Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road, MS#5505
Tallahassee, Florida 32399-2400

Rick Scott
Governor

Jennifer Carroll
Lt. Governor

Herschel T. Vinyard, Jr.
Secretary

PERMITTEE

Progress Energy Florida, Inc.
University of Florida Cogeneration Plant
Mowery Road, Building 82
Gainesville, FL 32611-2295

Authorized Representative:
Wilson B. Hicks, Jr., Plant Manager

Air Permit No. 0010001-011-AC
PSD-FL-181B
University of Florida Cogeneration Plant
Facility ID No. 0010001
Revised Cogeneration Plant Permit

PROJECT

This is the final air construction permit, which modifies the original air construction Permit No. PSD-FL-181, as amended. ***There is no expiration date since no new construction is authorized by the permit.*** The existing cogeneration plant is categorized under Standard Industrial Classification No. 4911 and is located in Alachua County at Mowery Road, Building 82 in Gainesville, Florida. The UTM coordinates are Zone 17, 369.4 kilometers East, and 3279.3 kilometers North.

This final permit is organized into the following sections: Section 1 (General Information); Section 2 (Administrative Requirements); Section 3 (Emissions Unit Specific Conditions); Section 4 (Appendices). Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of Section 4 of this permit.

STATEMENT OF BASIS

This air pollution 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.). This project is subject to the general preconstruction review requirements in Rule 62-212.300, F.A.C. and the preconstruction review requirements for major stationary sources in Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

Upon issuance of this final permit, any party to this order has the right to seek judicial review of it under Section 120.68 of the Florida Statutes by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel (Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000) and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within 30 days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida

_____ _____

Jeffery F. Koerner, Program Administrator (Date)
Office of Permitting and Compliance
Division of Air Resource Management

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Final Air Permit package (including the Final Determination and Final Permit with Appendices) was sent by electronic mail, or a link to these documents made available electronically on a publicly accessible server, with received receipt requested before the close of business on _____ to the persons listed below.

Mr. Wilson Hicks, Progress Energy Florida, Inc. (wilson.hicks@pgnmail.com)
Mr. Chris Bradley, Progress Energy Florida, Inc. (chris.bradley@pgnmail.com)
Mr. Scott Osbourn, Golder Associates (scott_osbourn@golder.com)
Mr. Christopher Kirts, Northeast District Office (christopher.kirts@dep.state.fl.us)
Ms. Kathleen Forney, EPA Region 4 (forney.kathleen@epa.gov)
Ms. Lynn Scearce, DEP OPC Reading File (lynn.scearce@dep.state.fl.us)

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.

_____ _____
(Clerk) (Date)

FACILITY AND PROJECT DESCRIPTION

Existing Facility

This facility consists of one nominal 48 megawatt (MW) combined cycle system and two backup steam boilers. The combined cycle system consists of a General Electric Model No. LM6000-PC-ESPRINT combustion turbine and a heat recovery steam generator with duct burner. The combustion turbine uses spray inter-cooling to maximize power generation and reduce the need for supplemental firing in the duct burner to meet steam and power requirements. Emissions are vented through the heat recovery steam generator stack. Emissions of nitrogen oxides (NO_X) are controlled with steam injection and compliance is demonstrated by data collected from a continuous emissions monitoring system (CEMS). Each backup steam boiler has a separate exhaust stack and is used only as a backup source of steam when the combined cycle system is not available.

Facility ID No. 0010001

ID No.	Emission Unit Description
002	No. 4 Steam Boiler
003	No. 5 Steam Boiler
005	Heat Recovery Steam Generator with Duct Burner System
007	Combustion Turbine, General Electric Model No. LM6000-PC-ESPRINT

Permitting History

- AC01-204652/PSD-FL-181: Air construction permit authorizing initial construction of the combined cycle unit and limited operation of two backup boilers.
- AC01-270823: Based on the limited available data, this action appears to have been an extension of the original air construction permit (AC01-204652/PSD-FL-181).
- 0010001-002-AC/PSD-FL-181A: Minor revision to adjust the maximum heat input rate and NOx emission rate based on the installed equipment.
- 0010001-003-AC: Replacement of existing 43 MW combustion turbine (GE LM6000-PA) with new 48 MW unit (GE LM6000-PC-ESPRINT) with spray inter-cooling.
- 0010001-004-AC: Replaced maximum hourly heat input rate with heat input versus power output curve. Removed the maximum heat input restriction for the combustion turbine plus duct burner.
- 0010001-006-AC: Revised CO emissions limits/caps, removed the natural gas limit on the combustion turbine and duct burner combined, and clarified individual NOx limit on the combustion turbine.
- 0010001-010-AC: Letter of authorization for routine repair, replacement and maintenance of backups boilers.

