



Farzie Shelton, chE; REM

Manager of Environmental Affairs

August 8, 2002

Mr. C.H. Fancy, P.E.
Chief Bureau of Air Regulation
Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road, Mail Station #5505
Tallahassee, Florida 32399-2400

RECEIVED

AUG 09 2002

BUREAU OF AIR REGULATION

Dear Mr. Fancy:

**Re: Draft Air Construction Permit, DEP File No. PSD-FL-245(PA -74-06)
C. D. McIntosh Power Plant -Unit No. 5**

We are in receipt of your letter dated May 31, 2002 and copy of Draft PSD Permit Modification relative to the start-up emissions on the above referenced Unit. We thank you and your staff for processing our application expeditiously in an efficient manner. We have studied the content of the permit and completed our investigation for possibility of installing an oxidation catalyst for removal of the CO. Therefore, we are writing to submit our comments and request certain changes and modification to allow us to operate Unit No. 5 in compliance with the permit while using the best operational practices and following the manufacturer's guidelines on personnel and equipment safety.

The following are our comments and requested changes:

1. We have noted a typo error condition number 16 in the draft should be condition number 17 and condition number 21 should be condition number 22 in order to match the PSD permit.
2. **Condition 17:**
 - **Replace:** The permittee shall install SCR equipment and install an oxidation catalyst. The oxidation catalyst shall be designed for a minimum 90% destruction efficiency at base load.
 - **With:** The permittee shall install SCR equipment and install an oxidation catalyst. The installation of oxidation catalyst is for the purpose of reducing emissions of CO during startup/shutdown and while the unit is operating at less than 70% of the combustion turbine base load. The oxidation catalyst shall be designed for 90% destruction efficiency based on the unit's design base load.

August 8, 2002

- **Rationale:** The initial compliance testing has showed emission of CO at base load to be 2 ppmvd, accordingly, no oxidation catalyst should be required for such a low emission. Additionally, no catalyst is required for startup and shutdown since best operational practices will be followed. However, Lakeland will consider installation of oxidation catalyst to minimize the emission of the CO during the low load operation. Once the catalyst has been installed and operated the emission during the startup/shutdown will automatically be controlled.

3. **Condition 22:**

- **Replace:** Prior to April 1, 2003 CO emission shall be minimized through the use of best operating practices and properly tuned combustors.

After March 31, 2003 the concentration of CO in the exhaust gas shall be additionally controlled by the use of an oxidation catalyst with a minimum of 90% CO removal efficiency, as measured annually by EPA Method 10 at base load.

- **With:** Prior to August 1, 2003 CO emission shall be minimized through the use of best operating practices and properly tuned combustors.

After July 31, 2003, the concentration of CO in the exhaust gas at base load shall not exceed 10 corrected to 15 percent oxygen as measured annually by EPA Method 10. Annually thereafter, during an annual scheduled maintenance outage, the catalyst manufacturer or qualified consultant/contractor will evaluate the activity of the catalyst and make recommendations regarding the need to add or change catalyst modules for limiting emissions of CO as designed per condition 17.

- **Rationale:** Lakeland is a municipality, therefore, a capital expenditure such as oxidation catalyst will need to be approved by its commissioners and go through extensive vendor/contractor selection process. Hence the requested time will be necessary to accomplish this task. Likewise, the annual stack testing to demonstrate destruction efficiency of the catalyst is not appropriate since the initial testing of the CO emissions at base load prior to the installation of the catalyst demonstrated CO emissions of 2 ppmvd. Therefore, Lakeland is proposing an annual evaluation of the pollution control equipment by qualified outside consultant/contractor.

City of Lakeland • Department of Electric Utilities

August 8, 2002

4. **Condition 25:**

- **Replace:** Prior to April 1, 2003 VOC emissions shall be minimized through the use of best operating practices and properly tuned combustors.

After March 31, 2003 VOC emissions shall be additionally controlled through the use of an oxidation catalyst. CO emissions shall be employed as a surrogate for VOC emissions and no further annual testing will be required.

- **With:** Prior to August 1, 2003 VOC emissions shall be minimized through the use of best operating practices and properly tuned combustors.

After July 31, 2003 VOC emissions shall be additionally controlled through the use of an oxidation catalyst. CO emissions shall be employed as a surrogate for VOC emissions and no further annual testing will be required.

- **Rationale:** Same as condition 22.

5. **Condition 26:**

- **Replace:** Excess emissions resulting from startup, shutdown, malfunction or fuel switching shall be permitted provided that best operational practices are adhered to and the duration of excess emissions shall be minimized. Excess emissions occurrences shall in no case exceed four hours in any 24-hour period for cold startup or two hours in any 24-hour period for other reasons unless specifically authorized by DEP for longer duration.

During any calendar day in which a start-up, shutdown, or fuel change occurs, the following alternative NOX limit applies:

100 lb/hr on the basis of a 24-hour average

200 lb/hr on the basis of a 24-hour average if fuel oil is fired during a start-up or shut-down within the 24-hour period.

