Florida Department of Environmental Protection

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

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

November 16, 2007

Electronically Sent – Received Receipt Requested.

kasheffield@tecoenergy.com
Ms. Karen Sheffield, General Manager
Big Bend Station
Tampa Electric Company
Post Office Box 111
Tampa, Florida 33601-0111

Re: Carbon Monoxide (CO) Emission Limit - Big Bend Unit 4
DEP File No. 0570039-027-AC (PSD-FL-390)

Dear Ms. Sheffield:

Enclosed is one copy of the draft air construction permit pursuant to the rules for the Prevention of Significant Deterioration of Air Quality (PSD permit). The PSD permit will authorize an increase in CO emissions due to the installation of low nitrogen oxide burners and a separate overfire air system on Unit 4 at the Big Bend Station in Tampa, Hillsborough County. The Department's Intent to Issue PSD Permit, the Technical Evaluation and Preliminary Determination, and the Public Notice of Intent to Issue PSD Permit are also included.

The original Draft Permit and associated documents that were transmitted by the cover letter dated August 3, 2007 are hereby withdrawn and replaced by those enclosed herewith.

The Public Notice must be published one time only as soon as possible in a newspaper of general circulation in the area affected, pursuant to the requirements of Chapter 50, Florida Statutes. Proof of publication, such as a newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in denial of the permit.

Please submit any written comments you wish to have considered concerning the Department's proposed action to A.A. Linero, Program Administrator, at the letterhead address. If you have any questions regarding this matter, please contact Tom Cascio at (850) 921-9526 or Debbie Nelson at (850) 921-9537.

Sincerely,

Trina L. Vielhauer, Chief
Bureau of Air Regulation

TLV/aal

Enclosures

WRITTEN NOTICE OF INTENT TO ISSUE PSD PERMIT

In the Matter of an
Application for Permit by:

Ms. Karen Sheffield, General Manager
Big Bend Station
Tampa Electric Company
Post Office Box 111
Tampa, Florida 33601-0111

/

DEP File No. 0570039-027-AC
Draft Permit No. PSD-FL-390
Carbon Monoxide (CO) Emission Limit
Unit 4 Steam Generator
Hillsborough County

Facility Location: The applicant, Tampa Electric Company (TEC), operates the Big Bend Station located at 13031 Wyandotte Road, Apollo Beach, Hillsborough County.

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit pursuant to the rules for the Prevention of Significant Deterioration of Air Quality (PSD Permit), copy of DRAFT Permit attached, for the proposed project as detailed in the application specified above and the enclosed Technical Evaluation and Preliminary Determination for the reasons stated below.

Project: TEC applied on May 1, 2007 for an air construction permit to increase CO emissions due to installation of low nitrogen oxides burners and separate overfire air equipment in the furnace of the existing Unit 4 steam generator at the plant. The Department gave written notice of its intent to issue a permit to TEC on August 3, 2007. Prior to publication of the Public Notice of Intent to Issue PSD Permit (Public Notice) TEC provided comments and additional information for consideration by the Department. The original written notice and accompanying documents are hereby withdrawn and replaced with the present notice and accompanying documents.

Permitting Authority: The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above actions are not exempt from permitting procedures. The Department has determined that an air construction permit pursuant to the rules for the Prevention of Significant Deterioration of Air Quality (PSD) is required.

Notice of Intent to Issue Air Permit: The Department intends to issue this PSD Permit based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C.

Public Notice: Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed Public Notice. The Public Notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. Rule 62-110.106(7)(b), F.A.C., requires that the applicant cause the notice to be published as soon as possible after notification by the Department of its intended action. For the purpose of these rules, publication in a "newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/921-9533). You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5)& (9), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051,

F.S. to the office of the Department issuing the permit. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) & (11), F.A.C.

The Department will issue the final permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

Comments: The Department will accept written comments and requests for public meetings concerning the proposed permit issuance action for a period of 30 days from the date of publication of the enclosed Public Notice. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If comments received result in a change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57, F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

Petitions: A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. 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 permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3), F.S., must be filed within 14 days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant 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 (in a proceeding initiated by another party) 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 when and how the petitioner received notice of the agency decision; (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, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

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 on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation: Mediation is not available in this proceeding.

Executed in Tallahassee, Florida.

Trina L. Vielhauer, Chief
Bureau of Air Regulation

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Intent to Issue Air Construction Permit (including the Public Notice, Technical Evaluation, and the Draft permit) and all copies were sent electronically (with Received Receipt) before the close of business on **November ~~16~~ 19, 2007** to the persons listed:

Karen Sheffield, General Manager, TEC: kasheffield@tecoenergy.com
Bryon Burrows, P.E., TEC: btburrows@tecoenergy.com
Tom Davis, P.E., Environmental Consulting & Technology: tdavis@ectinc.com
Diana Lee, P.E., HCEPC: lee@epchc.org
Mara Nasca, DEP SWD: mara.nasca@dep.state.fl.us
Jim Little, U.S. EPA Region 4: little.james@epamail.epa.gov
Katy Forney, U.S. EPA Region 4: forney.kathleen@epa.gov
Catherine Collins, U.S. Fish and Wildlife Service: catherine_collins@fws.gov
Sandra Silva, U.S. Fish and Wildlife Service: sandra_silva@fws.gov

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) 11/19/07 (Date)

PUBLIC NOTICE OF INTENT TO ISSUE PSD PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 0570039-027-AC (PSD-FL-390)

Tampa Electric Company Big Bend Station
Hillsborough County

Applicant: The applicant for this project is the Tampa Electric Company (TEC). The applicant's mailing address is: Tampa Electric Company, Post Office Box 111, Tampa, Florida 33601-0111.

Facility Location: The applicant operates the Big Bend Station, located at 13031 Wyandotte Road, Apollo Beach, Hillsborough County.

Project: TEC applied for an air construction permit to increase carbon monoxide (CO) emissions due to installation of low nitrogen oxides burners and separate overfire air equipment in the furnace of the existing Unit 4 steam generator at the plant. The TEC Big Bend Station consists of four coal and petroleum coke-fueled electrical steam units, three simple-cycle combustion turbines, support facilities and ancillary equipment. A pollution reduction program was implemented by TEC pursuant to a Consent Final Judgment (CFJ) with the Department and a Consent Decree (CD) with the Environmental Protection Agency to reduce emissions from its coal fired units.

There have been very substantial reductions of nitrogen oxides (NO_X - an ozone/smog precursor) following installation of low NO_X burners (LNB), a separate overfire air (SOFA) system and a selective catalytic reduction system (SCR) system on Unit 4. NO_X emissions from Unit 4 have been reduced from approximately 0.40 pounds per million Btu heat input (lb/mmBtu) in 1998 to 0.10 lb/mmBtu since May 2007. This is the lowest NO_X limit for a coal-fueled unit in the state and among the lowest in the country.

An effect of the LNB and SOFA projects is increased CO emissions. The Department conducted a BACT determination and proposes an interim limit of 0.20 lb CO/mmBtu on a 30-day basis. The Department requires installation of a continuous emission monitoring system (CEMS) for determination of compliance with the interim BACT limit. Based on results of compliance tests and analysis of 6 months worth of continuous monitoring data, the Department will reassess this BACT determination. The emission limit may be adjusted downward to make this limit more stringent provided that overall control attained for all air pollutants including CO, sulfur dioxide, NO_X, and particulate matter, is optimized.

The Department reviewed an ambient air modeling analysis submitted by TEC and concluded that the increased CO emissions will not cause or contribute to any violation of the ambient air quality standards. A full description of the project and the Department's review are available under the power plant section at:

www.dep.state.fl.us/Air/permitting/construction.htm

Notice of Intent to Issue A Permit: The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit pursuant to the rules for the Prevention of Significant Deterioration of Air Quality (PSD Permit) to TEC. A determination of best available control technology (BACT) was required for emissions of carbon monoxide (CO). The Department will issue the final PSD Permit unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

Comments: The Department will accept written comments concerning the proposed permit issuance action and requests for a public meeting for a period of 30 days from the date of publication of Public Notice of Intent to Issue PSD Permit. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

Notice for Publication in Newspaper

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

Petitions: A person whose substantial interests are affected by the proposed permitting decision 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 permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3), F.S. must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen (14) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant 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 (in a proceeding initiated by another party) will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

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 when and how the petitioner received notice of the agency decision; (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; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

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 on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Project File: A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept. of Environmental Protection
Bureau of Air Regulation
Suite 4, 111 S. Magnolia Drive
Tallahassee, Florida 32301
Telephone: (850)488-0114
Fax: (850)921-9533

Dept. of Environmental Protection
Southwest District Office
13051 North Telecom Parkway
Temple Terrace, Florida 33637-0926
Phone: 813/632-7600
Fax: (813)632-7665

Hillsborough County Environmental Protection Commission
Air Management Division
3629 Queen Palm Drive
Tampa, FL 33619-1309
Telephone: (813)627-2600
Fax: (813)627-2660

Notice for Publication in Newspaper

The complete project file includes the application, technical evaluations, Draft Permit, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Program Administrator, South Permitting Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301 or call 850/921-9523 for additional information.

PERMITTEE:

Tampa Electric Company
Post Office Box 111
Tampa, Florida 33601-0111

Authorized Representative:
Ms. Karen Sheffield, General Manager
Big Bend Station

DEP File No. 0570039-027-AC
Draft Permit No. PSD-FL-390
Carbon Monoxide (CO) Emission Limit
Big Bend Station Unit No. 4
Hillsborough County
Expires: December 31, 2008

PROJECT AND LOCATION

This permit authorizes the increase of carbon monoxide (CO) emissions pursuant to a determination of best available control technology (BACT) and requires the installation of a continuous emissions monitoring system (CO-CEMS) following recently completed installation and operation of required nitrogen oxides (NO_X) control systems on the Unit No. 4 steam generator. The Tampa Electric Company (TEC) Big Bend Station is located at 13031 Wyandotte Road, Apollo Beach, Hillsborough County. UTM Coordinates are Zone 17, 361.9 km East and 3075.0 km North; Latitude: 27° 47' 36" North and Longitude: 82° 24' 11" West.

STATEMENT OF BASIS

This 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.). The permittee is authorized to perform the proposed work in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department of Environmental Protection (Department).

CONTENTS

(DRAFT)

Joseph Kahn, Director (Date)
Division of Air Resource Management

FACILITY AND PROJECT DESCRIPTION

This facility consists of:

- Four coal and petroleum coke-fueled steam electrical generating units (Units 1, 2, 3 and 4);
- Three simple-cycle combustion turbines (CT Nos. 1, 2, and 3);
- Solid fuels, fly ash, limestone, gypsum, slag, and bottom ash storage and handling facilities; and
- Fuel oil storage tanks.

