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October 1, 2008

Electronically Sent – Received Receipt Requested

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Mr. Thomas Lawery, Plant Manager
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Progress Energy Florida (PEF)
1601 Weedon Island Drive
St. Petersburg, Florida 33711

Re: DEP File No. 1030011-012-AC (PSD-FL-381A)
P.L. Bartow Power Plant Repowering Project
Modification of Interim Operation Modes

Dear Mr. Lawery:

On May 6, 2008, PEF submitted a permit modification application requesting changes to certain specific conditions of the air construction permit [reference: DEP File No. 1030011-010-AC (PSD-FL-381)] that authorized the replacement of the three residual fuel oil-fired steam electrical generators with a natural gas-fueled combined cycle unit and a natural gas-fueled simple cycle unit.

The key requested modification to the permit is the elimination of an interim period during which the four combustion turbines that comprise the combined cycle unit (presently under construction) can operate in simple cycle (higher emitting) mode. The requests were assessed in the Department's Technical Evaluation and Preliminary Determination issued on September 8, 2008.

The following sections or conditions in Permit No. 1030011-010-AC (PSD-FL-381) are hereby modified as shown below in strike through (~~strike through~~) and double underline format.

Section III, Subsection A, Emissions Unit Table

The title of the table shall now read:

Emissions Units Comprising Combined Cycle Unit 4 and Simple Cycle Unit 5.

(The rest of the table is unchanged)

6. DLN Combustion: The permittee shall install, operate and maintain Dry Low NO_X (DLN) systems to control NO_X emissions from each CT when firing natural gas. Prior to the initial emissions performance tests required for each CT, the DLN combustors and automated combustion turbine control system shall be tuned without a selective catalytic reduction (SCR) system in operation to achieve the permitted CO, VOC and NO_X levels for simple cycle operation. Thereafter, each system shall be maintained and tuned in accordance with the manufacturer's recommendations or industry standards.

   {Permitting Note: Specific VOC testing is not required during the tuning conducted prior to the initial compliance test.}

14. Deleted in accordance with Permit Modification 1030011-012-AC.
~~Temporary Simple Cycle Operation of Two CTs Prior to Permanent Shutdown of Units 1, 2 and 3: The permittee may select any two of the five new CTs to be operated as simple cycle units prior to shutdown of Units 1, 2 and 3. The restrictions included in this condition apply only to those CTs chosen, and only during the described period. Once selected, only those CTs chosen may be operated prior to shutdown of Units 1, 2 and 3 in accordance with the following restrictions:~~

~~a. *Restriction on SC Operation:*~~

- ~~The combined operation of the two CTs shall not exceed 1,100 hours.~~
- ~~A NO_X CEMS shall be installed and operating in each stack prior to startup of the CTs in order to collect and record data for the purpose of demonstrating compliance with this requirement. Notwithstanding the relative accuracy test audit (RATA) grace period described in 40 CFR 75 Appendix B, the NO_X CEMS shall be fully certified in accordance with the requirements of 40 CFR 75 (including a RATA), within 30 operating days but not later than 60 calendar days after startup of the CTs.~~
- ~~Total emissions of NO_X from the two CTs shall not exceed 39 tons during all operation including startups, shutdowns and malfunctions as measured and recorded by the required NO_X continuous emissions monitoring systems (CEMS) during the temporary period. Data recorded before and after CEMS certification shall be included in the calculation.~~
- ~~Each CT shall be stack tested to demonstrate initial compliance with the applicable Subpart KKKK NO_X emission standard for each fuel to be fired. The tests shall be conducted within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after the initial startup of each unit. Data collected during the above described RATA may be used to satisfy this 60-day test requirement provided all requirements of 40 CFR 60.8 and Subpart KKKK are met.~~
- ~~The BACT emissions standards of specific condition 18 do not apply to these CTs prior to Unit 1, 2 and 3 shutdown. Following shutdown of Units 1, 2 and 3 all restrictions of this permit apply, including the BACT limits of specific condition 18.~~

~~b. *Restriction on CC Operation*: No combined cycle operation of any unit is allowed prior to permanent shutdown of Units 1, 2, and 3.~~

~~c. *Monthly Operations Summary*: By the 10th calendar day of each month, the permittee shall record the following in a written or electronic log for each CT for the previous month of operation: fuel consumption, hours of operation, NO_X emissions in total tons for the month, and NO_X emissions in total tons for the described restricted period of operation. Information recorded and stored as an electronic file shall be available for inspection and printing within at least three days of a request by the Department. The fuel consumption shall be monitored in accordance with the provisions of 40 CFR 75 Appendix D.~~

