
4. The maximum heat input to the auxiliary boiler shall not exceed 99 MMBtu/hr. Fuel consumption shall be measured and recorded for the auxiliary boiler.
5. The maximum allowable fuel oil consumption for the two turbines is 13,762,806 gallons per year, which is equivalent to an aggregate of 1,000 hours per year of operation at full load.
6. The permittee shall have the option of installing duct module(s) suitable for possible future installation of an oxidation catalyst and/or SCR equipment on each combined cycle generating unit. In the event that the module(s) are not installed in the Heat Recovery Steam Generator (HRSG), the retrofit costs

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associated with not making provisions for such technology (initially) shall not be considered in any future economic evaluation to justify not installing SCR or an oxidation catalyst.

7. Fugitive dust emissions during the construction period shall be minimized by covering or watering dust generation areas.
8. If site construction does not commence on Power Block 1 (485 MW) within 18 months of issuance of this permit, then FPC may request an extension of the 18-month period, provided that such request is received by the Department's Bureau of Air Regulation at least 90 days prior to the expiration date. Such a request shall identify the progress made toward commencement of the construction of the site and the expected time required to start and complete construction of the initial phase. The Department may grant the extension upon a satisfactory showing that the extension is justified. Units to be constructed or modified in later phases of the project will be reviewed under the supplementary review process of the Power Plant Siting Act. If site construction has not commenced within 18 months of issuance of this certification, then FPC shall obtain from DEP a review and, if necessary, a modification of the BACT determination and allowable emissions for the unit(s) on which construction has not commenced [40 CFR 52.21(r)(2)].

B. Emission Limits

1. The maximum allowable emissions from each of the two CTs, when firing natural gas or low sulfur fuel oil, in accordance with the BACT determination and subsequent data from Westinghouse, shall not exceed the following (at 59° F reference temperature for NO_x emissions) (except during periods of start up, shutdown, malfunction):

EMISSIONS LIMITATIONS

| <u>POLLUTANT</u> | <u>FUEL</u> | <u>BASIS(g)</u> | <u>LB/HR/CT</u> | <u>TPY(b)</u> |
|---------------------|-------------|--------------------|-----------------|---------------|
| NO _x (a) | Gas | 12 ppmvd (h) | 73(i) | 639 |
| | Oil | 42 ppmvd (c) (h) | 305 | 153 |
| VOC (d) | Gas | 7 ppmvw | 10.4 | 91 |
| | Oil | 10 ppmvw | 19.0 | 5.6 |
| CO | Gas | 25 ppmvd | 77 | 675 |
| | Oil | 30 ppmvd | 93 | 47 |
| PM/PM ₁₀ | Gas | | 15.6 | 79 |
| | Oil(e) | | 44.8 | 21 |
| SO ₂ | Gas(f) | | 4.7 | 44 |
| | Oil(f) | | 94 | 47 |
| Visible Emissions | Gas | 10 percent opacity | | |
| | Oil | 20 percent opacity | | |

- a. Pollutant emission rates may vary depending on ambient conditions (compressor inlet temperatures) and the CT characteristics. Manufacturer's curves for the NO_x emission rate correction to other temperatures at different loads shall be provided to DEP for review 90 days

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after selection of the CT. Subject to approval by the Department for technical validity applying sound engineering principles, the manufacturer's curves shall be used to establish pollutant emission rates over a range of temperatures for the purpose of compliance determination. Emission limitations in LB/HR/CT of NO_x are blocked 24-hour averages (midnight to midnight) and are calculated as follows:

NO_x emissions shall be determined continuously by a Continuous Emissions Monitoring System (CEMS). A CEMS operated and maintained in accordance with 40 CFR 75 shall be used. Compliance with the NO_x emissions standards in the above table shall be demonstrated with this CEMS system based on a 24-hour block average. Based on CEMS data at the end of each operating day, new 24-hour average emission rates, both actual and allowable (based on compressor inlet temperatures) are calculated from the arithmetic average of all valid hourly emission rates during the previous 24 operating hours. Valid hourly emission rates shall not include periods of startup (including fuel switching), shutdown, or malfunction as defined in Rule 62-210.200 where emissions exceed the NO_x standard. These excess emission periods shall be reported as required in Specific Condition E.2.f. A valid hourly emission rate shall be calculated for each hour in which two NO_x and carbon dioxide (or oxygen) concentrations are obtained at least 15 minutes apart. When monitoring data is not available, substitution for missing data shall be handled as required by Title IV (40 CFR 75) to calculate the 24-hour block average.