Emissions from Units 1 through 4 are controlled by electrostatic precipitators (ESP), and flue gas desulfurization (FGD) systems. There are ongoing NO_X control projects pursuant to a Consent Final Judgment (CFJ) between TEC and the Department and a Consent Decree (CD) between TEC and the United States Environmental Protection Agency (EPA).

This permit/project authorizes the increase of CO emissions pursuant to a BACT determination and requires the installation of a CO-CEMS following recently completed installation and operation of required NO_X control systems on Unit 4. NO_X emissions from Unit 4 are controlled by low NO_X burners (LNB), separate overfire air (SOFA) and selective catalytic reduction (SCR) pursuant to the requirements of the CFJ and CD.

EMISSIONS UNITS

This permit addresses the following emissions unit:

Emissions Unit ID No.	Brief Emissions Unit Description
004	Big Bend Unit No. 4 Steam Generator

REGULATORY CLASSIFICATION

The facility is a major source of hazardous air pollutants (HAP).

The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.

The facility is a major stationary source (PSD-major source) in accordance with Rule 62-212.400, F.A.C.

The facility operates units subject to the Standards of Performance for New Stationary Sources pursuant to 40 Code of Federal Regulations (CFR) Part 60.

Unit 4 is not subject to the National Emissions Standards for Hazardous Air Pollutants pursuant to 40 CFR Part 63.

The facility operates units subject to the Acid Rain provisions of the Clean Air Act.

The facility operates units subject to the Federal Clean Air Interstate Rule (CAIR) in accordance with the Final Department Rules issued pursuant to CAIR as implemented by FDEP in Rule 62-296.470, Florida Administrative Code (F.A.C.).

The facility operates units subject to the Federal Clean Air Mercury Rule (CAMR) implemented by the Department in Rule 62-296.480, F.A.C.

The facility was originally certified pursuant to the power plant siting provisions of Chapter 62-17, F.A.C.

RELEVANT DOCUMENTS

The following relevant documents are not a part of this permit, but helped form the basis for this permitting action: the permit application and additional information received to make it complete; and the Department's Technical Evaluation and Preliminary Determination.

SECTION 2. ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: The Permitting Authority for this project is the Bureau of Air Regulation in the Division of Air Resource Management of the Department. The mailing address for the Bureau of Air Regulation is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400.

2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Hillsborough County Environmental Protection Commission (HCEPC), Air Management Division. The mailing address and phone number of the HCEPC are 3629 Queen Palm Drive, Tampa, Florida 33619-1309; (813)627-2600 and (813)627-2620 (fax).

3. Appendices: The following Appendices are attached as part of this permit: Appendix BD (Final BACT Determinations and Emissions Standards); Appendix GC (General Conditions).

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, 62-213, 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. 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 at least 90 days prior to expiration of this permit, but no later than 180 days after completing the required work and commencing operation. 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 Bureau of Air Regulation with copies to the Compliance Authority.
[Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

This section of the permit addresses the following emissions unit.

Emissions Unit ID No.	Detailed Emissions Unit Description
004	Unit No. 4 is a 4330 million British thermal units (mmBtu)/hour heat input, dry-bottom tangentially fired utility boiler. The generator nameplate capacity is 486 megawatts (MW). Unit No. 4 began commercial operation in 1985. Particulate matter (PM) emissions generated during the operation of the unit are controlled by a dry electrostatic precipitator (ESP) manufactured by Belco. The control efficiency of the ESP is 99.7%. Sulfur dioxide emissions are controlled by flue gas desulfurization equipment manufactured by Research-Cottrell. The fuel fired in Unit No. 4 consists of coal, or a coal/petroleum coke blend containing a maximum of 20% petroleum coke by weight, or coal blended with coal residual* generated from the Polk Power Station, or a coal/petroleum coke blend further blended with coal residual generated from the Polk Power Station. The unit is also equipped with an Acid Rain sulfur dioxide (SO_2) and nitrogen oxides (NO_x) continuous emissions monitoring system (CEMS) and shall be equipped with a carbon monoxide (CO) CEMS.

* The types and amounts of allowed coal residual are given in Permit 0570039-017-AV

APPLICABLE STANDARDS AND REGULATIONS

1. BACT Determination: The emission unit addressed in this section is subject to a best available control technology (BACT) determination for CO. [Rule 62-212.400, F.A.C.]

2. Standards of Performance for New Stationary Sources (NSPS) Requirements: Unit 4 boiler shall comply with all applicable requirements of 40 CFR 60, listed below, adopted by reference in Rule 62-204.800(7)(b), F.A.C.

   (a) Subpart A, General Provisions, including:

   - 40 CFR 60.7, Notification and Record Keeping
   - 40 CFR 60.8, Performance Tests
   - 40 CFR 60.11, Compliance with Standards and Maintenance Requirements
   - 40 CFR 60.12, Circumvention
   - 40 CFR 60.13, Monitoring Requirements
   - 40 CFR 60.19, General Notification and Reporting Requirements

   (b) Subpart Da, Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978.

ADMINISTRATIVE REQUIREMENTS

3. Relation to Other Permits: The conditions of this permit are in addition to those of any other air construction or operation permits for this facility. [Rule 62-4.030, 62-4.210, and 62-210.300(1)(b), F.A.C.]

CONTROL TECHNOLOGY

4. LNB and SOFA Systems: The permittee shall adhere to good combustion practices (GCP) to achieve the BACT CO emissions limits set by this permit. [Rules 62-4.070, 62-210.200 (BACT) and 62-212.400 (PSD), F.A.C.]

EMISSION STANDARDS

5. Emission Standard for Carbon Monoxide (CO): CO emissions from Unit 4 shall not exceed 0.20 pounds per million Btu heat input (lb/mmBtu) on a heat input weighted 30-boiler operating day rolling average as demonstrated by the required CO-CEMS. [Rules 62-4.070(3), 62-210.200 (BACT) and 62-212.400(PSD), F.A.C.]

INITIAL EMISSIONS COMPLIANCE DEMONSTRATION

6. Initial Compliance Demonstration: Within 45 days of issuance of this permit, the permittee shall conduct an initial compliance demonstration for CO with the LNB, SOFA and SCR systems engaged. Tests shall be conducted between 90% and 100% of permitted capacity while firing a coal and petcoke blend or a blend of coal, petcoke and coal residual. [Title V Permit No. 0570039-017-AV Condition B.1, Rule 62-297.310(7)(a)1, F.A.C.]

7. Stack Test Methods: The required one-time CO test shall be performed in accordance with the following reference method, or other methods approved by EPA.

Method	Description of Method and Comments
10	Determination of Carbon Monoxide Emissions

The method is described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. [Rule 62-204.800, F.A.C.; 40 CFR 60, Appendix A]

8. Stack Test Results. Compliance test results shall be submitted to the compliance authority described in Section II, Specific Condition 2, above, no later than 45 days after completion of the last test run. The test results shall include important measurements and operating ranges (such as percent oxygen, settings on the SOFA system, or other furnace parameters). The test report shall provide sufficient detail on the tested emission unit and the procedures used to allow the Department to determine if the test was properly conducted and if the test results were properly computed. At a minimum, the test report shall provide the applicable information listed in Rule 62-297.310(8)(c), F.A.C. and in Appendix GC of this permit. [Rule 62-297.310(8), F.A.C.]

CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS)

9. Requirement to Install CEMS: The CO-CEMS shall be installed and certified by March 31, 2008. [Rules 62-4.070(3), 62-210.200(BACT), F.A.C.]

10. Continuous Compliance with CO limits: Upon certification of the CO-CEMS, installed pursuant to Specific Condition 9, compliance with the 30 operating day rolling average shall be demonstrated using data collected from the required CO-CEMS. [Rule 62-4.070(3), F.A.C.]

11. Additional Requirements – Appendix CEMS: Additional requirements applicable to the CO-CEMS are give in Section 4, Appendix CEMS.

REPORTING AND RECORD KEEPING REQUIREMENTS

12. Excess Emissions Reporting:

    a. a. *Malfunction Notification:* If emissions in excess of the CO standard (subject to the specified averaging period) occur due to malfunction, the permittee shall notify the compliance authority within (1) working day of discovery: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. The Department may request a written summary report of the incident.

    b. b. *SIP Quarterly Report*: Within 30 days following the end of each calendar-quarter, the

permittee shall submit a report to the Compliance Authority summarizing periods of CO emissions in excess of the BACT permit standard following the NSPS format in 40 CFR 60.7(c), Subpart A. In addition, the report shall summarize the CO-CEMS system monitor availability for the previous quarter.

[Rules 62-4.130, 62-204.800, 62-210.700(6) and 62-212.400(BACT), F.A.C., and 40 CFR 60.7]

13. Annual Operating Report: The permittee shall submit an annual report that summarizes the actual operating hours and emissions from this facility in accordance with Rule 62-210.370, F.A.C. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370(2), F.A.C.]

14. Monthly CO-CEMS Report: Upon certification of the CO-CEMS, the permittee shall submit, on a monthly basis for the 6 months evaluation period only, a report in electronic file format which includes Unit 4 CO, NO_X, heat input data, and information on control equipment operation. The report shall be submitted by the 15th of each month by mailing a compact disc to the Department's Bureau of Air Regulation Permitting South Section and shall include all hourly readings from the previous month. Alternatively, upon contacting the Bureau's project engineer, the file may be emailed to the appropriate Bureau personnel.

15. Optimization Study Report: Upon completion of the 6-month evaluation period discussed in Specific Condition 14., above, the permittee shall submit to the Department a report summarizing the results of the various operational scenarios researched with the goal of overall control optimization for all air pollutants including CO, SO_2, NO_X, and PM/PM_{10}. The report shall include a recommended final BACT determination.

16. Reassessment of BACT Determination: Based on results of compliance tests and analysis of 6 months worth of continuous monitoring data, the Department will reassess the previously issued best available control technology (BACT) determination. The emission limit may be adjusted downward to make this limit more stringent provided that overall control attained for all air pollutants including CO, SO_2, NO_X, PM/PM_{10}, is optimized. Such revision shall be based on data that represents a full range of operating conditions and a representative period of time. Such revision, if required by the Department, shall be in the form of a federally enforceable permit and shall be publicly noticed by the permittee. [Rules 62-4.070(3), 62-210.200 (BACT) and 62-212.400(PSD), F.A.C.]

APPENDIX BD

The Department establishes the following standards as the best available control technology (BACT) for the TEC Big Bend Unit 4 steam generator:

Emissions of CO shall not exceed the interim value of 0.20 lb/mmBtu heat input on a heat input-weighted 30-boiler operating day rolling average as demonstrated by the required CO-CEMS. An initial 3 run test will be used to demonstrate the initial compliance with a 3-hour 0.20 lb/mmBtu interim limit.