Proposed Project

The permit revises the original PSD air construction permit to bring all of the miscellaneous amendments and revisions up to date and clarify the permit conditions. This includes, but is not limited to: resetting the CO BACT emission limit; removing distillate oil as an authorized fuel for the combustion turbine because the system was never installed; changes to the testing and reporting requirements; clarifying the emissions caps. This permit supersedes all other air construction permits for these units.

FACILITY REGULATORY CLASSIFICATION

- The facility is not a major source of hazardous air pollutants (HAP).
- The facility has units subject to the acid rain provisions of the Clean Air Act (CAA).
- The facility is a Title V major source of air pollution in accordance with Chapter 62-213, F.A.C.
- The facility is a major stationary source in accordance with Rule 62-212.400(PSD), F.A.C.

SECTION 2. ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: The permitting authority for this project is the Office of Permitting and Compliance, Division of Air Resource Management, Florida Department of Environmental Protection (Department) at: 2600 Blair Stone Road (MS #5505), Tallahassee, Florida 32399-2400. All documents related to applications for permits to operate an emissions unit shall be submitted to the Air Resource Section of the Northeast District (as applicable) at: 7825 Baymeadows Way, Suite 200B, Jacksonville, Florida 32256-7590.

2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Air Resource Section of the Northeast District (as applicable) at: 7825 Baymeadows Way, Suite 200B, Jacksonville, Florida 32256-7590.

3. Appendices: The following Appendices are attached as a part of this permit: Appendix A (Citation Formats and Glossary of Common Terms); Appendix B (General Conditions); Appendix C (Common Conditions); Appendix D (Common Testing Requirements); Appendix E (Final BACT Determinations); and Appendix F (Heat Input Rate vs. Compressor Inlet Temperature).

4. Applicable Regulations, Forms and Application Procedures: Unless otherwise specified in this permit, the construction and operation of the subject emissions units 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 Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations.

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

6. Modifications: No emissions unit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]

7. Source Obligation:

   (a) At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification. [Rule 62-212.400(12)(b), F.A.C.]

   (b) At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by exceeding its projected actual emissions, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification. [Rule 62-212.400(12)(c), F.A.C.]

8. Title V Permit: This permit authorizes specific modifications and/or new construction on the affected emissions units as well as initial operation to determine compliance with conditions of this permit. A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V operation permit within 180 days of issuance of this final air construction permit revision. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the appropriate Permitting Authority with copies to each Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

9. Actual Emissions Reporting: This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the PSD preconstruction review requirements of Rule 62-212.400(4) through (12), F.A.C. for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., the permittee is subject to the following monitoring, reporting and recordkeeping provisions.

   a. The permittee shall monitor the emissions of any PSD pollutant that the Department identifies could increase as a result of the construction or modification and that is emitted by any emissions unit that could be affected; and, using the most reliable information available, calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of 10years following resumption of regular operations after the change. Emissions shall be computed in accordance with the provisions in Rule 62-210.370, F.A.C., which are provided in Appendix C of this permit.

   b. The permittee shall report to the Department ***within 60 days after the end of each calendar year*** during the 10-year period setting out the unit's annual emissions during the calendar year that preceded submission of the report. The report shall contain the following:

      1) The name, address and telephone number of the owner or operator of the major stationary source;

      2) The annual emissions calculations pursuant to the provisions of 62-210.370, F.A.C., which are provided in Appendix C of this permit;

      3) If the emissions differ from the preconstruction projection, an explanation as to why there is a difference; and

      4) Any other information that the owner or operator wishes to include in the report.

   c. The information required to be documented and maintained pursuant to subparagraphs 62-212.300(1)(e)1 and 2, F.A.C., shall be submitted to the Department, which shall make it available for review to the general public.

