



Jeb Bush  
Governor

# Department of Environmental Protection

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

David B. Struhs  
Secretary

-gentle  
TECO B.B.

December 8, 2003

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Laura Crouch  
Manager, Air Programs  
Environmental Affairs  
Tampa Electric Company  
P.O. Box 111  
Tampa, FL 33601-0111

Re: Authorization to Conduct PM CEM Testing at Elevated Grain Loadings  
Tampa Electric Company, Big Bend Station  
AIRS ID No. 0570039

Dear Ms. Crouch:

The Department has reviewed your request for authorization to conduct particulate matter (PM) testing at elevated grain loadings at the Tampa Electric Company (TEC) Big Bend Station located in Apollo Beach, Hillsborough County, and we have received the corresponding test plan (see attached). The proposed test plan is the fourth and final in a series of PM stack test events designed to correlate the data from the PM continuous emission monitor (CEM) system with concurrent EPA reference test method results. We understand that the PM observed during the previous stack test events have been "grouped" at low grain loading conditions typical of normal operation. To more accurately establish the correlation between CEM output and EPA reference test method result, testing is needed during conditions of elevated grain loadings closer to permitted emission limits. Ultimately, this information will be helpful in the determination of whether the PM CEM system is feasible under the terms of the Consent Decree between TEC and EPA.

## Background

In February 2000, TEC entered into a settlement agreement with the EPA. Part of the resulting Consent Decree required TEC to install, operate, and evaluate the feasibility of a PM CEM system (see paragraphs 32.E through 32.I). One part of the CEM feasibility analysis is correlating the CEM output to the results of concurrently conducted EPA reference test methods. To perform this correlation, TEC has conducted a series of stack test events.

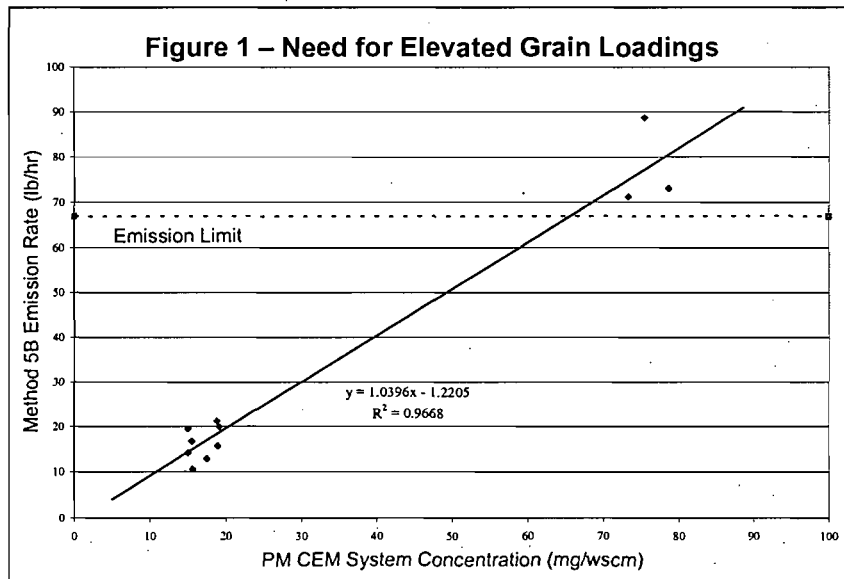
"More Protection, Less Process"

Printed on recycled paper.

The first PM stack test event was originally attempted over May 13 – 16, 2002, but was rescheduled and conducted June 17 – 23, 2002. The May testing was aborted after the sampling equipment proved inadequate for use in a wet stack (i.e., downstream of wet flue gas desulfurization, FGD). The June event produced 10 of 26 test runs that met the precision relative standard deviation requirements of draft EPA Performance Specification 11 (PS-11). The PM CEM system response ranged from 5.9 to 13 mg/dscm. The paired sampling trains employed EPA Method 5, however, which includes condensable mass emissions of sulfuric acid as PM. The Title V air operation permit for Big Bend specifies the use of EPA Method 5B, which determines nonsulfuric acid PM.

The second and third PM stack test events more appropriately used EPA Method 5B to determine PM emissions. These events took place January 15 – 17, 2003, and June 16 – 20, 2003, respectively. Again, the testing events consisted of paired sampling trains and multiple test runs. At least 10 of the 40 total test runs passed the PS-11 precision relative standard deviation, but the events represent a somewhat narrow range of operating conditions. The second event resulted in readings from 1.6 to 4.4 mg/dscm, while the third event reported 3.1 to 5.8 mg/dscm.