APPENDIX CEMS

UNIT 4 CO EMISSION STANDARDS AND CO-CEMS

1. Emission Standard for Carbon monoxide (CO): CO emissions from Unit 4 shall not exceed 0.20 pounds per million Btu heat input (lb/mmBtu) on a 30-operating day rolling average as demonstrated by the required CO-CEMS.
   [62-210.200 (BACT) and 62-212.400(PSD), F.A.C.]

2. CEMS Required for Demonstrating Compliance: The owner or operator shall properly install, calibrate, maintain and operate a continuous emissions monitoring system (CEMS) to measure and record emissions of CO in the units of parts per million (ppm) and convert the reading to lb/mmBtu. The owner or operator shall comply with the conditions of Appendix CEMS for the CO-CEMS required to be installed by this permit as the compliance method for a SIP-based emission standard.

3. CEMS Required for Reporting Annual Emissions: The owner or operator shall use data from the CO-CEMS when calculating annual emissions for purposes of computing actual emissions, baseline actual emissions and net emissions increase, as defined at Rule 62-210.200, F.A.C., and for purposes of computing emissions pursuant to the reporting requirements of Rules 62-210.370(3) and 62-212.300(1)(e), F.A.C. The owner or operator shall follow the procedures in Appendix CEMS for calculating annual emissions.

CEMS OPERATION PLAN

4. CEMS Operation Plan: The owner or operator shall create and implement a plan for the proper installation, calibration, maintenance and operation of the CO-CEMS required by this permit. The owner or operator shall submit the CO-CEMS Operation Plan to the Bureau of Air Monitoring and Mobile Sources for approval at least 60 days prior to CO-CEMS installation. The CO-CEMS Operation Plan shall become effective 60 days after submittal or upon its approval. If the CO-CEMS Operation Plan is not approved, the owner or operator shall submit a new or revised plan for approval.

   {Permitting Note: The Department maintains both guidelines for developing a CO-CEMS Operation Plan and example language that can be used as the basis for the facility-wide plan required by this permit. Contact the Emissions Monitoring Section of the Bureau of Air Monitoring and Mobile Sources at (850)488-0114.}

INSTALLATION, PERFORMANCE SPECIFICATIONS AND QUALITY ASSURANCE

5. Timelines: The owner or operator shall install the CO-CEMS required by this permit and conduct the appropriate performance specification for the CO-CEMS no later than March 31, 2008.

6. Installation: The CO-CEMS shall be installed such that representative measurements of emissions or process parameters from the facility are obtained. The owner or operator shall locate the CO-CEMS by following the procedures contained in the applicable performance specification of 40 CFR Part 60, Appendix B.

7. Span Values and Dual Range Monitors: The owner or operator shall set appropriate span values for the CO-CEMS. The owner or operator shall install dual range monitors if required by and in accordance with the CO-CEMS Operation Plan.

8. Moisture Correction: If necessary, the owner or operator shall determine the moisture content of the exhaust gas and develop an algorithm to enable correction of the monitoring results to a dry basis (0% moisture).

   {Permitting Note: The CO-CEMS Operation Plan will contain additional CO-CEMS-specific details and procedures for installation.}

9. Performance Specifications: The owner or operator shall evaluate the acceptability of the CO-CEMS by conducting the appropriate performance specification, as follows. CEMS determined to be unacceptable shall not be considered installed for purposes of meeting the timelines of this permit. For CO monitors, the owner or operator shall conduct Performance Specification 4 or 4A of 40 CFR part 60, Appendix B.

10. Quality Assurance: The owner or operator shall follow the quality assurance procedures of 40 CFR Part 60, Appendix F. The required relative accuracy test audit (RATA) tests for the CO-CEMS shall be performed using EPA Method 10 in Appendix A of 40 CFR part 60 and shall be based on a continuous sampling train.

11. Substituting RATA Tests for Compliance Tests: Data collected during CO-CEMS quality assurance RATA tests can substitute for annual stack tests, and vice versa, at the option of the owner or operator, provided the owner or operator indicates this intent in the submitted test protocol and follows the procedures outlined in the CO-CEMS Operation Plan.

CALCULATION APPROACH

12. CO-CEMS Used for Compliance: Once adherence to the applicable performance specification for each CO-CEMS is demonstrated, the owner or operator shall use the CO-CEMS to demonstrate compliance with the applicable emission standards as specified by this permit.

13. CO-CEMS Data: Each CO-CEMS shall monitor and record emissions during all periods of operation and whenever emissions are being generated, including during episodes of startups, shutdowns, and malfunctions. All data shall be used, except for invalid measurements taken during monitor system breakdowns, repairs, calibration checks, zero adjustments and span adjustments, and except for allowable data exclusions as per Condition 20 of this appendix.

14. Operating Hours and Operating Days: For purposes of this appendix, the following definitions shall apply. An hour is the 60-minute period beginning at the top of each hour. Any hour during which an emissions unit is in operation for more than 15 minutes is an operating hour for that emission unit. A day is the 24-hour period from midnight to midnight.

15. Unless otherwise specified by this permit, any day with at least one operating hour for an emissions unit is an operating day for that emission unit.

16. Valid Hourly Averages: The CO-CEMS shall be designed and operated to sample, analyze and record data evenly spaced over the hour at a minimum of one measurement per minute. All valid measurements collected during an hour shall be used to calculate a 1-hour block average that begins at the top of each hour.

    a. Hours that are not operating hours are not valid hours.

    b. For each operating hour, the 1-hour block average shall be computed from at least two data points separated by a minimum of 15 minutes. If less than two such data points are available, there is insufficient data, the 1-hour block average is not valid, and the hour is considered as "monitor unavailable."

17. Calculation Approaches: The owner or operator shall implement the calculation approach specified by this permit for the CO-CEMS, as follows: For the 30-day rolling CO average, compliance shall be determined after each operating day by calculating the arithmetic average of all the valid hourly averages from that operating day and the prior 29 operating days.

MONITOR AVAILABILITY

18. Monitor Availability: The quarterly excess emissions report shall identify monitor availability for each quarter in which the unit operated. Monitor availability for the CO-CEMS shall be 95% or greater in any calendar quarter in which the unit operated for more than 760 hours. In the event the applicable availability is not achieved, the permittee shall provide the Department with a report identifying the problems in achieving the required availability and a plan of corrective actions that will be taken to achieve 95% availability. The permittee shall implement the reported corrective actions within the next calendar quarter. Failure to take corrective actions or continued failure to achieve the minimum monitor availability shall be violations of this permit.

EXCESS EMISSIONS

19. Definitions:

    a. *Startup* is defined as the commencement of operation of any emissions unit which has shut down or ceased operation for a period of time sufficient to cause temperature, pressure, chemical or pollution control device imbalances, which result in excess emissions.

    b. *Shutdown* means the cessation of the operation of an emissions unit for any purpose.

    c. *Malfunction* means any unavoidable mechanical and/or electrical failure of air pollution control equipment or process equipment or of a process resulting in operation in an abnormal or unusual manner.

20. 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 shall be prohibited.

21. Data Exclusion Procedures for SIP Compliance: As per the procedures in this condition, limited amounts of CO-CEMS emissions data may be excluded from the corresponding compliance demonstration, provided that best operational practices to minimize emissions are adhered to and the duration of data excluded is minimized. The data exclusion procedures of this condition apply only to SIP-based emission limits.

    a. *Excess Emissions.* Data in excess of the applicable emission standard may be excluded from compliance calculations if the data are collected during periods of permitted excess emissions (for example, during startup, shutdown or malfunction). The maximum duration of excluded data is 2 hours in any 24-hour period, unless some other duration is specified by this permit.

    b. *Limited Data Exclusion.* If the compliance calculation using all valid CO-CEMS emission data, as defined in Condition 13 of this appendix, indicates that the emission unit is in compliance, then no CEMS data shall be excluded from the compliance demonstration.

    c. *Event Driven Exclusion.* The underlying event (for example, the startup, shutdown or malfunction event) must precede the data exclusion. If there is no underlying event, then no data may be excluded. Only data collected during the event may be excluded.

    d. *Reporting Excluded Data.* The data exclusion procedures of this condition are not necessarily the same procedures used for excess emissions as defined by federal rules. Quarterly or semi-annual reports required by this permit shall indicate not only the duration of data excluded from SIP compliance calculations but also the number of excess emissions as defined by federal rules.

22. Notification Requirements: The owner or operator shall notify the Compliance Authority within one working day of discovering any emissions that demonstrate noncompliance for a given averaging period. Within one working day of occurrence, the owner or operator shall notify the Compliance Authority of any malfunction resulting in the exclusion of CO-CEMS data. For malfunctions, notification is sufficient for the owner or operator to exclude CO-CEMS data.

ANNUAL EMISSIONS

23. CO-CEMS Used for Calculating Annual Emissions: All valid data, as defined in Condition 13 of this appendix, shall be used when calculating annual emissions.
    a. Annual emissions shall include data collected during startup, shutdown and malfunction periods.
    b. Annual emissions shall include data collected during periods when the emission unit is not operating but emissions are being generated (for example, when firing fuel to warm up a process for some period of time prior to the emission unit's startup).
    c. Annual emissions shall not include data from periods of time where the monitor was functioning properly but was unable to collect data while conducting a mandated quality assurance/quality control activity such as calibration error tests, RATA, calibration gas audit or RAA. These periods of time shall be considered missing data for purposes of calculating annual emissions.
    d. Annual emissions shall not include data from periods of time when emissions are in excess of the calibrated span of the CO-CEMS. These periods of time shall be considered missing data for purposes of calculating annual emissions.
24. Accounting for Missing Data: All valid measurements collected during each hour shall be used to calculate a 1-hour block average. For each hour, the 1-hour block average shall be computed from at least two data points separated by a minimum of 15 minutes. If less than two such data points are available, the owner or operator shall account for emissions during that hour using site-specific data to generate a reasonable estimate of the 1-hour block average.
25. Emissions Calculation: Hourly emissions shall be calculated for each hour as the product of the 1-hour block average and the duration of pollutant emissions during that hour. Annual emissions shall be calculated as the sum of all hourly emissions occurring during the year.

APPENDIX GC. GENERAL CONDITIONS

The permittee shall comply with the following general conditions from Rule 62-4.160, F.A.C.

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, F.S. 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), F.S., the issuance of this permit does not convey and 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 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 and 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.

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

   b. 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 F.S. or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, F.S. 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 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:

    a. Determination of Best Available Control Technology for carbon monoxide (X);
    b. Determination of Prevention of Significant Deterioration for carbon monoxide (X);
    c. Compliance with National Emission Standards for Hazardous Air Pollutants (Not Applicable to this permitting action); and
    d. Compliance with New Source Performance Standards (Not Applicable to this permitting action).

