


TO: Buck Oven
FROM: A.A. Linero 
DATE: June 20, 1995
SUBJECT: TEC Big Bend Unit 4 - Petcoke Modification

Following are the proposed changes to the Conditions of Certification consistent with the PSD draft permit modification and Public Notice of Intent To Issue related to the Petcoke project for Big Bend Unit 4:

Revised Condition I. A. 1.

Based on a maximum heat input of 4,330 million BTU per hour, stack emissions from Big Bend Unit 4 shall not exceed the following when burning coal or coal/petroleum coke blend:

New Condition I. A. 12.

Fuels fired shall consist of coal or a coal/petroleum coke blend containing a maximum of 20.0 percent petroleum coke by weight. The sulfur content of the petroleum coke shall not exceed 6.0 percent by weight (dry basis). Vanadium content of the mineral ash from the petroleum coke fired shall not exceed 35.0 percent by weight (ignited Basis).

New Condition I. A. 13.

Gravimetric instrument data verifying that the 20.0 percent maximum petroleum coke content by weight basis has not been exceeded shall be maintained and submitted to the Department and the Environmental Protection Commission of Hillsborough County (EPCHC) with each annual operating report.

New Condition I. A. 14.


Pursuant to Rule 62-212.200(2)(d), Florida Administrative Code (FAC), the actual emissions of the No. 4 unit shall equal the representative actual emissions as defined in 40 CFR 52.21(b)(33). The permittee shall maintain and submit to the Department and EPCHC on an annual basis for a period of 5 years from the date the unit begins firing petroleum coke, data demonstrating that the operational change did not result in an emissions increase.

Note that the above change in Condition I. A. 1. implies that the same emission limits apply when burning coal/petcoke as apply when burning only coal. This does not change any emission limits given in the original or any revised versions of the EPA - issued Big Bend Unit 4 PSD permit or BACT Determination.

The above changes relate only to the Petcoke project and do not include those made for the Unit 3 and 4 Integration Project or the Coal Yard Project, both of which will result in changes to the Conditions of Certification.

AAL/aal/l

cc: Clair Fancy
John Reynolds
File PSD-FL-040 TEC Big Bend Unit 4

TO: Buck Oven
FROM: A.A. Linero 
DATE: June 20, 1995
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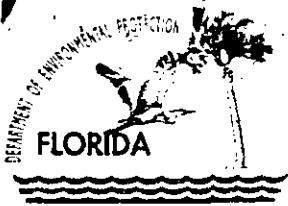
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The above changes relate only to the Petcoke project and do not include those made for the Unit 3 and 4 Integration Project or the Coal Yard Project, both of which will result in changes to the Conditions of Certification.

AAL/aal/l

cc: Clair Fancy
John Reynolds
File PSD-FL-040 TEC Big Bend Unit 4



Department of Environmental Protection

File

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

May 25, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Patrick Ho, P.E.
Manager of Environmental Planning
Tampa Electric Company
Post Office Box 111
Tampa, Florida 33601-0111

Dear Mr. Ho:

Enclosed is a proposed amendment and Public Notice for amendment of PSD-FL-040 for Big Bend Unit 4. The Department requires a public notice for this modification.

The present modification follows the recent one which approved treatment of Unit 3 flue gases by the scrubber system which previously processed gas from only Unit 4. The integration project places additional demands on the existing system which were not present when the petcoke test burn was conducted. Thus, the projections resulting from the trial burns may not be representative of emissions following the present modification request.

The continuous monitoring of sulfur dioxide and nitrogen oxide emissions can demonstrate that these parameters will not exceed PSD-significant values. However, the high sulfur and high vanadium present in petcoke can, in conjunction with the integration project, result in higher acid mist emissions than projected by the petcoke test burn alone. Since acid mist emissions are not continuously monitored it is necessary to ensure that the petcoke used in the future is of equal or superior quality to that used in the test burn.

Mr. Patrick Ho
May 25, 1995
Page Two

All comments during the public notice period should be addressed to Mr. A. A. Linero at the Department's Tallahassee address. If there are additional questions on the above, please call Mr. John Reynolds at (904) 488-1344.

Sincerely,


C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/jr/t

Enclosures

cc: B. Thomas, SWD
L. Deken, EPCHC
J. Harper, EPA
J. Bunyak, NPS
H. Oven, PPS

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CERTIFIED MAIL

In the Matter of an
Application for Permit Amendment

DEP File No. PSD-FL-040
Hillsborough Co.