To better understand the need for a wider range of particulate concentrations, consider the following graph (modeled after MSI Mechanical, Inc.; data from another facility). With temporary operation above the applicable emission limit, the facility was able to generate enough



data points to correlate the PM CEM with the reference test method. The correlation is quite good, with an  $R^2$  value of 0.9668. Without these elevated grain loading data points, it would be difficult to establish a meaningful correlation between the CEM and the reference test method.

The situation at TEC Big Bend is analogous to having all of the grouped data points at the low end of the example figure but no elevated data points to establish an accurate

correlation. To that end, TEC desires to operate at elevated grain loadings during the fourth and final PM stack test event in Spring 2004.

TEC plans to achieve elevated grain loadings during the PM testing through bypassing approximately 80 to 95 percent of the flue gas from Unit 3 around the scrubber and then powering down the Unit 3 ESP transformer/rectifier sets until the opacity approaches 20 to 25 percent. The results from the first two days of the seven day event will be used to establish the target operating conditions that result in PM emissions in the range of 0.01 to 0.03 lb/MMBtu,

which is below the PM emission limits of 0.1 and 0.03 lb/MMBtu for Units 3 and 4, respectively. TEC will then operate at the target conditions for the remaining five days.

Note that Unit 3 and Unit 4 share a common FGD and exhaust stack; the location of the stack testing is downstream of the FGD after reintroduction of bypassed Unit 3 flue gas.

While it is not TEC's intent to operate at conditions above 0.03 lb/MMBtu (the PM emission limit for Unit 4), we understand that there may be some short term periods where PM emissions may exceed 0.03 lb/MMBtu. In addition, both units are subject to a 20 percent opacity standard, and the opacity during the test runs may need to exceed 20 percent in order to obtain the desired particulate loading.

Of greater concern to TEC, however, is bypassing Unit 3 flue gas around the FGD. Scrubber bypass is necessary to accurately control the grain loading because the FGD impacts PM emissions in a way that is difficult to quantify with the level of precision needed during the stack testing. The Title V permit specifies a 90 percent removal efficiency of sulfur dioxide (SO<sub>2</sub>) across the FGD, and TEC is not sure that this removal efficiency will be met with most of Unit 3's flue gas bypassing the scrubber.

#### **Settlement Requirements**

The Federal Consent Decree requires a greater removal efficiency than the current Title V permit (i.e., 95 percent versus 90 percent). In addition, the Consent Decree provides for a maximum of 30 "unscrubbed days" of operation during the calendar year. Each day for which there is any operation of Unit 3 without employing the scrubber counts against this 30 day limit.

*The Department has no authority to waive these requirements of the Federal Consent Decree.*

Under the Consent Final Judgment signed between TEC and the State, TEC must "maximize scrubber utilization on all four boilers at Big Bend." In the Consent Final Judgment, however, "[the Department] recognizes the need for shut down for operational reasons." We believe that this short-term, fixed-length, pre-planned bypass of the scrubber can be accommodated under the Consent Final Judgment language. Note also that the test plan calls for pre-bunkering of coal with a lower sulfur content (2.2 lb/MMBtu) to be fired in Unit 3 during the entire stack testing event.

#### **Additional Information Needed Prior to Authorization**

The Department requests the following information relevant to the PM CEM system and the proposed fourth round of stack testing:

1. A discussion of the PM CEM system maintenance procedures, including any current problems and how they will be addressed in the future, referencing or attaching:
  - Standard Operating Procedures, identifying timely responses to CEM alarms by technicians, schedules for changing out the CEM filter tape, etc.
  - Maintenance logs and vendor supplied weekly or monthly maintenance checklists.

2. A summary of data from the previous three stack test events, including test conditions, the reference test method results (lb/hr, lb/MMBtu, etc.), and the corresponding PM CEM output (mg/dscm, etc.).
3. An explanation why it is inappropriate to include or correct the Method 5 data with respect to combining them with the Method 5B results for purposes of meeting the relative standard deviation requirements of PS-11.
4. An identification of any mechanical, technical, or operational problems with the PM CEM system that remain outstanding.

#### **Authorization**

Paragraph 403.061(16), Florida Statutes (F.S.), authorizes the Department to encourage voluntary cooperation by persons in order to achieve the purposes of the state environmental control act. Paragraph 403.061(18), F.S., authorizes the Department to encourage and conduct studies, investigations, and research relating to the causes and the control of pollution. Rule 62-210.700(5), Florida Administrative Code (F.A.C.), authorizes the Department to consider variation in industrial equipment and make allowances for excess emissions that provide reasonable and practical regulatory controls consistent with public interest.

The proposed PM CEM stack testing protocol at TEC is consistent with the aforementioned provisions. Although the PM CEM system is not used for compliance purposes at TEC, implementing this protocol will help ensure that the CEM system is accurately measuring PM while demonstrating the viability of PM CEM systems in general for application at other utilities and to other industries.