14. The permittee shall comply with the following:

    a. 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.

    b. 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 or 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.

    c. Records of monitoring information shall include:

        1) The date, exact place, and time of sampling or measurements;
        2) The person responsible for performing the sampling or measurements;
        3) The dates analyses were performed;
        4) The person responsible for performing the analyses;
        5) The analytical techniques or methods used; and
        6) 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. Each gas turbine 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. Stack test data collected during the required Relative Accuracy Test Assessments (RATA) may be used to demonstrate compliance with the initial CO and NO_X standards. With appropriate flow measurements (or fuel measurements and approved F-factors), CEMS data may be used to demonstrate compliance with the CO and NO_X 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, DLN combustors, etc. [Rule 62-297.310(7)(a)1, F.A.C. and 40 CFR 60.8]

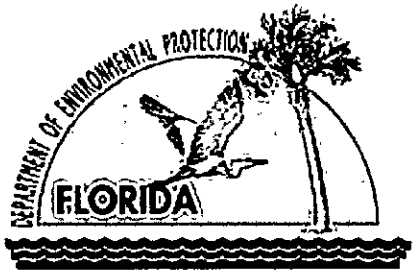
TECHNICAL EVALUATION
AND
PRELIMINARY DETERMINATION

Tampa Electric Company
Big Bend Station

Unit 4 Carbon Monoxide Emission Limit

Hillsborough County

DEP File No. 0570039-027-AC (PSD-FL-390)



Florida Department of Environmental Protection
Division of Air Resource Management
Bureau of Air Regulation
Permitting South Section

November 16, 2007

1. GENERAL PROJECT INFORMATION

Facility Description and Location

This facility consists of four coal and petroleum coke-fueled steam electrical generating units (Units 1, 2, 3 and 4), steam generators, three simple-cycle combustion turbines (CT Nos. 1, 2, and 3); solid fuels, fly ash, limestone, gypsum, slag, and bottom ash storage and handling facilities, and fuel oil storage tanks. This facility is located at 13031 Wyandotte Road, Apollo Beach, Hillsborough County; UTM Coordinates: Zone 17, 361.9 km East and 3075.0 km North; Latitude: 27° 47' 36" North and Longitude: 82° 24' 11" West. The location of the plant is shown in the map in the following figure. Figure 2 is a photograph of the facility during the ongoing pollution reduction program. The scrubber steam plumes are visible.

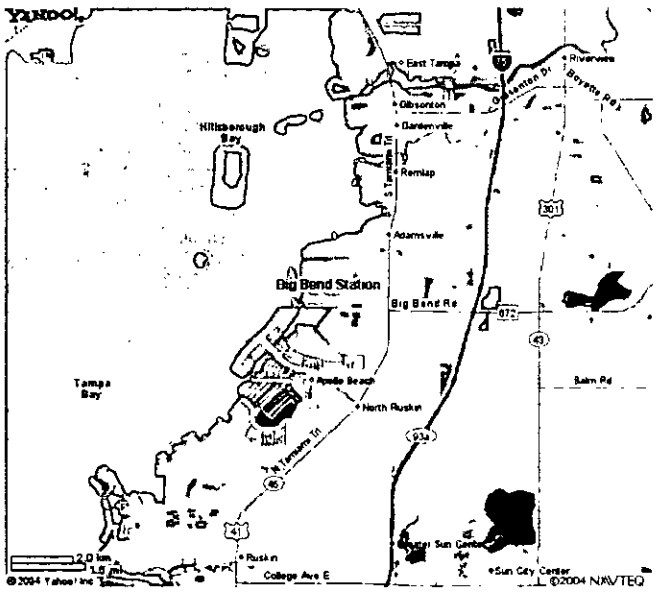


Figure 1. Location of Big Bend, Apollo Beach

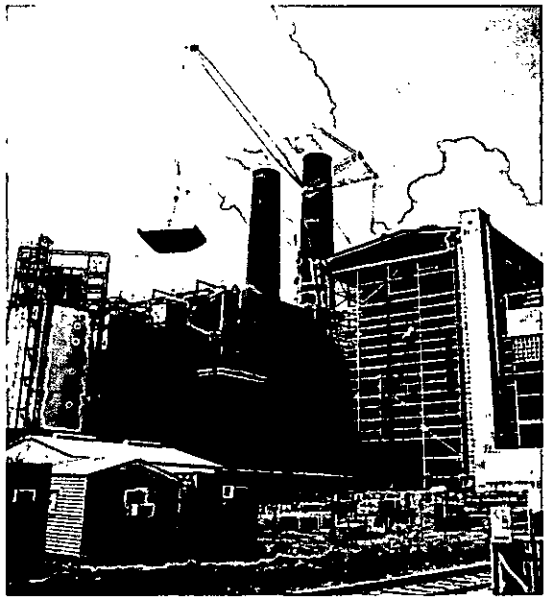


Figure 2. Control Equipment Construction

Major Regulatory Categories

The key regulatory provisions applicable to Unit 4 are:

Title I, Part C, Clean Air Act (CAA): The facility is located in an area that is designated as "attainment", "maintenance", or "unclassifiable" for each pollutant subject to a National Ambient Air Quality Standard. It is classified as a "fossil fuel-fired steam electric plant of more than 250 million BTU per hour of heat input", which is one of the 28 Prevention of Significant Deterioration (PSD) Major Facility Categories with the lower PSD applicability threshold of 100 tons per year. Potential emissions of at least one regulated pollutant exceed 100 tons per year, therefore the facility is classified as a "major stationary source" of air pollution with respect to Rule 62-212.400 F.A.C., Prevention of Significant Deterioration of Air Quality (PSD).

Title I, Section 111, CAA: Units 4 is subject to Subpart Da (Standards of Performance for Fossil Fuel-Fired Steam Generators for Which Construction is Commenced After September 18, 1978) of the New Source Performance Standards in 40 Code of Federal Regulations (CFR) 60.

Title I, Section 112, CAA: The facility is a "Major Source" of hazardous air pollutants (HAP).

Title IV, CAA: The facility operates units subject to the Acid Rain provisions of the Clean Air Act.

Title V, CAA: The facility is a Title V or "Major Source of Air Pollution" in accordance with Chapter 62-213, F.A.C., because the potential emissions of at least one regulated pollutant exceed 100 tons per year. Regulated pollutants include pollutants such as carbon monoxide (CO), nitrogen oxides (NO_X), particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), and volatile organic compounds (VOC).

CAIR: The facility is subject to the Federal Clean Air Interstate Rule (CAIR) in accordance with the Final Department Rules issued pursuant to CAIR as implemented by FDEP in Rule 62-296.470, Florida Administrative Code (F.A.C.).

CAMR: The facility is subject to the Federal Clean Air Mercury Rule (CAMR) implemented by the Department in Rule 62-296.480, F.A.C.

Siting: Unit 4 was certified pursuant Electrical Power Plant Siting in accordance with Chapter 62-17, F.A.C., and Chapter 403, Part II, Florida Statutes (F.S.).

Application Processing Schedule

5/1/07: Received application

5/23/07: Received additional information

6/22/07: Forwarded comments from Hillsborough County to TEC

6/22/07: TEC waived 30-day completeness determination clock until 7/13/07

7/3/07: TEC submitted additional information (response to County questions)

8/2/07: Department distributed intent to issue PSD permit

8/21/07: Met with TEC to discuss draft permit

9/11/07: Received requested changes from TEC

11/12/07: Withdrew previous documents and distributed new intent to issue PSD permit

Description of Unit 4 and Original NO_X and CO Permit Limits

Unit No. 4 is a 4330 million Btu per hour (mmBtu/hr) dry-bottom tangentially fired utility boiler. The generator nameplate capacity is 486 MW. Unit No. 4 began commercial operation in 1985. PM emissions are controlled by a dry electrostatic precipitator (ESP). SO_2 emissions are controlled by a wet limestone scrubber. The fuel fired in Unit No. 4 consists of coal, or a coal/petroleum coke blend containing a maximum of 20% petroleum coke by weight. Limited amounts of coal residual generated from the Polk Power Station are blended with the coal and petcoke blend and burned in Unit 4.

The original PSD Permit (PSD-FL-040) was issued by the United States Environmental Protection Agency (EPA) in 1981. The PSD Permit included a NO_X limit of 0.6 lb/mmBtu on a 30-day basis and a CO limit of 0.014 lb/mmBtu. In 1985 the CO limit was increased by EPA to 0.029 lb/mmBtu following documentation that the emission factor used during the original determination was in error. Unit 4 was designed for relatively low NO_X operation. In 1998 emissions of NO_X were 0.40 lb/mmBtu.

Subsequent Requirements

A Consent Final Judgment (CFJ, DEP vs. TEC) dated December 6, 1999 and a Consent Decree (CD, EPA vs. TEC) dated February 29, 2000 (amended October 4, 2000) became applicable requirements following enforcement actions by the two agencies. The CFJ and CD require substantial progressive emission reductions from the four coal fired steam generation units by specific dates. The final compliance date with respect to NO_X was May 2007 and there is a requirement that the unit comply with an emission limit of 0.10 lb/mmBtu.

The system was initially upgraded by inclusion of new low NO_X designed coal and air nozzles together with modifications to the existing close coupled overfire air (CCOFA) system. In late 2003 TEC installed a separate overfire air (SOFA) system that provides for deeper staging of the combustion process and further reductions of NO_X. In May 2007 work on the installation of a selective catalytic reduction (SCR) system was completed.

Figure 3 shows the key components of the low NO_X burners (LNB) and the SOFA system installed on Unit 4. The SCR diagram is for a project under construction on Unit 3, but reasonably depicts the installation on Unit 4.

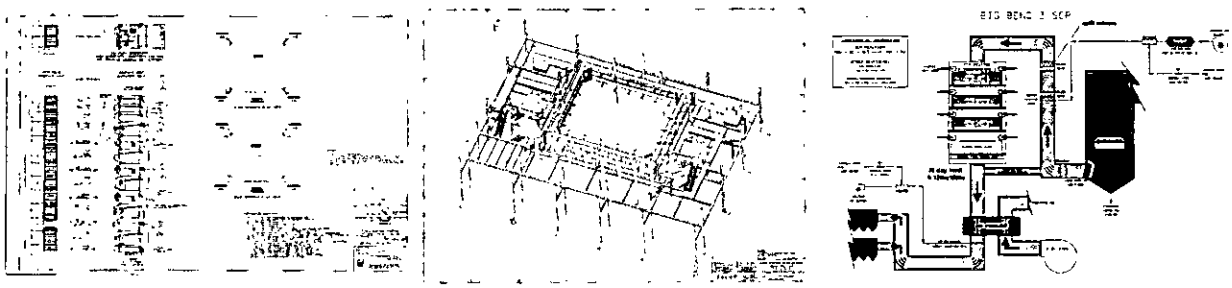


Figure 3. Key Component of LNB, SOFA and SCR Projects at TEC Big Bend Unit 4

The LNB allow minimization of NO_X by creation of localized oxygen starved conditions during the early phases of combustion in the lower furnace. The SOFA system (above the level of the highest burners) then supplies additional air needed to promote fuel burnout. The SCR system further reduces NO_X emissions by the reaction with ammonia in a large catalyst filled reactor located between the economizer and the air preheater.