   For this project, the permit requires the annual reporting of actual 2011 NOx emissions from the combustion turbine and duct burner system. *{Permitting Note: The baseline NOx emissions are 114.50 tons/year for the combustion turbine and duct burner combined, resulting is a PSD applicability trigger threshold of 154.50 tons/year (114.50+40=154.50). The two calendar years used to establish the 114.50 tons/year baseline were 2000 and 2001. The permittee has already report nine years of this data.}*

   [Rules 62-212.300(1)(e) and 62-210.370, F.A.C.]

A. Cogeneration Plant

This section of the permit addresses the following emissions units.

ID No.	Emission Unit Description
002	No. 4 Steam Boiler
003	No. 5 Steam Boiler
005	Heat Recovery Steam Generator with Duct Burner System
007	Combustion Turbine, General Electric Model No. LM6000-PC-ESPRINT

The steam boilers (EU-002 and 003) are used only as back-up sources of steam. Each boiler has its own exhaust stack. The maximum design heat input rate for the No. 4 steam boiler is 69.6 million British thermal units per hour (MMBtu/hour) based on firing 68,000 cubic feet of natural gas per hour and 444 gallons per hour of No. 2 fuel oil. The maximum design heat input rate for the No. 5 steam boiler is 168 MMBtu/hour based on firing 164,000 cubic feet of natural gas per hour and 1067 gallons per hour of No. 2 fuel oil. The No. 4 steam boiler has a stack height of 82 feet, exit diameter of 5 feet, exit temperature of 350°F and an actual volumetric flow rate of 13,500 actual cubic feet per minute (acfm). The No. 5 steam boiler has a stack height of 82 feet, exit diameter of 6 feet, exit temperature of 400°F and actual volumetric flow rate of 56,250 acfm. The backup steam boilers are regulated under this permit and Rule 62-296.406, F.A.C., Fossil Fuel Steam Generators with Less than 250 MMBtu per Hour Heat Input. The steam boilers began commercial service in January 1976.

The combined cycle system (EU-005 and 007) consists of a nominal 48 MW combustion turbine and a heat recovery steam generator with duct burner. The combustion turbine is fired with natural gas and utilizes spray inter-cooling to maximize power output, which reduces the need for supplemental firing in the duct burner to meet steam and power requirements. Steam injection is used to control NO_X emissions from the combustion turbine. The duct burner is equipped with low-NO_X burners to control NO_X emissions while firing natural gas. Exhaust gas from the combined cycle system exits the heat recovery steam generator stack at a height of 93 feet, exit diameter of 9.8 feet, exit temperature of 257°F and actual volumetric flow rate of 365,700 acfm (based on the combustion turbine only at a compressor inlet temperature of 59 °F, 60% relative humidity at inlet, maximum dry standard flow rate of 216,956 dscfm and exit velocity of 80.8 feet per second. Originally, a 43 MW combustion turbine (GE LM6000-PA) began commercial service on January 31, 1994. It was replaced with new 48 MW unit (GE LM6000-PC-ESPRINT) with spray inter-cooling, which began commercial service on September 24, 2002.

{Permitting Note: This facility was permitted originally in 1992 to provide electrical power and steam for the University of Florida. The original project (PSD-FL-181) authorized the construction of the cogeneration facility and required the permanent shutdown of Boilers Nos. 1, 2 and 3. In accordance with Rule 62-212.400(PSD), F.A.C., the above emission units are subject to Best Available Control Technology (BACT) determinations for carbon monoxide (CO). The final BACT determinations are presented in Appendix E of this permit.}

OTHER PERMITS

1. New Permit: This permit supersedes all previous air construction permits for the specified emissions units at the cogeneration plant. The conditions of the new permit are based upon Application No. 0010001-011-AC as well as previous applications for the original Permit No. PSD-FL-181 as well as subsequent modifications and amendments. [Rule 62-4.070(3), F.A.C]

SHUTDOWN UNITS

2. Shutdown Units: Boilers 1, 2 and 3 shall be permanently shut down as a part of this PSD project. *{Permitting Note: This requirement of the original permit has been previously satisfied.}* [Rule 62-212.400(12), F.A.C.]