Mr. Patrick Ho, P.E.
Manager of Environmental Planning
Tampa Electric Company
P.O. Box 111
Tampa, Florida 33601-0111

INTENT TO ISSUE

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit amendment for a modification (copy attached) to the applicant's facility as detailed in the application/request specified, above, for the reasons stated in the application/request.

The applicant, Tampa Electric Company, applied on February 3, 1995, to the Department for an amendment of their PSD permit to fire a coal/petroleum coke blend in their Big Bend Unit 4. The facility is located in Hillsborough County.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-212 and 62-4, Florida Administrative Code (F.A.C.). The project is not exempt from permitting procedures. The Department has determined that a permit amendment is required for the proposed change.

Pursuant to Section 403.815, F.S., and Rule 62-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit Amendment. The notice shall be published one time only within 30 days in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "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. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit amendment.

The Department will issue the permit amendment with the attached conditions unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 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 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this intent, whichever first occurs. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information;

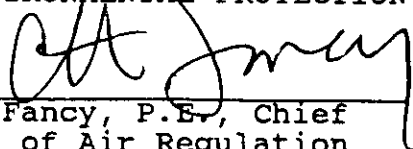
- (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
- (d) A statement of the material facts disputed by Petitioner, if any;
- (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
- (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and,
- (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this intent. Persons whose substantial interests will be affected by any decision of the Department with regard to the application/request have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this intent in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to

request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this INTENT TO ISSUE PERMIT AMENDMENT all copies were mailed by certified mail before the close of business on 6-1-95 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT
FILED, on this date, pursuant to §120.52(11), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.


Clerk 6-1-95
Date

Copies furnished to:

B. Thomas, SWD
L. Deken, EPCHC
J. Harper, EPA
J. Bunyak, NPS
H. Oven, PPS

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

NOTICE OF INTENT TO ISSUE PERMIT AMENDMENT

PSD-FL-040

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit amendment to Tampa Electric Company, Inc., P.O. Box 111, Tampa, Florida 33601-0111. This company operates a coal-fired power generation facility located on Big Bend Road, near Ruskin, in Hillsborough County, Florida. The amendment allows the firing of a 80% coal/20% petroleum coke blend (by weight) in Big Bend Unit 4. Preliminary testing has shown that the existing air pollution control equipment is capable of controlling emissions such that no significant increase in air pollution from this source will occur. Therefore, this change will not cause or contribute to a violation of any air pollution standard or adversely affect the environment.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes (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 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information; (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by Petitioner, if any; (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and, (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, 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 decision of the Department with regard to the application/request have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, Florida Administrative Code.

The application/request 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:

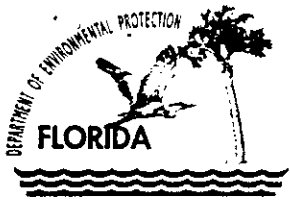
Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301

Department of Environmental Protection
Southwest District
8407 Laurel Fair Circle
Tampa, Florida 33619

Environmental Protection Commission
of Hillsborough County
1900 - 9th Avenue
Tampa, Florida 33805

Any person may send written comments on the proposed action to Mr. A. A. Linero at the Department's Tallahassee address. All comments received within 30 days of the publication of this notice will be considered in the Department's final determination.

Further, a public hearing can be requested by any person(s). Such requests must be submitted within 30 days of this notice.



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

June XX, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Patrick Ho, P.E.
Manager of Environmental Planning
Tampa Electric Company
Post Office Box 111
Tampa, Florida 33601-0111

DRAFT

Dear Mr. Ho:

Re: Amendment of PSD-FL-040 to Allow Firing of Coal/Petroleum
Coke Blend in Big Bend Unit 4

The Department hereby amends the subject air construction permit allowing the firing of a blend of coal and petroleum coke. The permit is amended as shown:

New Specific Condition 1. A.:

1. A. Fuels fired shall consist of coal or a coal/petroleum coke blend containing a maximum of 20.0% petroleum coke by weight. The sulfur content of the petroleum coke shall not exceed 6.0 % by weight (dry basis). Vanadium content of the mineral ash from the petroleum coke fired shall not exceed 35.0% by weight (ignited basis).

New Specific Condition 1. B.:

1. B. Gravimetric instrument data verifying that the 20.0% maximum petroleum coke content by weight has not been exceeded shall be maintained and submitted to the Department and the Environmental Protection Commission of Hillsborough County (EPCHC) with each annual operating report.