- b. Annual emission limits (TPY) for natural gas are based on a total of two CTs operating at full load 8,760 hours per year (i.e., NO_x - 73 lbs/hr X 2 CTs X 8,760 hrs/yr X 1 ton/2,000 lbs = 639 TPY). Annual emission limits (TPY) for fuel oil are based on full load operation for a total of 1,000 hours per year for the two CTs (i.e., NO_x - 305 lbs/hr X 1,000 hrs/yr X 1 ton/2,000 lbs = 153 TPY).
- c. Fuel oil NO_x emissions are based on full load operation and 15 percent oxygen. For fuel oil firing, NO_x levels of 42 ppmvd @ 15 percent O₂ are based on a fuel bound nitrogen content of 0.015 percent or less. The emission limit for NO_x is adjusted as follows for higher fuel nitrogen contents up to a maximum of 0.030 percent by weight:

| <u>FUEL BOUND NITROGEN (% BY WEIGHT)</u> | <u>NO_x LEVELS (PPMVD @ 15% O₂)</u> | <u>NO_x EMISSIONS LB/HR/CT</u> | <u>NO_x EMISSIONS TPY</u> |
|--|--|--|-------------------------------------|
| 0.015 or less | 42 | 305 | 153 |
| 0.020 | 44 | 320 | 160 |
| 0.025 | 46 | 334 | 167 |
| 0.030 | 48 | 349 | 175 |

using the formula $STD = 0.0042 + F$ where:

STD = allowable NO_x emissions (percent by volume at 15 percent O₂ and on a dry basis).

F = NO_x emission allowance for fuel-bound nitrogen defined by the following table:

| <u>FUEL-BOUND NITROGEN (% BY WEIGHT)</u> | <u>F (NO_x % BY VOLUME)</u> |
|--|---------------------------------------|
| 0 < N < 0.015 | 0 |
| 0.015 < N < 0.03 | 0.04(N-0.015) |

where: N = the nitrogen content of the fuel (% by weight).

NO_x emissions limits are preliminary for the fuel oil specified in Specific Condition No. A.3. FPC shall maintain fuel bound nitrogen content data for the low sulfur fuel oil prior to commercial

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operation. Adjustments of the NO_x standard (up and down) shall be calculated and recorded based upon a volume weighted average of the nitrogen content of each bulk fuel oil shipment and the nitrogen content of the existing fuel in the storage tank. The NO_x emission allowance (F) for fuel oil shall not be adjusted between fuel oil shipments. Records for these adjusted standards shall be kept on site for a minimum of 5 years.

- d. Exclusive of background concentrations.
- e. PM/PM₁₀ emission limitations include sulfuric acid mist.
- f. SO₂ emissions are based on a maximum of 1 grain of S/100cf of natural gas and 0.05 percent sulfur in the fuel oil.
- g. The values are the computational basis for the lb/hr numbers, which are the actual emission limitations. Once a combustion turbine manufacturer has been selected, it may be necessary to modify this basis. If this basis is to be modified, a professional engineer-certified equivalency analysis by the manufacturer must be submitted to the Department. The equivalency analysis will recommend an emissions normalizing basis (i.e., lb/hr, lb/MMBtu, lb/MWh, or ppmvd) and associated emissions appropriate for the specific manufacturer's equipment. If the equivalency analysis demonstrates an impact equal to or less than the current lb/hr limit, the Department shall amend the conditions to reflect the alternate basis. The characteristics and parameters of the CT selected will be reflected in other permit conditions, where appropriate.
- h. At 15 percent O₂, not ISO corrected.
- i. Control of nitrogen oxides from each CT while firing natural gas shall be accomplished using dry low NO_x burners (DLN) and SCR. Ammonia slip shall not exceed 10 ppm. If the Westinghouse Piloted Ring Combustor (PRC) or a more advanced DLN burner is developed which is able to comply with the emission limits (listed in the above table) and is installed by November 1, 2000 the SCR system may be removed and replaced with these new burners upon 30 days prior notice to DEP. This action would implement the original BACT for NO_x and would not be subject to PSD review. This notice shall include information on the new burners which provides reasonable assurance and PE certification that these DLN burners can consistently meet the BACT emission limits. In this case the new dry low NO_x burners shall be tested in accordance with the initial performance test as described in Section C.1 within 180 days of startup with the new burners.