EQUIPMENT

3. Combined Cycle Combustion Turbine System: The permittee is authorized to construct, operate and maintain as combined cycle combustion turbine system consisting of a nominal 48 MW combustion turbine (GE LM6000-PC-ESPRINT) and a heat recovery steam generator with duct burner. The combustion turbine system generally consists of the following components: gas generator, accessory drive system, air inlet and filtration system, fuel delivery system, cooling system, lubrication system, control system, starting system and exhaust system with stack. This aero-derivative gas turbine is designed with modular components to facilitate quick repairs. Common "wear items" include compressor vanes, turbine nozzles, compressor blades, turbine blades, fuel nozzles, combustion chambers, seals, and shaft packing. The concept of modular design extends to the complete replacement of major components of the gas turbine. Replacements are authorized provided the following requirements are met.

   a. The "hot section" components (e.g., combustors and high-speed turbines including blades, nozzles and other components) shall be replaced with equivalent "like-kind" equipment. Replacement components shall not increase the maximum heat input rate, capacity or emissions from the combustion turbine. Replacement components shall be designed to achieve and shall achieve the emissions standards specified in this permit or better.

   b. Within 90 days of replacing a gas turbine, the permittee shall conduct emissions stack tests to demonstrate compliance with the emission standards for CO and visible emissions. The permittee shall comply with the requirements for notification, test methods, test procedures, and reporting required by this permit.

   c. To up-rate the gas turbine or increase the maximum heat input rate or capacity, the permittee shall submit an application for an air construction permit.

   [Application and Design]

4. Combustion Turbine – Steam Injection: A steam injection system shall be installed to reduce NO_X emissions from the combustion turbine exhaust. In accordance with 40 CFR 60.334, the permittee shall install and operate a continuous monitoring system to monitor and record the ratio of steam to fuel being fired in the combustion turbine. The permittee shall establish the steam-to-fuel ratio that demonstrates compliance with the emissions standards of this permit by correlating with data collected by the NOx CEMS. When the NOx CEMS is down, the permittee shall operate at a steam-to-fuel injection rate that demonstrates compliance. [Rule 62-4.070(3), F.A.C. and NSPS Subpart GG in 40 CFR 60]

5. Backup Steam Boilers: The permittee is authorized to operate and maintain backup steam boilers Nos. 4 and 5 to provide a source of steam in case the combustion turbine is unavailable. [Application and Design]

PERFORMANCE RESTRICTIONS

6. Permitted Capacities:

   a. *Combustion Turbine*: The heat input to the combustion turbine shall not exceed the values defined by the manufacturer's performance curve of heat input rate vs. compressor inlet temperature. The maximum heat input limits are based on the lower heating value (LHV) of natural gas, 100% load and ambient conditions of 60% relative humidity and 14.7 psia. The maximum heat input rates will vary depending upon ambient conditions, the combustion turbine characteristics and the demand. *{Permitting Note: The maximum design heat input rate to the combustion turbine is 480 MMBtu/hour for a compressor inlet temperature of 59°F.}*

   b. *Duct Burner*: The maximum design heat input to the duct burner system is 188 MMBtu/hour of natural gas. The duct burner shall not fire more than 519.5 million ft^3/year of natural gas based on the lower

heating value (LHV) of 950 Btu/ft^3.

c. *Backup Steam Boilers*: When either firing natural gas or No. 2 fuel oil, the maximum design heat input rate for the No. 4 steam boiler is 69.6 MMBtu/hour (equivalent to 68,000 cubic feet of natural gas per hour or 444 gallons per hour of No. 2 fuel oil). When either firing natural gas or No. 2 fuel oil, the maximum design heat input rate for the No. 5 steam boiler is 168 MMBtu/hour (equivalent to 164,000 cubic feet of natural gas per hour or 1067 gallons per hour of No. 2 fuel oil).

[Application, Design and Rule 62-210.200(PTE), F.A.C.]

7. Authorized Fuel: The combustion turbine, HRSG duct burners, and backup steam boilers are authorized to fire natural gas with a maximum sulfur content of 2 grains of sulfur per 100 scf of natural gas (annual average based on vendor data). The backup steam boilers are authorized to fire No. 2 fuel oil with a maximum sulfur content of 0.5% by weight. [Rules 62-210.200(PTE), 62-212.400(12), 62-296.406, F.A.C., and 40 CFR 60.333(b)]

8. Restricted Operation: The hours of operation for equipment authorized by this permit are not limited (8760 hours per year). [Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

EMISSIONS STANDARDS

9. Emissions Standards – Combined Cycle Combustion Turbine with Duct Burner:

a. *Carbon Monoxide (CO) Emissions*:

(1) As determined by EPA Method 10, CO emissions from the combustion turbine shall not exceed 36.0 ppmvd corrected to 15% oxygen. *{Permitting Note: This is equivalent to 35.8 lb/hour at a compressor inlet temperature of 59°F.}*

(2) As determined by EPA Method 10, CO emissions from the duct burner shall not exceed 0.15 lb/MMBtu and 28.1 lb/hour.