New Specific Condition 1. C.:

1. C. Pursuant to Rule 62-212.200(2)(d), Florida Administrative Code (F.A.C.), the actual emissions of the No. 4 unit shall equal the representative actual annual emissions, as defined in 40 CFR

DRAFT

52.21(b)(33). The permittee shall maintain and submit to the Department and the EPCHC on an annual basis for a period of 5 years from the date the unit begins firing petroleum coke, data demonstrating that the operational change did not result in an emissions increase.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes (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 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the applicant of the amendment request/application and the parties listed below must be filed within 14 days of receipt of this amendment. Petitions filed by other persons must be filed within 14 days of the amendment issuance or within 14 days of their receipt of this amendment, whichever occurs first. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information:

- (a) The name, address and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
- (d) A statement of the material facts disputed by Petitioner, if any;
- (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
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If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this amendment. Persons whose substantial interests will be affected by any decision of the Department with regard to the amendment request/application have the right to petition to become a party to

DRAFT

the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this amendment in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, Florida Administrative Code.

A copy of this amendment letter shall be attached to and shall become a part of Air Construction Permit PSD-FL-040.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Virginia B. Wetherell, Secretary

CERTIFICATE OF SERVICE

This is to certify that this Permit Amendment and all copies were mailed to the listed persons before the close of business on June XX, 1995.

FILING AND ACKNOWLEDGEMENT FILED,
on this date, pursuant to Chapter
120.52(9), Florida Statutes, with
with the designated Deputy Clerk,
receipt of which is hereby
acknowledged.

(Clerk)

(Date)

cc: B. Thomas, SWD
L. Deken, EPCHC
J. Harper, EPA
J. Bunyak, NPS
H. Oven, PPS

Florida Department of
Environmental Protection

Memorandum

TO: C. H. Fancy
FROM: A. A. Linero *A.A. Linero 5/25*
DATE: May 25, 1995
SUBJ: Tampa Electric Company - Big Bend Unit 4
Permit Amendment - PSD-FL-040

Attached for your review and approval is a permit amendment allowing Tampa Electric to burn a petcoke blend in Big Bend Unit 4. Included is a condition limiting the sulfur and vanadium content of the petcoke, since sulfur can be as high as 8.5% and vanadium catalyzes SO₂ to SO₃ resulting in acid mist. Tampa Electric Company probably will complain about these limits. We believe they are needed to provide reasonable assurance that the "dirtiest" pet coke will not be used.

If you have any questions, we will be glad to discuss the details.

CHF/aal/t



RECEIVED

APR 06 1995

April 4, 1995

Bureau of
Air Regulation

Mr. John Reynolds
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Certified Mail No. P 278 134 329
Return Receipt Requested

Mr. Jerry Campbell
Environmental Protection Commission
of Hillsborough County
1410 North 21 Street
Tampa, Florida 33605

Hand Delivered

Re: Tampa Electric Company
Big Bend Station Unit 4
Site Certification PA 79-12
Coal/Petroleum Coke Blend

Gentlemen:

On March 29, 1995, Tampa Electric Company (TEC) responded to the Environmental Protection Commission of Hillsborough County's (EPC) comments about the above referenced project. In addition, TEC met with EPC on March 29, 1995 to review their concerns. Based upon the outcome of that meeting, Questions 1 through 6 of EPC's February 28, 1995 comment letter have been resolved. However, EPC is still concerned that a significant actual emission increase will occur based upon this request. Therefore, in an effort to provide additional assurance that using a fuel blend of coal and petroleum coke in Unit 4 will not increase annual emissions significantly above normal historic actual emissions, the following analysis is provided as addendum to TEC's March 29, 1995 submittal to the agency.

As pointed out by EPC and as demonstrated in the attached analysis, the initial screening of the monitored pollutants as required in the October 5, 1994, approval letter show that no significant actual emissions increase occurs for nitrogen oxides (NO_x), carbon monoxide (CO) and sulfuric acid mist (H₂SO₄). Therefore, for these pollutants, no further analysis is required.

However, as shown in Table 1, sulfur dioxide (SO₂) and particulate matter (PM) show an emissions increase. Based upon these emissions and in accordance with Prevention of Significant Deterioration (PSD) applicability requirements, TEC has done further emission comparisons.

Mr. John Reynolds
Mr. Jerry Campbell
April 4, 1995
Page 2 of 2

Table 2 depicts the emissions comparison of the averaged emissions of 1993 and 1994 from the annual operating reports. As can be seen from this comparison, no actual emissions increase during the coal/petroleum coke test burn as compared to historic actual emissions occurred during the test. Additionally, no actual emission increase is expected while firing Big Bend Unit 4 using the coal.