The following CT emissions, determined by BACT, are tabulated for PSD purposes:

ESTIMATED EMISSIONS

| POLLUTANT | METHOD OF CONTROL | Basis(b) |
|-------------------|--------------------|----------|
| Benzene | Natural Gas | BACT |
| Inorganic Arsenic | No. 2 Fuel Oil(a) | BACT |
| Beryllium | No. 2 Fuel Oil (a) | BACT |
| Mercury | No. 2 Fuel Oil(a) | (c) |
| Pb | No. 2 Fuel Oil (a) | (c) |

- a. The No. 2 fuel oil shall have a maximum sulfur content of 0.05 percent.
- b. Since these pollutants are inherent constituents in the fuel, the basis for control will be by specifying that only natural gas and No. 2 fuel oil can be fired at the facility.
- c. Below PSD significant emission levels.

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3. Excess emissions from a turbine resulting from start up, shutdown, malfunction, or load change shall be acceptable providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for a longer duration. The permittee shall provide a general description of the procedures to be followed during periods of start up, shutdown, malfunction, or load change to ensure that the best operational practices to minimize emissions will be adhered to and the duration of any excess emissions will be minimized. The description should be submitted to the Department along with the initial compliance test data. The description may be updated as needed by submitting such update to the Department within thirty (30) days of implementation.
4. Operation of the auxiliary steam boiler shall be limited to a maximum of 1000 hours per year and only during periods of cold CT startup or quick startup out of a short-term shutdown mode, when no other source of steam is available or during periodic testing. The following emission limitations shall apply:
 - a. NO_x emissions shall not exceed 0.1 lb/MMBtu for natural gas firing based on vendor-certified stack test data for the model of auxiliary boiler purchased.
 - b. Sulfur dioxide emissions shall be limited by firing natural gas.
 - c. Visible emissions shall not exceed 10 percent opacity while burning natural gas.
5. Operation of the emergency diesel generator shall be limited to a maximum of 100 hours per year and only during periods of on site emergency power needs (when no other power source is available) or during periodic testing. The following emission limitations shall apply:
 - a. The manufacturers design NO_x emission rate shall not exceed 9.82 grams/hp-hr based on vendor-certified stack test data (or equivalent) on the model of generator purchased. This test data shall be provided to the Department with the initial combustion turbine performance test report.
 - b. Sulfur dioxide emissions shall be limited by firing only low sulfur fuel oil with maximum sulfur content of 0.05 percent by weight.
 - c. Visible emissions shall not exceed 20 percent opacity.

C. Performance Testing

1. An initial (I) performance test shall be performed on each CT for each fuel. Testing of emissions shall be conducted with the source operating at capacity (maximum heat input rate for the tested operating temperature). Capacity is defined as 90 - 100 percent of permitted capacity. If it is impracticable to test at capacity, then sources may be tested at less than capacity; in this case subsequent source operation is limited to 110 percent of the test load until a new test is conducted. Once the unit is so limited, then operation at higher capacities is allowed for no more than fifteen consecutive days for purposes of additional compliance testing to regain the rated capacity in the permit, with prior notification to the Department. Annual (A) compliance tests shall be performed on each CT with the fuel(s) indicated below. Tests shall be conducted using EPA reference methods in accordance with 40 CFR 60, Appendix A, as adopted by reference in Rule 62-297, F.A.C.:
 - a. Reference Method 5 or 17 for PM (I, A- only for oil and only if fuel oil is fired more than 400 hours for the CT in the previous federal fiscal year).
 - b. Reference Method 9 for VE (I, A- only for oil and only if fuel oil is fired more than 400 hours for the CT in the previous federal fiscal year).