[Rule 62-212.400(BACT), F.A.C.]

b. *Nitrogen Oxides (NOx) Emissions*:

(1) As determined by CEMS, NO_X emissions from the combustion turbine shall not exceed 39.6 lb/hour with the duct burner "off" and 58.3 lb/hour with the duct burner "on", based on 30-day rolling averages. *{Permitting Note: The basis for the NOx limit on the combustion turbine is 25 ppmvd corrected to 15% oxygen as provided by the vendor.}* [PSD avoidance pursuant to Rule 62-212.400(12), F.A.C.]

(2) As determined by CEMS, NO_X emissions from the combustion turbine shall not exceed the applicable NSPS emissions standard in 40 CFR 60.332:

$$STD = 75 \text{ ppmvd corrected to 15\% oxygen } \frac{(14.4)}{(8.8)} = 123 \text{ ppmvd corrected to 15\% oxygen}$$

where:

STD = allowable NOx emissions standard corrected to ISO conditions based on a 4-hour rolling CEMS average [40 CFR 60.334]

Y = 8.8 kilojoules per watt hour (kJ/W-hr) based on 950 Btu/SCF (LHV) for natural gas, which is the manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt-hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kJ/W-hr.

There is no NOx emission allowance for fuel-bound nitrogen for natural gas.

[40 CFR 60.334]

(3) As determined by CEMS data pursuant to 40 CFR 60.46b, NO_X emissions from the duct burner shall not exceed 0.1 lb/MMBtu and 18.7 lb/hour based on 30-day rolling average. [40 CFR 60.44b and original Permit No. PSD-FL-181]

c. *Sulfur Dioxide (SO_2) Emissions*: SO_2 emissions from the combustion turbine shall be controlled by firing natural gas with a maximum sulfur content of 2 grains of sulfur per 100 standard cubic feet of natural gas. This condition also ensures that the fuel contains less than 0.8% by weight pursuant to 40 CFR 60.333(b). [Rules 62-212.400(12) and 40 CFR 60.333]

d. *Visible Emissions*: As determined by EPA Method 9, **v**isible emissions shall not exceed 10% opacity from the combustion turbine with or without the duct burner in operation. [Rule 62-4.070(3), F.A.C.]

10. Emissions Standards – Backup Steam Boilers: To control PM and SO_2 emissions, the backup steam boilers shall fire only natural gas or No. 2 fuel oil. As determined by EPA Method 9, visible emissions when firing any authorized fuel shall not exceed 20% opacity except for one, 6-minute block average per hour not to exceed 27% opacity. [Rule 62-296.406(BACT), F.A.C.]

11. Facility-Wide Annual NOx Emission Cap: NOx emissions shall not exceed 185.3 tons per year for any calendar year for all emissions units regulated by this air construction permit (EU 002, 003, 005 and 007). The backup steam boilers may operate individually or in combination provided NO_X emissions from all emissions units regulated by this permit comply with this facility-wide NO_X emissions cap. [PSD avoidance pursuant to 62-212.400(12), F.A.C.]

EXCESS EMISSIONS

12. Excess Emissions Prohibited: Excess emissions caused 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 are prohibited. These emissions shall be included in the compliance averages for NO_X emissions. [Rule 62-210.700(4), F.A.C.]

13. Excess Emissions Allowed: Best operational practices shall be used to minimize hourly emissions that may occur during episodes of startup, shutdown and malfunction. Excess emissions resulting from startup, shutdown, and malfunction shall be permitted 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 longer duration. For the combined cycle combustion turbine with a 30-day NOx averaging period, this requirement shall mean the following. The 24-hour period shall be defined as the 24-hour block based on data collected from the NOx CEMS. If the NOx CEMS reports emissions in excess of the 30-day rolling average, the permittee may exclude up to two hours of excess emissions data caused by each startup, shutdown and malfunction during the 30-day period to determine compliance. No NOx emission data shall be excluded from the annual NOx emission caps. This requirement is not intended to limit the duration of a startup – only the amount of data that may be excluded from the 30-day compliance averaging period. If the 30-day rolling NOx emissions rate exceeds the standard, the permittee shall notify the Compliance Authority within one working day with a preliminary report 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. [Rule 62-210.700(1), F.A.C.]