TEC believes this additional analysis satisfactorily addresses EPC's concern. As discussed with you on previous occasions, we are extremely anxious to proceed with this project because of the immediate savings that could be realized by our Customers; therefore, we request that this permit modification be granted as soon as possible. Please call Ms. Janice Taylor or me at (813) 228-4839 if you have any further questions.

Sincerely,



Patrick A. Ho, P.E.
Manager
Environmental Planning

EP\gm\JKT705

Attachment

c/enc: Hamilton Oven, FDEP - Tallahassee
Al Linero, FDEP - Tallahassee
Jerry Kessell, FDEP - Tampa

ADDENDUM

BASELINE TEST BURN AND PETROLEUM COKE TEST BURN COMPARISON

The test burn approval requires an initial screening to determine if the fuel blend of coal and petroleum coke compared to the baseline of 100% coal represents an actual annual emissions increase. These comparisons are shown in Table 1. For this analysis, emissions were calculated using the algorithm:

$$E_A = E_r \times L \times u_A$$

Where: E_A = Annual Emission Rate (tpy)

E_r = Measured Emission Rate (lb/MMBtu)

L = Load (MMBtu/hr during stack testing)

u_A = Annual Utilization (hr/yr for 1994)

The emissions comparison for nitrogen oxides (NO_x), carbon monoxide (CO), and sulfuric acid mist (H_2SO_4) indicate no additional analysis is necessary because the actual annual emissions decrease. However, the sulfur dioxide (SO_2) and Particulate Matter (PM) emissions comparison show an actual annual emissions increase. Therefore, in accordance with rules to determine Prevention of Significant Deterioration (PSD) applicability, further actual annual emissions comparison must be done. This analysis is presented in Table 2, which compares the fuel blend test burn with historical actual emissions. Consistent with PSD rules, which require the past two years of data be applied, TEC has used the 1993 and 1994 Annual Operating Reports data to define actual SO_2 and PM emissions. As demonstrated, no actual annual SO_2 and PM emissions increase has occurred using the fuel blend as compared to actual historic emissions.

Table 1. Baseline and Petroleum Coke Test Burn Results Comparison

BASELINE TEST BURN DATA					
Pollutant	Emission Rate (lb/MMBtu)	Load (MMBtu/hr)	Emission Rate (lb/hr)	Annual Utilization (hr/yr)*	Annual Emission (tpy)
SO ₂	0.25	4300.0	1075.00	8135	4372.6
NO _x	0.43	4300.0	1849.00	8135	7520.6
PM	0.0025	4300.0	10.75	8135	43.7
CO	0.01	4300.0	43.00	8135	174.9
H ₂ SO ₄	0.007	4300.0	30.10	8135	122.4
PETROLEUM COKE TEST BURN DATA					
Pollutant	Emission Rate (lb/MMBtu)	Load (MMBtu/hr)	Emission Rate (Lb/hr)	Annual Utilization (hr/yr)	Annualized Emission (tpy)
SO ₂	0.29	4318.7	1252.42	8135	5094.2
NO _x	0.42	4318.7	1813.85	8135	7377.9
PM	0.0035	4318.7	15.12	8135	61.5
CO	0.002	4318.7	8.64	8135	35.1
H ₂ SO ₄	0.002	4318.7	8.64	8135	35.1
EMISSION RATE CHANGE (PETROLEUM COKE TEST BURN - BASELINE TEST BURN)					
Pollutant			Emission Rate (Lb/hr)		Annualized Emission (tpy)
SO ₂			177.42		721.7
NO _x			-35.15		-143.0
PM			4.37		17.8
CO			-34.36		-139.8
H ₂ SO ₄			-21.46		-87.3

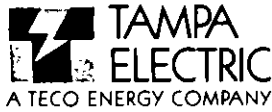
*1994 Hours of Operation

Table 2. Historical Actual Emission Data and Petroleum Coke Test Burn Results Comparison

HISTORICAL ACTUAL EMISSIONS AND PETROLEUM COKE TEST BURN EMISSIONS COMPARISON							
Pollutant	Emission Rate (lb/MMBtu)	Load (MMBtu/hr)	Emission Rate (Lb/hr)	Annual Utilization (hr/yr)*	Annual Emission (tpy)	1993 & 1994 Annual Emission (tpy)**	Annual Emission (tpy)
SO ₂	0.29	4318.7	1252.42	8135	5094.2	6864.0	-1769.8
PM	0.0035	4318.7	15.12	8135	61.5	71.5	-10.0