- **With:** Excess emissions resulting from startup, shutdown, malfunction or fuel switching shall be permitted provided that best operational practices are adhered to and the duration of excess emissions shall be minimized. Excess emissions occurrences shall in no case exceed four hours in any 24-hour

City of Lakeland • Department of Electric Utilities

August 8, 2002

period for startup and shutdown or two hours in any 24-hour period for other reasons unless specifically authorized by DEP for longer duration.

During any calendar day in which a start-up, shutdown, fuel change or low-load operation occurs, the following alternative NOX limit applies:

- 100 lb/hr on the basis of a 24-hour average
- 200 lb/hr on the basis of a 24-hour average if fuel oil is fired during a start-up or shut-down within the 24-hour period.

The "low load" is defined as load less than 70 percent of base load of combustion turbine and shall be limited to no more than 10 hours in a 24-hour period.

- **Rationale:** The phrase "cold startup" has been replaced by "startup" since Unit No. 5 startup includes cold, warm, and hot startup collectively referred to as startup. Additionally, the NOX limits are applied to the low load operation. This request is based on the fact that Unit No. 5 may not be required to operate at base load for 24 hours everyday because the load is not required. By applying the suggested limit to low load operation it would help Lakeland in preserving the integrity of the equipments and components of this unit, as per manufacturer's recommendations, by not cycling the unit off-line (shutdown) and restart again the next day when the unit is needed for base load operation. This suggested language will be beneficial to the environment as the unit will not have to go through shutdown and restart daily causing far more NOX and CO emissions than that of operating in low load.
6. **Replace: Condition 2. of B. Additional Specific conditions (in the Site Certification).**
- During combined cycle operation, steam injection for power augmentation shall not exceed 3000 hours during any consecutive 12-month period. The permittee shall keep records of operation sufficient to demonstrate compliance with this limit. The permittee shall demonstrate compliance with the CO emissions standard by conducting EPA Method 10 in accordance with the following schedule:
 - a. Within 60 days of implementing power augmentation, the permittee shall conduct an initial CO emissions performance test during the

City of Lakeland • Department of Electric Utilities

August 8, 2002

maximum amount of power augmentation to demonstrate compliance with the CO emissions standard.

- b. Within 45 days after utilizing power augmentation in a federal fiscal year, the permittee shall schedule and conduct a CO emissions performance test during power augmentation.

- c. Within 45 days after operating 1000 hours with power augmentation in a federal fiscal year, the permittee shall schedule and conduct a second CO emissions performance test during power augmentation.

- d. Within 45 days after operating 2000 hours with power augmentation in a federal fiscal year, the permittee shall schedule and conduct a third CO emissions performance test during power augmentation.

- e. The permittee shall comply with all notification, testing, and reporting requirements required by PSD Permit No. PSD-FL-245. NOX data compiled by the continuous monitor during each CO performance test shall be reported and summarized with each CO test report. Steam injection shall be limited to the rate during the most recent emissions performance test that demonstrated compliance with the CO Standard.

- **With:** During combined cycle operation, steam injection for power augmentation shall not exceed 3000 hours during any consecutive 12-month period. The permittee shall keep records of operation sufficient to demonstrate compliance with this limit.

- a. Delete
- b. Delete
- c. Delete
- d. Delete
- e. Delete

- **Rationale:** The references to CO testing frequencies are no longer necessary with installation of CO oxidation catalyst.

7. **Conditions 20 and 21:**

- **Replace:** In the table for last column "combined cycle" NOX emission "7.5-NG (3 hr avg) 15-OF (3 hr avg)".
- **With:** "combined cycle" NOX emission "7.5-NG (24-hour block avg) 15-OF (24-hour block avg)"

City of Lakeland • Department of Electric Utilities

Mr. C.H. Fancy, P.E.
Chief Bureau of Air Regulation
Department of Environmental Protection

6

August 8, 2002

- **Rationale:** It will help Lakeland to average emissions over a 24 hour block and it will be in line with the averaging time given to the newer permits.

8. Condition 21:

- **Replace:** If conventional SCR is installed in conjunction with conversion to combined cycle operation,If conventional SCR catalyst is installed, NOX emissions shall not exceed 7.5 at 15% O2 when firing natural gas and 15 at 15% O2 when firing fuel oil on the basis of 3—hr average, as measured
- **With:** If conventional SCR is installed in conjunction with conversion to combined cycle operation,If conventional SCR catalyst is installed, NOX emissions shall not exceed 7.5 at 15% O2 when firing natural gas and 15 at 15% O2 when firing fuel oil on the basis of 24-hour block average, as measured
- **Rationale:** To be consistent with conditions 20, and 21.

As always, Lakeland appreciates your cooperation in this matter. If you should have a question, please do not hesitate to contact me.

Sincerely



Farzie Shelton

Cc: Al Linero, P.E.

City of Lakeland • Department of Electric Utilities

501 East Lemon Street • Lakeland, FL 33801-5050 • (863) 834-6603 • Fax (863) 834-8187 • Message System 834-6592

farzie.shelton@lakelandgov.net