STACK TESTING REQUIREMENTS

14. Test Requirements: The permittee shall notify the Compliance Authority in writing at least 15 days prior to any required tests. Tests shall be conducted in accordance with the applicable requirements specified in Appendix D (Common Testing Requirements) of this permit. [Rule 62-297.310(7), F.A.C.]

15. Initial Compliance Stack Tests: The emissions units shall be tested to demonstrate initial compliance with the emissions standards within 60 days after achieving permitted capacity, but not later than 180 days after initial operation of the unit.

    a. *Combustion Turbine*: Initial compliance tests for CO and visible emissions shall be conducted at 90% to 100% of the maximum heat input rate for the actual compressor inlet temperature conditions during the test. Compliance with the NOx limits shall be demonstrated by data collected from the CEMS. *{Permitting Note: The requirements in the original permit to conduct initial compliance tests have previously been satisfied.}*

    b. *Duct Burner*: Initial compliance tests for CO emissions shall be conducted at 90% to 100% of the maximum heat input rate. Compliance with the NOx limits shall be demonstrated by data collected from the CEMS. *{Permitting Note: The requirements in the original permit to conduct initial compliance tests have previously been satisfied. Safety considerations prevent subsequent periodic testing of the duct burner, which would likely require dumping excess steam during the test.}*

    c. *Backup Steam Boilers*: Initial informational stack tests on the backup boilers shall be conducted to establish the NOx emissions rate for purposes of reporting the NOx emission rate and complying with the facility-wide NOx emission cap. *{Permitting Note: The requirements in the original permit to conduct initial compliance tests have previously been satisfied.}*

    [Rules 62-4.070(3) and 62-297.310(7), F.A.C.]

16. Annual Compliance Tests: During each federal fiscal year (October 1st to September 30th), the combined cycle combustion turbine system shall be tested to demonstrate compliance with the CO and visible emissions standards. Due to safety considerations, stack testing while firing the duct burner when there is no demand for steam would require dumping excess steam, which presents a safety issue given the existing configuration. Therefore, subsequent periodic testing for CO emissions may be with the duct burner on or off, as dictated by the system demand. Visible emissions for each backup steam boiler shall be conducted only if No. 2 fuel oil is fired for more than 400 hours during the federal fiscal year. *{Permitting Note: A safety evaluation of the steam vent system indicated that it did not meet code and was deemed unsafe; therefore, it was dismantled.}* [Rules 62-4.070(3) and 62-297.310(7), F.A.C.]

17. Special Compliance Tests: When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Department. [Rules 62-297.310(7), F.A.C.]

18. Test Methods: Any tests required by this permit shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
5	Method for Determining Particulate Matter Emissions

Method	Description of Method and Comments
7E	Determination of Nitrogen Oxide Emissions from Stationary Sources
9	Visual Determination of the Opacity of Emissions from Stationary Sources
10	Determination of Carbon Monoxide Emissions from Stationary Sources {Note: The method shall be based on a continuous sampling train.}
19	Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxides Emission Rates (Optional F-factor method may be used to determine flow rate and gas analysis to calculate mass emissions in lieu of Methods 1-4.)

The above methods are described in Appendix A of 40 CFR 60 and are adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Rules 62-204.800 and 62-297.100, F.A.C.; and Appendix A of 40 CFR 60]

MONITORING REQUIREMENTS

19. Continuous Emission Monitoring System: The permittee shall install, calibrate, maintain and operate a CEMS in the stack to measure and record the emissions of NO_X from the combined cycle combustion turbine and duct burner system in a manner sufficient to demonstrate compliance with the NOx emission limits and caps specified in this permit. The oxygen content or the carbon dioxide content of the flue gas shall also be monitored at the location where NO_X is monitored to correct the measured NO_X emissions rates to 15% oxygen and also reported as lb/hour. The NOx CEMS shall be maintained in accordance with the monitoring equipment requirements in 40 CFR 75 for acid rain units. [Rule 62-4.070(3), F.A.C., NSPS Subpart GG in 40 CFR 60 and 40 CFR 75]