2. PRINCIPLES OF LOW NO_X BURNERS AND OVERFIRE AIR

The following discussion is based on: information provided by Black & Veatch (B&V) for a similar application submitted by OUC; a cooperative study by the Department of Energy (DOE) and Sunflower Electric Power Cooperative (SEPC) of Kansas; and the Department's analysis.

LNB systems control the formation and emission of NO_X through a form of staged combustion. The basic NO_X reduction principles for LNB are to control and balance the fuel and airflow to each burner also to control the amount and position of secondary air in the burner zone so that fuel devolatization and high temperature zones are not oxygen rich. Mixing of the fuel and the air by the burner is controlled in such a way that ignition and initial combustion of the coal takes place under oxygen deficient conditions, while a portion of the combustion air is mixed in a delayed fashion along the length of the flame.

The objective of this process is to drive the fuel bound nitrogen (FBN) out of the coal as quickly as possible, under conditions where no oxygen is present, and where it will form molecular nitrogen (N_2), rather than oxidized to NO_X. Any N_2 escaping the initial fuel rich region has a greater opportunity to be converted to NO_X as the combustion process is completed.

The net result of staged combustion is usually longer and/or wider flames, due to this delayed mixing process. This is also one of the main reasons why low NO_X combustion is normally associated with the potential for *increased carbon in ash and higher CO emissions*, as the combustion process begins to encroach on cooled boiler surfaces. This is particularly true of wall fired boiler systems, where, compared to tangential firing, the combustion process must be confined to well defined flame zones, and is less able to make maximum use of the available burner zone volume.

Under conditions in which the target NO_X level is not achieved by LNB, it may be necessary to further stage the combustion. In this case, not all the air required for combustion is introduced through the LNB. The remaining air required for complete combustion is introduced at a higher elevation in the boiler where the temperature is lower, thus limiting the production of additional NO_X. This is the principle of OFA operation. The OFA is necessary to achieve the desired levels of carbon burnout and to limit CO emissions.

There are varying designs and degrees of aggressiveness with which LNB and percentage of OFA that can be practiced. It is even possible to add additional burners at higher elevation in the furnace to effect the process of *reburn* to further reduce NO_X and then to follow up with additional OFA.

3. EFFECTS ON NO_X AND CO EMISSIONS FROM THE PROJECTS

Clearly emissions of NO_X were reduced by the LNB and SOFA projects. According to the EPA Clean Air Markets Website, Unit 4 emitted 0.40 lb/mmBtu in 1998. In 2003, Unit 4 emitted 0.35 lb NO_X/mmBtu following the upgrade of the LNB. After the installation of the SOFA system, continuous emissions as low as 0.20 lb NO_X/mmBtu were achieved. Further reduction to 0.10 lb NO_X/mmBtu was accomplished in May 2007 as scheduled by completion of the SCR system.

Operating the burners with less air in the lower furnace increases the formation of CO. The presence of CO is one of the key drivers in reducing NO_X formation in conventional power plants. The SOFA compensates for the reduced air during initial combustion. However, the total time of turbulent contact and the temperature is reduced when the LNB and SOFA features are fully engaged and less carbon burnout is achieved compared with the original arrangement.

The LNB and SOFA systems to reduce NO_X place constraints on CO guarantees if not on CO emissions. There are few data demonstrating the relation between NO_X and CO at units in Florida. However, the Department reviewed the results of the previously cited cooperative study by the DOE and SEPC.

The case was for an opposed wall-fired unit equipped with LNB (but not SOFA) and burning Powder River Basin (PRB) coal. The relation shown in the following figure would not apply for TEC's bituminous coal-fueled tangentially-fired Unit 4, but the trends would likely be similar.

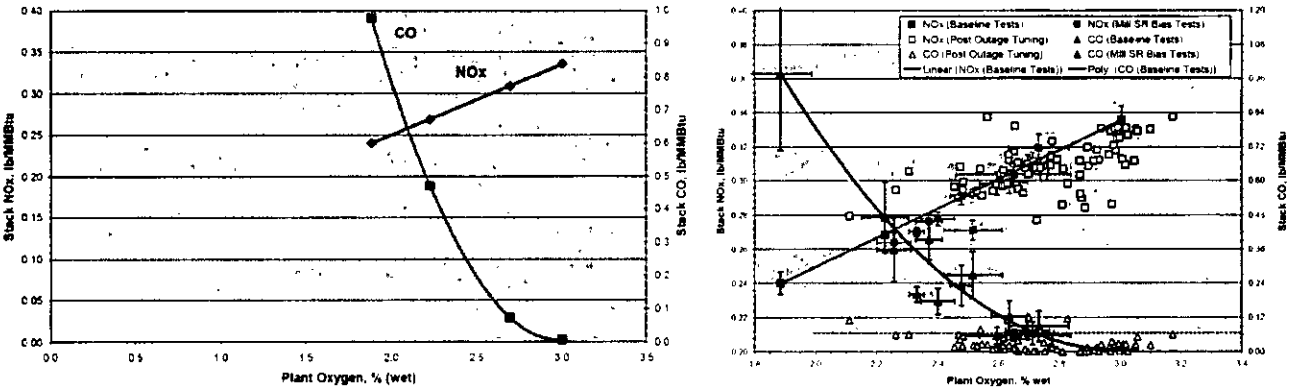


Figure 4. Baseline testing and optimization of first generation LNB system at SEPC

SEPC was subject to a CO BACT emissions limit of 0.15 lb/mmBtu. Baseline tests using the early LNB system are summarized ion the left hand side of the figure. These showed that CO emissions rise rapidly for relatively small decreases in NO_X. An optimization program to improve the NO_X reduction characteristics of the LNB within the CO constraint was conducted. The results are shown on the right and it was possible to suppress CO emissions at excess O_2 values even at values in the range of approximately 2.5%. These values can still be quite significant compared for example with the present limit at TEC Unit 4.

According to Foster Wheeler, the supplier of the "tangential low NO_X system retrofit (TLN3)" on TEC Unit 4, the full load NO_X performance projection was 0.21 to 0.25 lb NO_X/mmBtu with concurrent CO emissions of 200 ppm (~0.17 lb CO/mmBtu).

According to measurements conducted by Foster Wheeler in preparation for construction of the SCR project, CO emissions ranged from 0.025 to 0.5 lb/mmBtu when the furnace oxygen (O_2) level was 1.5 percent (%). CO emissions ranged from 0.021 to 0.17 when O_2 was 1.8%. It is clear that the 0.029 lb CO/mmBtu emission limit cannot be achieved when the LNB and SOFA system are operated as designed. TEC has requested that the Department revise the CO limit to 0.20 lb/mmBtu and submitted a PSD Permit application and best available control technology (BACT) assessment in support of the request.

According to TEC, Unit 4 is presently operating with less reliance on the installed LNB and SOFA system and greater reliance on the SCR system to achieve low CO limitations until the Department makes a decision on the final limit. Among the consequences are that additional ammonia (NH_3) must be injected to achieve the NO_X limit of 0.10 lb/mmBtu. This causes greater reagent expense and presents the possibility of greater NH_3 emissions (slip).

Similarly, running the furnace with greater excess air to maintain low CO values can also increase the conversion of SO_2 to sulfur trioxide (SO_3) necessitating greater use of NH3 reagent.

4. CO EMISSIONS INCREASE ESTIMATE

SO_2 and NO_X data that are continuously monitored and periodically reported to the U.S. EPA for the purposes of the Acid Rain Program and, in the future, the CAIR Program are very reliable. However, there is no CO-CEMS in this unit. There is very little reliable information regarding past CO emissions from Unit 4. However the present limit is very low and it is not likely that the unit performed any better than its emission limit.

The Department assumes that prior to the installation of the LNB baseline actual emissions were typically the annual equivalent of the 0.029 lb CO/mmBtu limit. Based on the requested emission limit of 0.20 lb/mmBtu and assuming an 85 percent capacity factor, the expected emission increase is

[(0.20-0.029) lb/mmBtu)]x(4,330 Btu/hr)x(8760 hr/yr)x(1 ton/2000 lb)x(0.85) = 2,756 TPY

5. REGULATIONS THAT APPLY TO THE PROJECT

State Regulations

This project is subject to the applicable environmental laws specified in Section 403 of the F.S. The Florida Statutes authorize the Department of Environmental Protection to establish rules and regulations regarding air quality as part of the F.A.C. This project is subject to the applicable rules and regulations defined in the following Chapters of the Florida Administrative Code. These include: 62-4 (Permitting Requirements); 62-204 (Ambient Air Quality Requirements, PSD Increments, and Federal Regulations Adopted by Reference); 62-210 (Permits Required, Public Notice, Reports, Stack Height Policy, Circumvention, Excess Emissions, and Forms); 62-212 (Preconstruction Review, PSD Review and BACT); 62-213 (Title V Air Operation Permits for Major Sources of Air Pollution); 62-296 (Emission Limiting Standards); and 62-297 (Test Methods and Procedures, Continuous Monitoring Specifications, and Alternate Sampling Procedures).

General PSD Applicability

The Department regulates major air pollution sources in accordance with Florida's Prevention of Significant Deterioration (PSD) program set forth in Rule 62-212.400, F.A.C. A PSD review is required in areas currently in attainment with the state and federal Ambient Air Quality Standards (AAQS) or areas designated as "unclassifiable" for a given pollutant. A new facility is considered "major" with respect to PSD if it emits or has the potential to emit: 250 tons per year or more of any regulated air pollutant; or 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the 28 PSD Major Facility Categories defined in Rule 62-210.200, F.A.C.; or 5 tons per year of lead.

For new projects at existing PSD-major sources, each regulated pollutant is reviewed for PSD applicability based on emissions thresholds known as the "Significant Emission Rates" defined in Rule 62-210.200, F.A.C. Pollutant emissions from the project exceeding these rates are considered "significant" and applicants must employ the Best Available Control Technology (BACT) to minimize emissions of each such pollutant, and evaluate the air quality impacts.

Although a facility may be "major" with respect to PSD for only one regulated pollutant, it may be required to install BACT controls for several regulated pollutants that exceed the Significant Emission Rates.