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- c. Reference Method 10 for CO (I, A- for gas and annually for oil if fuel oil is fired more than 400 hours for the CT in the previous federal fiscal year).
 - d. Reference Method 20 for NO_x (I- only for compliance with 40 CFR 60.332 and 40 CFR 60.335).
 - e. Reference Method 18 or Method 25A for VOC (I).
 - f. ASTM D4294 (or equivalent) for sulfur content of distillate oil (I,A), which can be used for determining SO₂ emissions annually.
 - g. ASTM D1072-80, D3031-81, D4084-82, or D3246-81 (or equivalent) for sulfur content of natural gas (I).
 - h. Ammonia (I) by EPA Conditional Test Method CTM-027 or a test method approved by DEP prior to the initial performance test.
 - i. Other DEP approved methods may be used for compliance testing after prior Departmental approval.
2. The maximum sulfur content of the low sulfur fuel oil shall not exceed 0.05 percent by weight. Compliance shall be demonstrated in accordance with the requirements of 40 CFR 60.334 testing for sulfur content of the fuel oil in the storage tanks on each occasion that fuel is transferred to the storage tanks from any other source. Testing for fuel bound nitrogen content by ASTM D3431 or D4629 or other equivalent ASTM method, and for fuel oil higher heating value, shall also be conducted on the same schedule.

D. Monitoring Requirements

For each combined cycle unit, the permittee shall install, operate, and maintain a continuous emission monitoring system (CEMS) (in accordance with 40 CFR 60, Appendix F or 40 CFR 75) or use other DEP approved alternate methods to monitor nitrogen oxides and, if necessary, a diluent gas (CO₂ or O₂). The Federal Acid Rain Program requirements of 40 CFR 75 shall apply when those requirements become effective for the CTs.

1. Each CEMS shall meet performance specifications of 40 CFR 60, Appendix B or 40 CFR 75.
2. CEMS data shall be recorded and reported in accordance with Chapter 40 CFR 60 Appendix A and Subpart GG and 40 CFR 75. The record shall include periods of start up, shutdown, and malfunction. Compliance with condition B.1. for NO_x shall be determined by CEMS on a mass emission rate basis (LB/HR) using EPA Method 19 and hourly averaged heat inputs (MMBtu/hr).
3. A malfunction means any sudden and unavoidable failure of air pollution control equipment or process equipment to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions.
4. The procedures under 40 CFR 60.13 and 40 CFR 75 shall be followed for installation, evaluation, and operation of all CEMS.
5. For purposes of the reports required under this permit, excess emissions are defined as any calculated average emission rate, as determined pursuant to Condition B.3 herein, which exceeds the applicable emission limits in Condition B.1.