20. Fuel Flow Monitoring: The permittee shall install equipment to monitor the fuel flow rates of the combustion turbine, duct burner and steam boilers. [Rules 62-4.070(3) and 62-212.400(12), F.A.C. and NSPS Subpart GG in 40 CFR 60]

RECORDS AND REPORTS

21. Fuel Consumption Rates Monthly Monitoring: By the 15th calendar day of each month, the permittee shall record the monthly fuel consumption rates of the duct burner and backup steam boilers. The written log shall summarize the fuel consumption for the previous month of operation and the previous 12 months of operation. Information may be recorded and stored as an electronic file. Records shall be available for inspection and printing within at least three days of a request by the Department or Compliance Authority. [Rule 62-4.070(3), F.A.C.]

22. Annual Facility-wide NOx Emissions Report: To demonstrate compliance with the facility-wide annual NOx emissions cap, the permittee shall calculate and record annual emissions as follows:

    a. Annual NOx emissions from the combined cycle combustion turbine and duct burner system shall be determined by data collected from the NOx CEMS.

    b. ***By April 1st of each year***, the permittee shall report the facility-wide annual NOx emissions along with the Annual Operating Report. Annual NOx emissions from the backup steam boilers shall be determined based on the annual fuel consumption rate and either the following NOx emissions factors or more recent stack test data (at the option of the permittee).

    No. 4 Steam Boiler: 0.0745 lb NOx/MMBtu (gas) and 0.0815 lb NOx/MMBtu (oil), and

    No. 5 Steam Boiler: 0.110 lb NOx/MMBtu (gas) and 0.1070 lb NOx/MMBtu (oil).

If the facility-wide annual NOx emissions exceed the NOx emissions cap, the permittee shall notify the Compliance Authority within three working days of discovery.

c. ***Before March 1st*** of 2012, the permittee shall submit a report to the Compliance Authority comparing the 2011 annual NOx emissions from the combustion turbine and duct burner to the estimated baseline actual emissions of 114.5 tons/year and the PSD applicability trigger threshold of 154.50 tons/year (114.5 + 40.0 = 154.50 tons/year). This condition becomes obsolete after this reporting requirement is met.

[Rules 62-4.070(3) and PSD avoidance pursuant to 62-212.400(12), F.A.C.]

23. Fuel Sulfur Records: The permittee shall maintain records of the fuel sulfur content of natural gas and No. 2 fuel oil fired. Such information may be provided by the natural gas pipeline vendor or the fuel oil vendor. The following methods shall be used to determine the sulfur content of natural gas: ASTM methods D4084-82, D3246-81, D5504, more recent versions of these methods, methods prescribed in Appendix D of 40 CFR 75, or other methods approved by the Department. The following methods shall be used to determine the sulfur content of fuel oil: ASTM D1552, ASTM D5453, ASTM D129-91, D2622-94 or D4294-90, more recent versions of these methods, methods prescribed in NSPS Subpart GG of 40 CFR 60 or other methods approved by the Department. The permittee may also have a sample of fuel analyzed to determine the actual sulfur content. [NSPS Subparts Db and GG in 40 CFR 60, 40 CFR 75 and Rule 62-4.070(3), F.A.C.]

24. Stack Test Reports: The permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in Appendix D (Common Testing Requirements) of this permit. For each test run, the report shall also indicate the heat input rate of the emissions unit. [Rule 62-297.310(8), F.A.C.]

25. Semi-Annual NSPS Excess Emissions Reports: The permittee shall submit semi-annual excess emission reports in accordance with 40 CFR 60.7(d) to the Compliance Authority. [40 CFR 60.7]

NSPS PROVISIONS

26. NSPS Requirements: The combustion turbine shall comply with the applicable provisions of NSPS Subpart GG in 40 CFR 60, Standards of Performance for Stationary Gas Turbines, adopted by reference in Rule 62-204.800, F.A.C. The duct burner shall comply with the applicable provisions of NSPS Subpart Db in 40 CFR 60, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units, adopted by reference in Rule 62-204.800, F.A.C. The emissions units shall also comply with the applicable requirements of 40 CFR 60, Subpart A, General Provisions, including:

- 40CFR60.7 Notification and Record Keeping
- 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

[40 CFR 60, NSPS Subparts A, Db and GG]