PSD Applicability for the Project

The TEC Big Bend Station is a major facility under Department Rules. The Department estimated annual emissions increases of 2,756 TPY. The limited engineering measurements conducted by Foster Wheeler in preparation for construction of the SCR project also suggest similar increases. The CO emissions increase will be greater than 100 TPY and a review pursuant to the PSD rules and a BACT determination for CO are required for this project.

It is noted that since 1992 and until 2005 (after installation of the LNB/SOFA projects and approval of the SCR project) there was an exemption from PSD Review for increases in emissions of pollutants caused by installation of "Pollution Control Projects" (PCP). The purpose of the exemption as applied to power plants was primarily to exempt from the PSD rules increases caused by projects intended to reduce emissions of SO_2 and NO_X such as required for compliance with the Acid Rain regulations.

It was generally agreed that as long as PCP were on balance "environmentally beneficial" and no national ambient air quality standards were exceeded and substantial decreases in acid rain pollutants were realized, then significant emissions of collateral emissions such as CO were allowable. Therefore, during that period of time quite a number of PCP were conducted that caused significant collateral increases of CO and (in the case of some SCR projects) sulfuric acid mist that were not subjected to PSD or a BACT determination.

6. BACT DETERMINATION FOR CO

BACT Methodology.

A determination of the "Best Available Control Technology (BACT)" is required for each of these pollutants, which is defined in Rule 62-212.200, F.A.C. as:

> *An emission limitation, including a visible emissions standard, based on the maximum degree of reduction of each pollutant emitted which the Department, on a case by case basis, taking into account:*
>
> 1. *Energy, environmental and economic impacts, and other costs;*
> 2. *All scientific, engineering, and technical material and other information available to the Department; and*
> 3. *The emission limiting standards or BACT determinations of Florida and any other state; determines is achievable through application of production processes and available methods, systems and techniques (including fuel cleaning or treatment or innovative fuel combustion techniques) for control of each such pollutant.*
>
> *If the Department determines that technological or economic limitations on the application of measurement methodology to a particular part of an emissions unit or facility would make the imposition of an emission standard infeasible, a design, equipment, work practice, operational standard or combination thereof, may be prescribed instead to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set forth the emissions reductions achievable by implementation of such design, equipment, work practice or operation.*
>
> *Each BACT determination shall include applicable test methods or shall provide for determining compliance with the standard(s) by means which achieve equivalent results.*
>
> *In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR Parts 60, 61, and 63.*

CO BACT Evaluation Provided by the Applicant

TEC provided information on recent BACT determinations for coal-fueled units throughout the country for numerous new projects. The CO BACT determinations ranged from 0.1 to 0.2 lb CO /mmBtu with an average of 0.15 lb/mmBtu. Such new projects also provide for the inclusion of NO_X control methods such as LNB and SOFA. This helps to explain why the values are so much greater than the EPA's BACT CO determination of 0.029 lb/mmBtu for Big Bend Unit 4.

TEC also reviewed and rejected the possibility of installing thermal or catalytic oxidation systems on the basis of technical infeasibility, impacts on other pollutants (e.g. conversion of SO_2 to SO_3) and the claim that such equipment has not been installed elsewhere. TEC proposes combustion controls as the method to achieve their proposal of a BACT limit of 0.20 lb/mmBtu.

Department Evaluation

The Department does not necessarily agree with the evaluation of the applicant. Some of the same arguments regarding oxidation catalyst erosion and conversion of SO_2 to SO_3 are typically made for SCR systems. The Department does not necessarily agree with those arguments and solutions are often found to mitigate the claimed effects. However, the Department agrees that oxidation catalyst is not appropriate for this project.

Thermal oxidation systems have been installed at other facilities although the Department did not find examples for coal-fueled power plants. For example TXI installed a regenerative thermal oxidation (RTO) system at a coal-fueled cement plant in Midlothian, Texas. However, a reheat system is required and the system was very expensive (~$15,000,000) for a much smaller gas stream than Unit 4. Also, the CO emissions from that facility are inherently very high due to carbonaceous matter in the raw materials that evolves CO prior to pyroprocessing.

Structural changes can also be made to increase the residence time following the SOFA system and before some of the convective passes. Those changes are not indicated for this project. The Department does not rule out consideration of greater burn out residence times or oxidation catalyst on modifications in general or on new units. However, in the special case of units previously subject to the PCP exemption and implementing projects pursuant to CAIR, it is reasonable to limit the scope of technologies and options in a BACT review. In the present case, the LNB and SOFA projects were actually initiated pursuant to enforcement and completed when the PCP exemption still applied.

In recent years, a number of BACT determinations have been made for new units by other state agencies. However they often, although not always, are based on supplier statements and there is usually little or no supporting data. There has not been consistency in the associated averaging time. Some of those proposals or determinations are summarized in the following table.

Table 1. Recent BACT Emission Limits for Carbon Monoxide. Averaging periods vary.

Facility	Capacity MW	Unit Type	Permit or Application	Date	State	Primary Fuel	Limit lb/mmBtu
Montana-Dakota Utilities	175	CFB	Permit	Jun-05	ND	Lignite	0.15
Omaha Public Power District	660	PC	Permit	Mar-05	NE	PRB	0.15
Xcel Energy – Comanche	750	PC	Permit	Mar-05	CO	Subbit	0.13
Longleaf Energy Associates, LLC	1200	PC	Application	Jan-05	GA	PRB or Bitum.	0.15
NEVCO Energy (Sevier Power)	270	CFB	Permit	Oct-04	UT	Subbit	0.12
City Pub Serv. of San Antonio	750	PC	Permit	Oct-04	TX	PRB	0.15
Intermountain Power	950	PC	Permit	Oct-04	UT	Subbit	0.15
Intermountain Power	950	PC	Permit	Oct-04	UT	Bitum.	0.15
WPSC Weston Unit 4	500	PC	Permit	Jul-04	WI	Subbit	0.15
Sandy Creek (LS Power)	800	PC	Permit	Jun-04	TX	PRB	0.15
Longview Power, LLC	600	PC	Permit	Mar-04	WV	Bitum 2.5% S	0.11
Hastings Utilities	220	PC	Permit	Mar-04	NE	PRB	0.15
Steag Desert Energy	1500	SCPC	Application	Feb-04	NM	Subbit	0.10
Elm Road Gen. Station	615	SCPC	Permit	Jan-04	WI	Pitt.#8	0.12

PC = pulverized coal SC = supercritical CFB = circulating fluidized bed PRB – Powder River Basin coal
Bitum = bituminous coal Subbit = sub bituminous coal Pitt = Pittsburgh coal

Operating the furnace with very high CO emissions can cause the fly ash to contain excessive carbon as indicated by greater "loss on ignition" (LOI) properties. This can have ramifications on the salability of the fly ash and the fate of any additional mercury (Hg) collected on the higher LOI fly ash. In fact TEC has already made provisions to treat the ash through a long-term agreement with Separation Technologies Inc. (STI) who are building a plant on a contiguous site.

The Department will set an interim BACT limit of 0.20 lb CO/mmBtu on a 30-day basis. This value can be achieved by good combustion practices within the constraints of the multi-pollutant controls on the unit. Adherence to the interim of 0.20 lb/mmBtu will to some extent reduce the tendency to collect Hg in the fly ash and rely more on the FGD system. It is also a compromise between the emissions of CO and the need to inject more NH_3 to meet the NO_X emission limit and for further SO_3 control.

The Department will require installation of a continuous emission monitoring system (CEMS). CEMS have been used throughout the industry as a cost-effective means for documenting compliance with BACT limits. There will be a requirement for the CEMS to be installed, certified and used to demonstrate compliance by March 31, 2008.

An initial one-time 3 run test using EPA Method 10 will be required within 45 days of issuance the final permit to demonstrate compliance with a 3-hour 0.20 lb/mmBtu limit that applies until certification of the CO-CEMS.

The Department will evaluate CO and NO_X data from the CEMS records together with Hg data from the Unit 4 fly ash that will be sent to STI for remediation. The Department may adjust the CO limits in Phase 2.

The Department will require submittal of additional information including an optimization analysis based on the first six months of operation using the new CO CEMS and the existing NO_X CEMS and submit the results to the Department. The Department will evaluate the information submitted and consider its effects on Hg sent via the high LOI fly ash to the STI facility when making a final BACT determination for the LNB/SOFA project.

The Department notes that this approach will not be followed in general and is not intended for reviews at new units. It is intended strictly for projects previously subject to the previously discussed PCP exemption and making retrofits for CAIR.

7. AIR QUALITY IMPACT ANALYSIS

Introduction

The proposed project will increase emissions of carbon monoxide (CO) at levels in excess of PSD significant amounts. CO is a criteria pollutant and has Ambient Air Quality Standards (AAQS), significant impact levels and de minimis monitoring levels defined for it.

Major Stationary Sources in Hillsborough County

The current largest stationary sources of CO in Hillsborough County are listed below. The information is from annual operating reports submitted to the Department.

Table 2. Largest Sources of CO in Hillsborough County (2005/2006)

Owner	Site Name	Tons per year
Tampa Electric Company	***Big Bend (Unit 4 projected actual)***	***3094***
Tampa Electric Company	Big Bend (facility immediate past)	1210
Envirofocus Technologies	Envirofocus Technologies	461
New NGC, Inc.	Apollo Beach	213
New NGC, Inc.	New NGC, Inc.	66
Mosaic Fertilizer	Riverview Facility	26

Air Quality and Monitoring in Hillsborough County

The Environmental Protection Commission of Hillsborough County currently operates twenty-seven monitors at fourteen sites measuring PM_{10}, $PM_{2.5}$, ozone, CO, lead, toxics SO_2 and NO_2. The 2006 monitoring network is shown in the figure below.

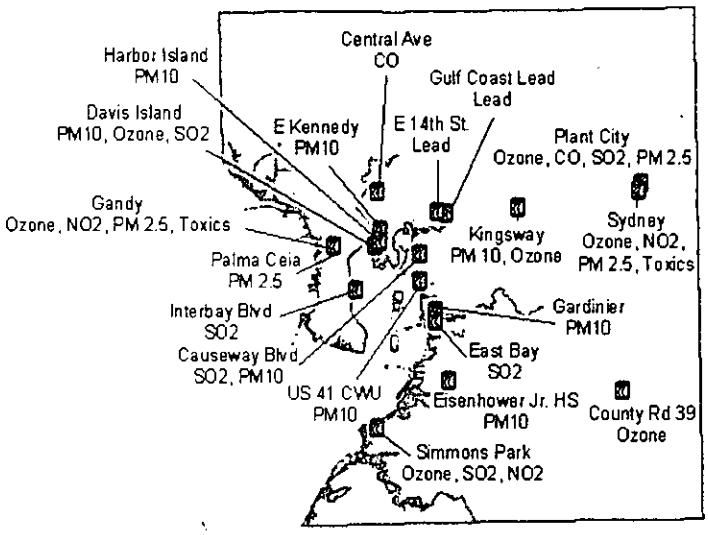


Figure 5. Hillsborough County Ambient Air Monitoring Network

Measured ambient air quality information is summarized in the following table.