~~*{Permitting note: The limitation on total NO_X emissions and adherence to the emissions standards in Specific Conditions 18, 19 and 20 along with the compliance and recordkeeping requirements of this condition will effectively ensure that emissions increases of all PSD pollutants from the selected CTs operated in SC mode prior to Unit 1, 2 and 3 shutdown will be less than their respective Significant Emissions Rates per Rule 62-210.200 (Definitions-SER), F.A.C.}*~~

~~[Rules 62-4.070(3), 62-210.200(PTE) and 62-212.400(12)(PSD Avoidance), F.A.C.; 40 CFR 60.8, and 40 CFR Subpart KKKK]~~

15. Restricted Operation: The permittee shall not exceed the following parameters following shutdown of Units 1, 2 and 3:

    a. The hours of operation of the CTs are not limited (8,760 hours per year).

    b. Distillate oil firing is limited to ~~1,000 hours per CT (i.e.~~ 5,000 hours total aggregate for all five CTs~~)~~ (based on an average of 1,000 hours per CT) during any consecutive 12-month period.

    c. Operation of the DBs is limited to ~~2,434 hours per DB (i.e.~~ 9,736 hours aggregate for four DBs~~)~~ (based on an average of 2,434 hours per DB) during any consecutive 12-month period.

    d. Power (steam) augmentation shall be limited to 6,752 hours aggregate for the four CTs comprising Unit 4 (based on an average of 1,688 hours per CT during any consecutive 12-month period.

    e. Other than startup, shutdown, fuel switching or documented malfunction ~~the CTs, shall operate above 70% load during simple cycle operation.~~ simple cycle CT operations shall be at a load not less than 45% or that load at which compliance was demonstrated at initial, whichever is higher.

16. Methods of Operation: Subject to the restrictions and requirements of this permit, the CTs may commence commercial operation and thereafter operate under the following methods of operation after ~~shutdown of~~ Units 1, 2 and 3 cease commercial operation:

    {Commence commercial operation means to have begun to generate electricity for sale, including the sale of test generation.}

    (The rest of Condition 16 is unchanged)

Condition 17, Footnote b. will be modified as follows:

b. A CEMS for NO_X shall be installed on the CT stacks and on the HRSG stacks. Correction to 15% O_2 is required ~~not allowed~~ consistent with the provisions of 40 CFR 60, Subpart KKKK.

(The rest of Condition 17 is unchanged)

Condition 18, Footnote c. will be modified as follows:

c. CEMS for CO are required only on the HRSG stacks. Other than startup, shutdown, fuel switching or documented malfunction ~~the CTs, shall operate above 70% load during simple cycle operation.~~ simple cycle CT operations shall be at a load not less than 45% or that load at which compliance was demonstrated at initial, whichever is higher.

(The rest of Condition 18 is unchanged)

Condition 20.a. will be modified as follows:

a. *Visible Emissions*: Visible emissions shall not exceed 10 percent opacity for each 6-minute block average. Compliance with the visible emissions standard shall be demonstrated by conducting tests in accordance with EPA Method 9.~~23~~

(The rest of Condition 20 is unchanged)

Condition 25.d. will be modified as follows:

b. *Simple Cycle CT Startup*: For startup of a CT for the purpose of operation in simple cycle mode, up to 1 hour or 60 minutes of CEMS data in any 24-hour period of excess emissions can be excluded.

(The rest of Condition 25 is unchanged)

27. Test Methods: Any required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
CTM-027	Procedure for Collection and Analysis of Ammonia in Stationary Source. {Notes: This is an EPA conditional test method.} The minimum detection limit shall be 1 ppm.
320	Measurement of Vapor Phase Organic and Inorganic Emissions by Extractive Fourier Transform Infrared (FTIR) Spectroscopy
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 {Notes: The method shall be based on a continuous sampling train.}
18	Measurement of Gaseous Organic Compound Emissions by Gas Chromatography {Note: EPA Method 18 may be used (optional) concurrently with EPA Method 25A to deduct emissions of methane and ethane from the measured VOC emissions.}
~~20~~	~~Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines~~
25A	Determination of Volatile Organic Concentrations

No other methods may be used unless prior written approval is received from the Department. [Rules 62-204.800, F.A.C.; 40 CFR 60, Appendix A]