E. Notification, Reporting and Recordkeeping

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1. To determine compliance with the natural gas and fuel oil firing heat input limitation, the permittee shall maintain daily records of natural gas and fuel oil consumption for each turbine and the heating value for each fuel. All records shall be maintained for a minimum of two years after the date of each record and shall be made available to representatives of the Department upon request.
2. The project shall comply with all the applicable requirements of Chapter 62, F.A.C., and 40 CFR 60 Subparts A, GG, Dc, and Kb. The requirements shall include:
 - a. CFR 60.7(a)(1) - By postmarking or delivering notification of the start of construction no more than 30 days after such date.
 - b. CFR 60.7(a)(2) - By postmarking or delivering notification of the anticipated date of the initial startup of each CT and the auxiliary steam boiler not less than 30 days prior to such date.
 - c. CFR 60.7(a)(3) - By postmarking or delivering notification of the actual start up of each turbine and the auxiliary steam boiler within 15 days after such date.
 - d. CFR 60.7(a)(5) - By postmarking or delivering notification of the date for demonstrating the CEMS performance, no less than 30 days prior to such date.
 - e. CFR 60.7(a)(6) - By postmarking or delivering notification of the anticipated date for conducting the opacity observations no less than 30 days prior to such date.
 - f. CFR 60.7(b) - By initiating a recordkeeping system to record the occurrence and duration of any start up, shutdown or malfunction of a turbine and the auxiliary steam boiler, of any malfunction of the air pollution control equipment, and the periods when the CEMS is inoperable.
 - g. CFR 60.7(c) - By postmarking or delivering a quarterly excess emissions and monitoring system performance report within 30 days after the end of each calendar quarter. This report shall contain the information specified in 40 CFR 60.7(c) and (d). When firing natural gas or fuel oil in the combustion turbines, the NO_x CEMS shall be used in lieu of the water/fuel monitoring system and fuel bound nitrogen (FBN) monitoring required for reporting excess emissions in 40 CFR 60.334(c)(1) (1997 version). The calibration of the water/fuel monitoring device required in 40 CFR 60.335 (c)(2) (1997 version) will be replaced by the 40 CFR 75 certification tests of the NO_x CEMS. Upon request from DEP, the CEMS emission rates for NO_x shall be corrected to ISO conditions to demonstrate compliance with the NO_x standard established in 40 CFR 60.332.
 - h. A custom fuel monitoring schedule pursuant to 40 CFR 75 Appendix D for natural gas may be used in lieu of the daily sampling requirements of 40 CFR 60.334 (b)(2) provided the following requirements are met:
 1. The permittee shall apply for an Acid Rain permit within the deadlines specified in 40 CFR 72.30.
 2. 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 or equal to 20 gr/100 scf pursuant to 40 CFR 75.11(d)(2)).
 3. Each unit shall be monitored for SO₂ emissions using methods consistent with the requirements of 40 CFR 75 and certified by the USEPA.This custom fuel monitoring schedule will only be valid when pipeline natural gas is used as a primary fuel. If the primary fuel for these units is changed to a higher sulfur fuel, SO₂ emissions must be accounted for as required pursuant to 40 CFR 75.11(d).
 - i. CFR 60.8(a) - By conducting all performance tests within 60 days after achieving the maximum turbine and boiler firing rates, but not more than 180 days after the initial start up of each CT and the auxiliary boiler.

PERMITTEE:
Florida Power Corporation

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Expiration Date: November 1, 2000

- j. CFR 60.8(d) - By postmarking or delivering notification of the date of each performance test required by this permit at least 30 days prior to the test date; and,
- k. Rule 62-297.345, F.A.C. - By providing stack sampling facilities where necessary .

All notifications and reports required by this specific condition shall be submitted to the Department's Air Program, within the Southwest District office. Performance test results shall be submitted within 45 days of completion of such test.