In accordance with the provisions of Paragraphs 403.061(16) and (18), F.S., and Rule 62-210.700(5), F.A.C., you are hereby authorized to conduct the PM CEM stack testing protocol in accordance with your submitted test plan for the Big Bend facility in Apollo Beach, Hillsborough County. This protocol will require TEC to bypass some portion of the Unit 3 flue gas around the FGD, which may result in short-term, temporary exceedences of the PM, opacity, and SO<sub>2</sub> removal efficiency requirements of the Big Bend Title V permit (0570039-010-AV).

The authorization to implement the PM CEM stack testing protocol shall be subject to the following conditions:

1. TEC shall submit to the Department's Bureau of Air Regulation the information requested above under the heading "Additional Information Needed Prior to Authorization" at least 10 days prior to commencement of the PM CEM stack test protocol.
2. Unless waived, the permittee shall notify the Environmental Protection Commission of Hillsborough County at least 10 days prior to commencement of the PM CEM stack test protocol.
3. The PM CEM stack test protocol will occur over a period not to exceed 7 days between January 1, 2004, and March 31, 2004. If additional time is needed, the permittee shall provide the Department with documentation of the progress accomplished to date and

- shall identify what is left to be done to complete the testing and measurements or monitoring. Testing shall not resume without the written approval of the Department.
4. A written report shall be submitted to the Department's Bureau of Air Regulation within 60 days upon completion of the protocol. The written report shall include a summary of the data consistent with the level of detail provided for the first three stack test events.
  5. The PM CEM stack test protocol shall immediately cease upon the occurrence of an environmental complaint by a citizen or other party, or a nuisance or danger to the public health or welfare, as verified or determined by the Environmental Protection Commission of Hillsborough County or the Department's Southwest District Office. The protocol shall not resume until appropriate measures to correct the problem have been implemented.
  6. This Department action authorizes only the performance testing, parameter measurements, monitoring, and other activities performed pursuant to and outlined in the PM CEM stack test protocol, incorporated by reference (see attached).
  7. Complete documentation of the activity shall be kept on file for at least five years.
  8. The Environmental Protection Commission of Hillsborough County shall be notified in writing on the date of the completion of the PM CEM stack test protocol. If after work hours, notification shall occur the next work day.
  9. The permittee shall notify the Department if any substantive changes or revisions to the PM CEM stack test protocol are made prior to testing.
  10. During the 7-day stack test period, TEC will maintain PM emissions below 0.03 lb/MMBtu and opacity below 20 percent to the extent possible.
  11. SO<sub>2</sub> removal efficiencies recorded during the 7-day stack test period shall not be included in the 30-day average removal efficiency calculations. Unit 3 flue gas will only bypass the scrubber during the approximately 12-hour per day testing periods.

#### **Administrative Rights**

The Department has relied on conversations with representatives of TEC, the EPA, the Environmental Protection Commission of Hillsborough County, the Department's Southwest District Office, and MSI Mechanical, Inc., in authorizing this activity. This authorization will take effect immediately unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57, Florida Statutes (F.S.). The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by this authorization may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permittee or any of the parties listed below must be filed within twenty-one days of receipt of this authorization. Petitions filed by any

persons other than those entitled to written notice under Section 120.60(3), F.S., must be filed within twenty-one days of receipt of this authorization. Under Section 120.60(3), F.S., however, any person who asked the Department for notice of agency action may file a petition within twenty-one days of receipt of that notice. A petitioner shall mail a copy of the petition to the permittee at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact; if there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief; and (f) A demand for relief.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

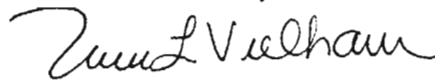
Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department regarding this authorization have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above. Mediation is not available in this proceeding.

Any party to this authorization has the right to seek judicial review of it under Section 120.68, F.S., 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 authorization is filed with the Clerk of the Department.

Ms. Crouch  
December 8, 2003  
Page 7 of 7

A copy of this authorization and accompanying materials related to the agency action are available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the Department of Environmental Protection, Division of Air Resources Management, Suite 23, Magnolia Courtyard, 111 South Magnolia Drive, Tallahassee, Florida 32301.

Sincerely,



Trina Vielhauer, Chief  
Bureau of Air Regulation

TLV/gpd

Enclosure

cc: Greer Briggs, TEC Big Bend  
David Lloyd, EPA Region 4  
Errin Pichard, DEP – BAMMS  
Scott Sheplak, DEP – BAR/Title V  
Jerry Kissel, DEP – SWD  
Sterlin Woodard, EPCHC