28. Initial Compliance Determinations: Each CT shall be stack tested to demonstrate initial compliance with the emission standards for CO, NO_X, VOC, visible emissions, and ammonia slip. The tests shall be conducted within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after the initial startup of each unit configuration. Each unit shall be tested when firing natural gas, when using the duct burners and when firing distillate fuel oil. Reference method data collected during the required Relative Accuracy Test Audits (RATAs) may be used to demonstrate compliance with the initial CO and NO_X compliance tests. With appropriate flow measurements (or fuel measurements and approved F-factors), CEMS data may be used to demonstrate compliance with the CO mass rate emissions standards. With appropriate flow measurements (or fuel measurements and approved F-factors), the EPA Method 25A instrumental data may be used to demonstrate initial compliance with the VOC mass rate emissions standards. CO and NO_X emissions recorded by the CEMS shall also be reported for each run during tests for visible emissions, VOC and ammonia slip. The Department may require the permittee to conduct additional tests after major replacement or major repair of any air pollution control equipment, such as the SCR catalyst, oxidation catalyst, DLN combustors, etc. [Rule 62-297.310(7)(a)1, F.A.C. and 40 CFR 60.8]

31. CEM Systems: The permittee shall install, calibrate, maintain, and operate continuous emission monitoring systems (CEMS) to measure and record the emissions of CO from the HRSG stacks and NO_X from all stacks in a manner sufficient to demonstrate continuous compliance with the CEMS emission standards of this section. Each monitoring system shall be installed, calibrated, and properly functioning prior to the initial performance tests. Within one working day of discovering emissions in excess of a CO or NO_X standard (and subject to the specified averaging period), the permittee shall notify the Compliance Authority.

a. *CO Monitors.* The CO monitors shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 4 or 4A within 60 calendar days of achieving permitted capacity as defined in Rule 62-297.310(2), F.A.C., but no later than 180 calendar days after initial startup. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report of Section 7 shall be made each calendar quarter, and reported semiannually to the Compliance Authority. The RATA tests required for the CO monitor shall be performed using EPA Method 10 in Appendix A of 40 CFR 60~~ and shall be based on a continuous sampling train~~. The CO monitor span values shall be set appropriately considering the allowable methods of operation and corresponding emission standards.

b. *NO_X Monitors.* Each NO_X monitor shall be certified, operated, and maintained in accordance with the requirements of 40 CFR 75. Record keeping and reporting shall be conducted pursuant to Subparts F and G in 40 CFR 75. The RATA tests required for the NO_X monitor shall be performed using EPA ~~Method 20 or~~ 7E in Appendix A of 40 CFR 60.

c. *Diluent Monitors.* The oxygen (O_2) or carbon dioxide (CO_2) content of the flue gas shall be monitored at the location where NO_X and CO are ~~is~~ monitored to correct the measured emissions rates to 15% oxygen. If a CO_2 monitor is installed, the oxygen content of the flue gas shall be calculated using F-factors that are appropriate for the fuel fired. Each monitor shall comply with the performance and quality assurance requirements of 40 CFR 75.

Condition 32, first bullet will be modified as follows:

32. CEM Data Requirements:

- *Data Collection*: Emissions shall be monitored and recorded at all times including startup, operation, shutdown, and malfunction except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments. The CEMS shall be designed and operated to sample, analyze, and record data evenly spaced over an hour. If the CEMS measures concentration on a wet basis, the CEM system shall include provisions to determine the moisture content of the exhaust gas and an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Alternatively, the owner or operator may develop through manual stack test measurements a curve of moisture contents in the exhaust gas versus load for each allowable fuel, and use these typical values in an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Final results of the CEMS shall be expressed as ppmvd of NO_X and CO corrected to 15% oxygen~~ and as ppmvd of NO_X (uncorrected)~~. The CEMS shall be used to demonstrate compliance with the CEMS emission standards for CO and NO_X as specified in this permit. For purposes of determining compliance with the CEMS emissions standards of this permit, missing (or excluded) data shall not be substituted. Upon request by the Department, the CEMS emission rates shall be corrected to ISO conditions.

(The rest of Condition 32 is unchanged)

A copy of this letter shall be filed with the referenced permit and shall become part of the permit. Any party to this permitting decision (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 thirty days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.

Joseph Kahn, Director
Division of Air Resource Management

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Final Permit Modification was sent by electronic mail (or a link to these documents made available electronically on a publicly available server) with received receipt requested before the close of business on 10/1/08 to the persons listed below:

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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) 10/1/08 (Date)