Table 3. Ambient Air Quality Concentrations Nearest to Project Site (2006)

Pollutant	Location	Averaging Period	Ambient Concentration				
			High	2nd High	Mean	Standard	Units
PM_{10}	Tampa	24-hour	90	80		150[c]	ug/m^3
		Annual			28	50[f]	ug/m^3
$PM_{2.5}$	Tampa	24-hour	31	27		35[d]	ug/m^3
		Annual			12	15[e]	ug/m^3
SO_2	Tampa	3-hour	28	19		500 [a]	ppb
		24-hour	6	5		100[a]	ppb
		Annual			1	20 [b]	ppb
NO_2	Tampa	Annual			8	53 [b]	ppb
CO	Tampa	1-hour	4	4		35 [a]	ppm
		8-hour	3	3		9 [a]	ppm
Ozone	Tampa	1-hour	.102	.099		0.12[a]	ppm
		8-hour	.087	.086		0.08[g]	ppm

a - Not to be exceeded more than once per year
b - Arithmetic mean
c - Not to be exceeded more than an once per year on average over three years
d- Three year average of the 98th percentile of 24-hour concentrations
e- Three year average of the weighted annual mean
f- EPA has revoked Annual Standard
g- Three year average of the fourth-highest daily maximum of 8-hour concentrations

The highest measured values of all pollutants are all less than the respective National Ambient Air Quality Standards (NAAQS), including ozone. Based on local emission trends, it is not likely that ground-level concentrations will approach the NAAQS levels, at least at the monitoring locations. One exception is ozone because it is formed from precursors that are clearly available (NO_X and VOC) from local industrial and transportation emissions. The tendency to form ozone is accentuated by hot ambient temperature, solar insolation, high pressure, and relatively low wind speed.

Air Quality Impact Analysis

Significant Impact Analysis

Significant Impact Levels (SIL) are defined for CO. A significant impact analysis is performed on CO to determine if the proposed project can cause an increase in ground level concentrations greater than the SIL.

In order to conduct a significant impact analysis, the applicant uses the proposed project's emissions at worst load conditions as inputs to the models. The models used in this analysis and any required subsequent modeling analyses are described below. The highest predicted short-term concentrations predicted by this modeling are compared to the appropriate SIL for the PSD Class II Areas (vicinity of the proposed project).

For the Class II analysis a polar grid consisting of over 1000 receptors were chosen for predicting maximum concentrations in the vicinity of the project.

If this modeling at worst-load conditions shows ground-level increases less than the SIL, the applicant is exempted from conducting any further modeling. If the modeled concentrations from the project exceed the SIL, then additional modeling including emissions from all major facilities or projects in the region (multi-source modeling) is required to determine the proposed project's impacts compared to the AAQS or PSD increments.

The applicant's initial CO air quality impact analyses for this project indicated that maximum predicted impacts from all pollutants are less than the applicable SIL for the Class II area. These values are tabulated in the tables below and are compared with existing ambient air quality measurements from the local ambient monitoring network.

Table 4. Maximum Projected Air Quality Impacts from Big Bend Unit 4 for Comparison to the PSD Class II Significant Impact Levels

Pollutant	Averaging Time	Max Predicted Impact (ug/m^3)	Significant Impact Level (ug/m^3)	Baseline Concentrations (ug/m^3)	Ambient Air Standards (ug/m^3)	Significant Impact?
CO	8-Hour	28	500	3,450	10,000	NO
	1-Hour	63	2000	4,600	40,000	NO

Maximum predicted impacts from the project for CO are much less than the respective AAQS and the baseline concentrations in the area. CO concentrations are also less than the respective significant impact levels that would otherwise require more detailed modeling efforts.

Preconstruction Ambient Monitoring Requirements

A preconstruction monitoring analysis is done for those pollutants with listed de minimis impact levels. These are levels, which, if exceeded, would require pre-construction ambient monitoring. For this analysis, as was done for the significant impact analysis, the applicant uses the proposed project's emissions at worst load conditions as inputs to the models. As shown in the following table, the maximum predicted impacts for CO with a listed de minimis impact level was less than this level. Therefore, no pre-construction monitoring is required for CO.

Table 5. Maximum Air Quality Impacts for Comparison to the De Minimis Ambient Impact Levels.

Pollutant	Averaging Time	Max Predicted Impact (ug/m^3)	De Minimis Level (ug/m^3)	Baseline Concentrations (ug/m^3)	Impact Greater Than De Minimis?
CO	8-hour	28	575	3,450	NO

Based on the preceding discussions, the only additional detailed air quality analyses required by the PSD regulations for this project is the following:

- An analysis of impacts on soils, vegetation, visibility, and of growth-related air quality modeling impacts.

Models and Meteorological Data Used in the Air Quality Analysis

PSD Class II Area: The AERMOD modeling system was used to evaluate the pollutant emissions from the proposed project in the surrounding Class II Area. The AERMOD modeling system incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including the treatment of both surface and elevated sources, and both simple and complex terrain. AERMOD contains two input data processors, AERMET and AERMAP. AERMAP is the terrain processor and AERMET is the meteorological data processor.

A series of specific model features, recommended by the EPA, are referred to as the regulatory options. The applicant used the EPA recommended regulatory options. Direction-specific downwash parameters were used for all sources for which downwash was considered. The

stacks associated with this project all satisfied the good engineering practice (GEP) stack height criteria.

AERMET meteorological data prepared by the Department and used in the AERMOD model consisted of a concurrent 5-year period of hourly surface weather observations from the Tampa International Airport and twice-daily upper air soundings from the National Weather Service at Ruskin. The 5-year period of meteorological data was from 2001 through 2005. These stations were selected for use in the study because they are the closest primary weather stations to the study area and are most representative of the project site. The surface observations included wind direction, wind speed, temperature, cloud cover, and cloud ceiling.

In reviewing this permit application, the Department has determined that the application complies with the applicable provisions of the stack height regulations as revised by EPA on July 8, 1985 (50 FR 27892). Portions of the regulations have been remanded by a panel of the U.S. Court of Appeals for the D.C. Circuit in NRDC v. Thomas, 838 F. 2d 1224 (D.C. Cir. 1988). Consequently, this permit may be subject to modification should EPA revise the regulation in response to the court decision. This may result in revised emission limitations or may affect other actions taken by the source owners or operators.

Additional Impacts Analysis

Impact on Soils, Vegetation, and Wildlife:

The proposed project is in response to the addition of control technologies on Unit 4. These controls will provide emissions reductions for NO_X, which will improve the total current impact on soils, vegetation and wildlife from the Big Bend facility. These reductions of NO_X will also reduce a source of ozone formation in the vicinity of the project. With regards to the increase in CO emissions, the maximum ground-level concentrations predicted to occur for CO as a result of the proposed project will be considerably less than the Significant Impact Levels and the respective AAQS. The Significant Impact Levels are more stringent that the AAQS, which are health-based standards that are also in place to protect sensitive populations.

Growth-Related Impacts Due to the Proposed Project:

There will be no increases in the labor force due to the proposed project.

Growth-Related Air Quality Impacts since 1977:

The population of Hillsborough County is approximately 1.1 million according to the Census Bureau. In 1980, the population was about 650,000. Despite the population and obvious mobile source growth, the County is in attainment with all ambient air quality standards.

Specifically for CO, there has not been an exceedance of the standards since 1988 for the entire State of Florida. Since 1995, the highest reported 1-hour concentration for CO in Tampa was 16,100 compared to a 40,000 AAQS and the highest reported 8-hour concentration was 6,900 compared to a 10,000 AAQS.

Hillsborough County is host to several electrical utilities. However, there have been reductions of emissions at the Big Bend facility itself since 1977 and the Gannon plant in Tampa was replaced or "repowered" with a Bayside Power Station facility, which has much lower NO_X and SO_2 emissions.

8. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the draft permit. Tom Cascio is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting the project engineer at the Department's Bureau of Air Regulation at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

Memorandum

Florida Department of Environmental Protection

TO: Trina Vielhauer

FROM: Al Linero and Tom Cascio

DATE: November 16, 2007

SUBJECT: Carbon Monoxide (CO) Emission Limit - Big Bend Unit 4
DEP File No. 0570039-027-AC (PSD-FL-390)

Attached is the revised draft public notice package for the Tampa Electric Company (TEC) Big Bend Station Unit 4 carbon monoxide (CO) best available control technology determination (BACT).

The Department gave written notice of its intent to issue a permit to TEC on August 3, 2007. Prior to publication of the Public Notice of Intent to Issue PSD Permit (Public Notice) TEC provided comments and additional information for consideration by the Department. With this action, the original written notice and accompanying documents are withdrawn and replaced with the present notice and accompanying documents.

The CO increase occurs (or will occur) when TEC actually operates the low NO_X burners (LNB) and separate overfire air (SOFA) in an aggressive mode that minimizes lower furnace oxygen for the purpose of reducing NO_X.

The previous CO BACT determinations were conducted by EPA in 1981 and 1985. The limits were 0.014 and 0.029 lb/mmBtu respectively. TECO requested a limit of 0.20 lb CO/mmBtu and referred to some of the limits for other CO BACT determinations for other CAIR projects. However, those were made for projects in the conceptual phase in contrast with this project for which construction is actually complete (i.e. LNB, SOFA and SCR). Also, those projects did not already have CO BACT limits.

We have proposed a limit of 0.20 lb/mmBtu and believe it can be achieved consistently on a 30-day basis. Based on results of compliance tests and analysis of 6 months worth of continuous monitoring data, the Department will reassess this BACT determination. The emission limit may be adjusted downward to make this limit more stringent provided that overall control attained for all air pollutants including CO, SO_2, NO_X, PM/PM_{10}, is optimized. The Department requires installation of a continuous emission monitoring system (CEMS) for determination of compliance with the interim BACT limit.

We recommend your approval of the attached package.