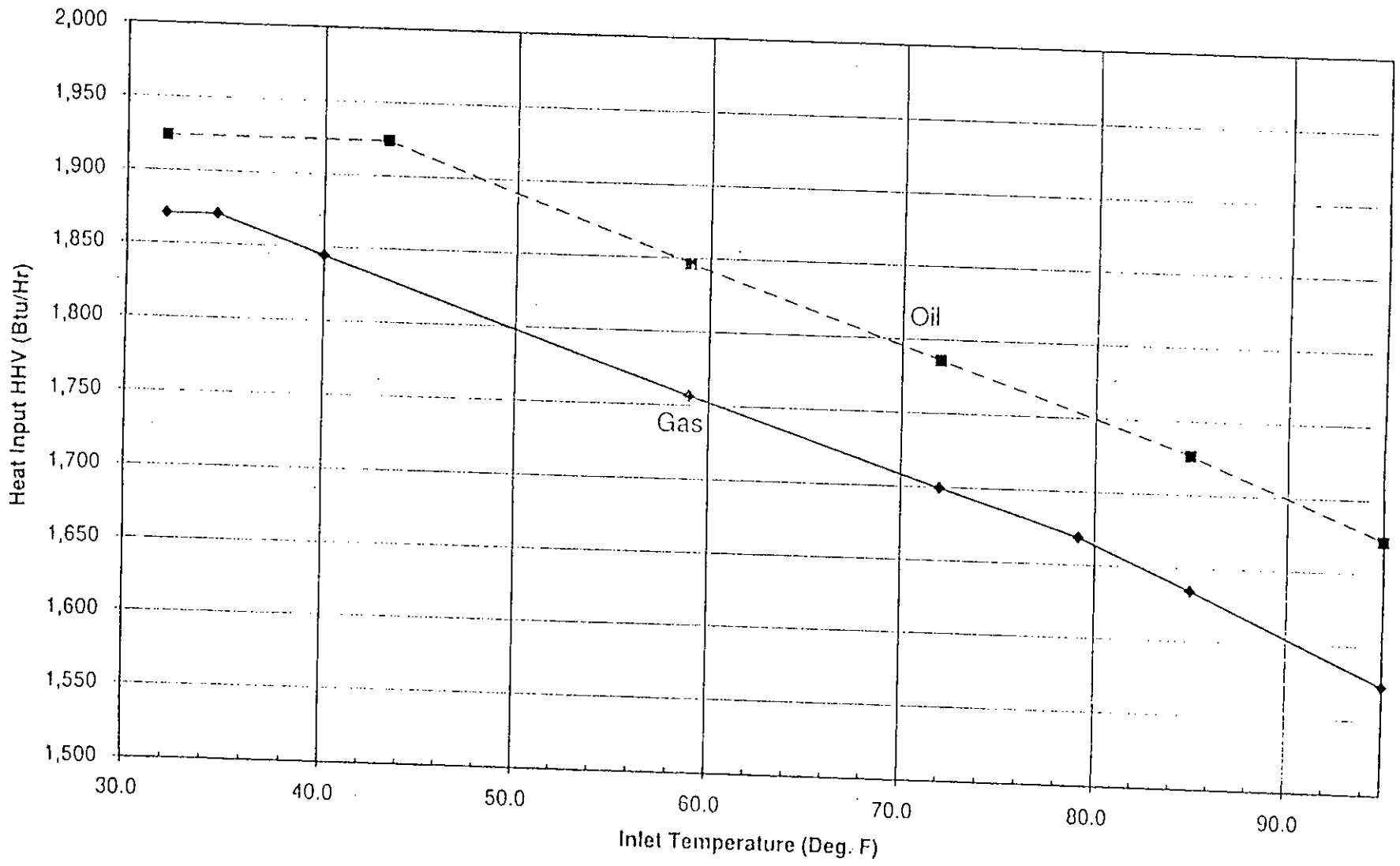
- 3. The following information shall be submitted to the Department's Bureau of Air Regulation within 90 days after selection of each, respectively:
 - a. Description of the final selection of the turbines, the auxiliary steam boiler and diesel generator for installation at the facility. Descriptions shall include the specific make and model numbers, any changes in the proposed method of operation, fuels, emissions or equipment.
 - b. Description of the CEMS selected. Description shall include the type of sensors, the manufacturer and model number of the equipment.
- 4. The following protocols shall be submitted to the Department's Air Program, within the Southwest District office for approval;
 - a. CEMS Protocol - Within 60 days after selection of the CEMS, but prior to the initial startup, a CEMS protocol describing the system, its installation, operating and maintenance characteristics and requirements. The protocol shall meet the requirements of 40 CFR 60.13, 40 CFR 60 Appendix B and Appendix F or 40 CFR 75. The Federal Acid Rain Program requirements of 40 CFR 75 shall apply when those requirements become effective within the state.
 - b. Performance Test Protocol - At least 30 days prior to conducting the initial performance tests required by this permit, the permittee shall submit to the Department's Air Program, within the Southwest District office, a protocol outlining the procedures to be followed, the test methods and any differences between the reference methods and the test methods proposed to be used to verify compliance with the conditions of this permit. The Department shall approve the testing protocol provided that it meets the requirements of this permit.

F. 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.

Heat Input

Heat Input (HHV) vs. Inlet Temperature



Florida Power Corporation - Hines Energy Project
NOx Emission Rates

| Gas Fuel | | Oil Fuel | |
|----------|------------|----------|------------|
| Temp. °F | NOx, lb/hr | Temp. °F | NOx, lb/hr |
| 20 | 78.00 | 20 | 316.00 |
| 21 | 78.00 | 21 | 316.08 |
| 22 | 78.00 | 22 | 316.17 |
| 23 | 78.00 | 23 | 316.25 |
| 24 | 78.00 | 24 | 316.33 |
| 25 | 78.00 | 25 | 316.42 |
| 26 | 78.00 | 26 | 316.50 |
| 27 | 78.00 | 27 | 316.58 |
| 28 | 78.00 | 28 | 316.67 |
| 29 | 78.00 | 29 | 316.75 |
| 30 | 78.00 | 30 | 316.83 |
| 31 | 78.00 | 31 | 316.92 |
| 32 | 78.00 | 32 | 317.00 |
| 33 | 78.00 | 33 | 317.00 |
| 34 | 78.00 | 34 | 317.00 |
| 35 | 78.00 | 35 | 317.00 |
| 36 | 77.80 | 36 | 317.00 |
| 37 | 77.60 | 37 | 317.00 |
| 38 | 77.40 | 38 | 317.00 |
| 39 | 77.20 | 39 | 317.00 |
| 40 | 77.00 | 40 | 317.00 |
| 41 | 76.79 | 41 | 317.00 |
| 42 | 76.58 | 42 | 317.00 |
| 43 | 76.37 | 43 | 317.00 |
| 44 | 76.16 | 44 | 316.25 |
| 45 | 75.95 | 45 | 315.50 |
| 46 | 75.74 | 46 | 314.75 |
| 47 | 75.53 | 47 | 314.00 |
| 48 | 75.32 | 48 | 313.25 |
| 49 | 75.11 | 49 | 312.50 |
| 50 | 74.89 | 50 | 311.75 |
| 51 | 74.68 | 51 | 311.00 |
| 52 | 74.47 | 52 | 310.25 |
| 53 | 74.26 | 53 | 309.50 |
| 54 | 74.05 | 54 | 308.75 |
| 55 | 73.84 | 55 | 308.00 |
| 56 | 73.63 | 56 | 307.25 |
| 57 | 73.42 | 57 | 306.50 |
| 58 | 73.21 | 58 | 305.75 |
| 59 | 73.00 | 59 | 305.00 |
| 60 | 72.85 | 60 | 304.46 |
| 61 | 72.69 | 61 | 303.92 |
| 62 | 72.54 | 62 | 303.38 |
| 63 | 72.38 | 63 | 302.85 |
| 64 | 72.23 | 64 | 302.31 |
| 65 | 72.08 | 65 | 301.77 |
| 66 | 71.92 | 66 | 301.23 |
| 67 | 71.77 | 67 | 300.69 |


Florida Power Corporation - Hines Energy Project
NOx Emission Rates

| | | | |
|----|-------|----|--------|
| 68 | 71.62 | 68 | 300.15 |
| 69 | 71.46 | 69 | 299.62 |
| 70 | 71.31 | 70 | 299.08 |
| 71 | 71.15 | 71 | 298.54 |
| 72 | 71.00 | 72 | 298.00 |
| 73 | 70.86 | 73 | 297.23 |
| 74 | 70.71 | 74 | 296.46 |
| 75 | 70.57 | 75 | 295.69 |
| 76 | 70.43 | 76 | 294.92 |
| 77 | 70.29 | 77 | 294.15 |
| 78 | 70.14 | 78 | 293.38 |
| 79 | 70.00 | 79 | 292.62 |
| 80 | 69.83 | 80 | 291.85 |
| 81 | 69.67 | 81 | 291.08 |
| 82 | 69.50 | 82 | 290.31 |
| 83 | 69.33 | 83 | 289.54 |
| 84 | 69.17 | 84 | 288.77 |
| 85 | 69.00 | 85 | 288.00 |
| 86 | 68.80 | 86 | 287.30 |
| 87 | 68.60 | 87 | 286.60 |
| 88 | 68.40 | 88 | 285.90 |
| 89 | 68.20 | 89 | 285.20 |
| 90 | 68.00 | 90 | 284.50 |
| 91 | 67.80 | 91 | 283.80 |
| 92 | 67.60 | 92 | 283.10 |
| 93 | 67.40 | 93 | 282.40 |
| 94 | 67.20 | 94 | 281.70 |
| 95 | 67.00 | 95 | 281.00 |

Florida Department of
Environmental Protection

Memorandum

TO: Howard Rhodes

FROM: Clair Fancy 

DATE: September 28, 1998

SUBJECT: Florida Power Corporation Hines Energy Complex
PSD-FL-195A Combined Cycle Facility
Final Amendment

BAR

Attached is the final amendment for the above referenced permit.

No comments have been received since the public notice on August 13, 1998.

I recommend your approval and signature.

MC/t

Attachments