AAL/tbc

Attachments

Harvey, Mary

From: Harvey, Mary

Sent: Monday, November 19, 2007 4:36 PM

To: 'Karen Sheffield, General Manager, TEC:'; 'Bryon Burrows, P.E., TEC:'; 'Tom Davis, P.E., Environmental Consulting & Technology:'; 'Diana Lee, P.E., HCEPC:'; Nasca, Mara; 'Jim Little, U.S. EPA Region 4:'; 'Katy Forney, U.S. EPA Region 4:'; 'Catherine Collins, U.S. Fish and Wildlife Service:'; 'Sandra Silva, U.S. Fish and Wildlife Service:'

Cc: Cascio, Tom; Linero, Alvaro; Adams, Patty; Gibson, Victoria

Subject: Tampa Electric Company - DEP File No. 0570039-027-AC (PSD-FL-390)

Attachments: 390RCOVER-0570039-027-AC-DRAFT.pdf; 390RINTENT-0570039-027-AC-DRAFT.pdf; 390RNOTICE-0570039-027-AC-DRAFT.pdf; 390RTECH-0570039-027-AC-DRAFT.pdf; 390RDPERMIT-0570039-027-AC-DRAFT.pdf

Tracking:

Recipient	Delivery	Read
'Karen Sheffield, General Manager, TEC:'		
'Bryon Burrows, P.E., TEC:'		
'Tom Davis, P.E., Environmental Consulting & Technology:'		
'Diana Lee, P.E., HCEPC:'		
Nasca, Mara	Delivered: 11/19/2007 4:37 PM	Read: 11/19/2007 5:42 PM
'Jim Little, U.S. EPA Region 4:'		
'Katy Forney, U.S. EPA Region 4:'		
'Catherine Collins, U.S. Fish and Wildlife Service:'		
'Sandra Silva, U.S. Fish and Wildlife Service:'		
Cascio, Tom		Read: 11/20/2007 9:24 AM
Linero, Alvaro	[illegible]	Read: 11/19/2007 5:02 PM
Adams, Patty		Read: 11/19/2007 4:38 PM
Gibson, Victoria		

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

The document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site: http://www.adobe.com/products/acrobat/readstep.html.

The Bureau of Air Regulation is issuing electronic documents for permits, notices and other

Harvey, Mary

From: Karen Sheffield [kasheffield@tecoenergy.com]
Sent: Tuesday, November 20, 2007 8:24 AM
To: Harvey, Mary
Subject: Re: Tampa Electric Company - DEP File No. 0570039-027-AC(PSD-FL-390)

I received the above subject documents.

>>> "Harvey, Mary" <Mary.Harvey@dep.state.fl.us> 11/19/2007 4:36:18 PM >>>

Dear Sir/Madam:

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Thank you,

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Harvey, Mary

From: Adams, Patty
To: Harvey, Mary
Sent: Monday, November 19, 2007 4:38 PM
Subject: Read: Tampa Electric Company - DEP File No. 0570039-027-AC (PSD-FL-390)

Your message

To:	'Karen Sheffield, General Manager, TEC:'; 'Bryon Burrows, P.E., TEC:'; 'Tom Davis, P.E., Environmental Consulting & Technology:'; 'Diana Lee, P.E., HCEPC:'; Nasca, Mara; 'Jim Little, U.S. EPA Region 4:'; 'Katy Forney, U.S. EPA Region 4:'; 'Catherine Collins, U.S. Fish and Wildlife Service:'; 'Sandra Silva, U.S. Fish and Wildlife Service:'
Cc:	Cascio, Tom; Linero, Alvaro; Adams, Patty; Gibson, Victoria
Subject:	Tampa Electric Company - DEP File No. 0570039-027-AC (PSD-FL-390)
Sent:	11/19/2007 4:36 PM

was read on 11/19/2007 4:38 PM.

Harvey, Mary

From: Cascio, Tom
To: Harvey, Mary
Sent: Tuesday, November 20, 2007 9:24 AM
Subject: Read: Tampa Electric Company - DEP File No. 0570039-027-AC (PSD-FL-390)

Your message

To:	'Karen Sheffield, General Manager, TEC:'; 'Bryon Burrows, P.E., TEC:'; 'Tom Davis, P.E., Environmental Consulting & Technology:'; 'Diana Lee, P.E., HCEPC:'; Nasca, Mara; 'Jim Little, U.S. EPA Region 4:'; 'Katy Forney, U.S. EPA Region 4:'; 'Catherine Collins, U.S. Fish and Wildlife Service:'; 'Sandra Silva, U.S. Fish and Wildlife Service:'
Cc:	Cascio, Tom; Linero, Alvaro; Adams, Patty; Gibson, Victoria
Subject:	Tampa Electric Company - DEP File No. 0570039-027-AC (PSD-FL-390)
Sent:	11/19/2007 4:36 PM

was read on 11/20/2007 9:24 AM.

Harvey, Mary

From: Lee, Diana [Lee@epchc.org]
To: Harvey, Mary
Sent: Tuesday, November 20, 2007 9:47 AM
Subject: Read: Tampa Electric Company - DEP File No. 0570039-027-AC (PSD-FL-390)

Your message

To: Lee@epchc.org
Subject:

was read on 11/20/2007 9:47 AM.

Harvey, Mary

From: Nasca, Mara
To: Harvey, Mary
Sent: Monday, November 19, 2007 5:42 PM
Subject: Read: Tampa Electric Company - DEP File No. 0570039-027-AC (PSD-FL-390)

Your message

To:	'Karen Sheffield, General Manager, TEC:'; 'Bryon Burrows, P.E., TEC:'; 'Tom Davis, P.E., Environmental Consulting & Technology:'; 'Diana Lee, P.E., HCEPC:'; Nasca, Mara; 'Jim Little, U.S. EPA Region 4:'; 'Katy Forney, U.S. EPA Region 4:'; 'Catherine Collins, U.S. Fish and Wildlife Service:'; 'Sandra Silva, U.S. Fish and Wildlife Service:'
Cc:	Cascio, Tom; Linero, Alvaro; Adams, Patty; Gibson, Victoria
Subject:	Tampa Electric Company - DEP File No. 0570039-027-AC (PSD-FL-390)
Sent:	11/19/2007 4:36 PM

was read on 11/19/2007 5:42 PM.

Harvey, Mary

From: Sandra_V_Silva@fws.gov
Sent: Monday, November 19, 2007 5:34 PM
To: Harvey, Mary
Subject: Tampa Electric Company - DEP File No. 0570039-027-AC (PSD-FL-390)

Return Receipt

Your document:	Tampa Electric Company - DEP File No. 0570039-027-AC (PSD-FL-390)
was received by:	Sandra V Silva/R9/FWS/DOI
at:	11/19/2007 03:33:30 PM

Harvey, Mary

From: Linero, Alvaro
To: Harvey, Mary
Sent: Monday, November 19, 2007 5:02 PM
Subject: Read: Tampa Electric Company - DEP File No. 0570039-027-AC (PSD-FL-390)

Your message

To:	'Karen Sheffield, General Manager, TEC:'; 'Bryon Burrows, P.E., TEC:'; 'Tom Davis, P.E., Environmental Consulting & Technology:'; 'Diana Lee, P.E., HCEPC:'; Nasca, Mara; 'Jim Little, U.S. EPA Region 4:'; 'Katy Forney, U.S. EPA Region 4:'; 'Catherine Collins, U.S. Fish and Wildlife Service:'; 'Sandra Silva, U.S. Fish and Wildlife Service:'
Cc:	Cascio, Tom; Linero, Alvaro; Adams, Patty; Gibson, Victoria
Subject:	Tampa Electric Company - DEP File No. 0570039-027-AC (PSD-FL-390)
Sent:	11/19/2007 4:36 PM

was read on 11/19/2007 5:02 PM.

Harvey, Mary

From: Byron Burrows [btburrows@tecoenergy.com]
Sent: Tuesday, November 20, 2007 2:29 PM
To: Harvey, Mary
Subject: Re: Tampa Electric Company - DEP File No. 0570039-027-AC(PSD-FL-390)

Received. Thanks.

Byron T. Burrows, P.E. BCEE
Manager, Air Programs
Tampa Electric Company
P.O. Box 111
Tampa, FL 33601-0111
Ph - 813.228.1282
Mob - 813.230.3445
Fax - 813.228.1308
btburrows@tecoenergy.com

>>> "Harvey, Mary" <Mary.Harvey@dep.state.fl.us> 11/19/07 4:36 PM >>>

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Sent: Tuesday, November 20, 2007 2:29 PM
To: Harvey, Mary
Subject: Re: Tampa Electric Company - DEP File No. 0570039-027-AC(PSD-FL-390)

Received. Thanks.

Byron T. Burrows, P.E. BCEE
Manager, Air Programs
Tampa Electric Company
P.O. Box 111
Tampa, FL 33601-0111
Ph - 813.228.1282
Mob - 813.230.3445
Fax - 813.228.1308
btburrows@tecoenergy.com

>>> "Harvey, Mary" <Mary.Harvey@dep.state.fl.us> 11/19/07 4:36 PM >>>

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Harvey, Mary

From: Forney.Kathleen@epamail.epa.gov
Sent: Tuesday, November 20, 2007 1:00 PM
To: Harvey, Mary
Cc: Linero, Alvaro; Little.James@epamail.epa.gov; Nasca, Mara; Adams, Patty; Cascio, Tom; Gibson, Victoria
Subject: Re: Tampa Electric Company - DEP File No. 0570039-027-AC (PSD-FL-390)

Follow Up Flag: Follow up
Flag Status: Red

Thanks Mary,

Does anyone know when the public comment period might be over for this facility?

Katy

Katy R. Forney
Air Permits Section
EPA - Region 4
61 Forsyth St., SW
Atlanta, GA 30024

Phone: 404-562-9130
Fax: 404-562-9019

"Harvey, Mary"
<Mary.Harvey@dep
.state.fl.us>

11/19/2007 04:36
PM

To
"Karen Sheffield, General Manager, TEC:" <kasheffield@tecoenergy.com>, "Bryon Burrows, P.E., TEC:" <btburrows@tecoenergy.com>, "Tom Davis, P.E., Environmental Consulting & Technology:" <tdavis@ectinc.com>, "Diana Lee, P.E., HCEPC:" <lee@epchc.org>, "Nasca, Mara" <Mara.Nasca@dep.state.fl.us>, James Little/R4/USEPA/US@EPA, Kathleen Forney/R4/USEPA/US@EPA, "Catherine Collins, U.S. Fish and Wildlife Service:" <catherine_collins@fws.gov>, "Sandra Silva, U.S. Fish and Wildlife Service:" <sandra_silva@fws.gov>

cc
"Cascio, Tom" <Tom.Cascio@dep.state.fl.us>, "Linero, Alvaro" <Alvaro.Linero@dep.state.fl.us>, "Adams, Patty" <Patty.Adams@dep.state.fl.us>, "Gibson, Victoria" <Victoria.Gibson@dep.state.fl.us>

Subject
Tampa Electric Company - DEP File No. 0570039-027-AC (PSD-FL-390)