*1994 Hours of Operation

**Averaged 1993 and 1994 Emissions from Annual Operating Reports



RECEIVED
MAR 31 1995
Bureau of
Air Regulation

March 29, 1995

Mr. John Reynolds
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399

Certified Mail No. P 880 003 146
Return Receipt Requested

**Re: Tampa Electric Company (TEC)
Big Bend Station Unit 4
Site Certification PA 79-12 Modification
Coal/Petroleum Coke Blend**

Dear Mr. Reynolds:

As you are aware, TEC has submitted a request to modify the above referenced permit to authorize the use of a blend of coal and petroleum coke as an allowable fuel for Big Bend Station Unit 4. TEC has demonstrated through an approved Florida Department of Environmental Protection (FDEP) test burn that use of this fuel blend does not affect boiler operations or impact environmental permit limits.

Pursuant to your conversation with Ms. Janice Taylor, it is TEC's understanding that both FDEP and Environmental Protection Commission of Hillsborough County (EPC) have concerns regarding the intent of the test burn. Please be advised that the intent of the test burn was to demonstrate the viability of burning a coal/petroleum coke blend within our current permit restrictions. This test burn was conducted from November 8, 1994 through November 29, 1994. An additional three day test burn to complete carbon monoxide testing was conducted from December 19 -21, 1994. Based on the data collected, the coal/petroleum coke fuel blend can be successfully burned in Unit 4 well within permitted emissions limits. Results of the test, along with a request to modify permit language, were submitted to the agency on January 31, 1995.

On March 3, 1995, TEC received a copy of the EPC's comments to FDEP regarding this project. In order to expedite the approval process, TEC is providing the following comments to address EPC's concerns.

EPC Comment No.1 Condition #3 of the authorization requires that a minimum of three (3) separate samples should be collected, and analyzed for sulfur, nitrogen, and metals during the particulate matter test runs. Two (2)

Mr. John Reynolds
Page 2 of 5
March 29, 1995

samples were taken during the seven (7) test runs while burning coal, but the third sample was taken after the completion of the particulate matter testing on November 3. During the petroleum coke blend test, all three (3) required samples were taken during the six (6) particulate matter runs. Therefore, only the 2 samples collected during the particulate matter test runs should be used for comparison with the sulfur, nitrogen and metals content of the petroleum coke blend particulate test runs.

TEC's Response: *EPC is correct in pointing out that during the coal baseline testing TEC obtained fuel samples over the entire emissions test duration instead of only during the particulate matter test runs. TEC feels that these fuel analyses are representative for the compliance test duration and satisfy the Department's intent for fuel information. However, for comparison purposes please find enclosed revised tables (Enclosure 1) for the metal analyses.*

EPC Comment No. 2 Condition's 5 and 6 of the authorization require that the petroleum coke shall be limited to 20% weight of the blend and not exceed 67,190 lb/Hr. The test report did not include the amount of coal or petroleum coke burned to demonstrate compliance with these conditions. The information, therefore, should be submitted.

TEC's Response: *To ensure the appropriate coal to petroleum coke blend was maintained during the test burn, the gravimetric fuel feeders located beneath the blending bins were set to feed 80% coal and 20% petroleum coke by weight to Unit 4 during bunkering operations.*

EPC Comment No. 3 Condition #7 of the authorization requires that if the plant CEMs are used for the test, then they should be quality assured pursuant to 40 CFR 60, Appendix F. It also requires that the RATA and cylinder gas audit be submitted with the report. A review of the Relative Accuracy Test Audit Data Assessment Report of Section D-3 of the report, indicates that the plant CEM's required by Subpart Da were used. However, page 6 of Section 3 of the reports indicates that a "transportable" CEM or TCEMs was used. If the plant CEMs were not used, then the TCEM test data should be submitted.

Mr. John Reynolds
Page 3 of 5
March 29, 1995

TEC's Response

As agreed upon during negotiation with the Department for this test burn, TEC used the certified Subpart Da CEMs to report the sulfur dioxide, nitrogen oxides and opacity during this test burn period, including the baseline test. Please note that TEC's transportable CEMs (TCEMs) were used to perform USEPA Method 10 "Determination of Carbon Monoxide Emissions from Stationary Sources." Big Bend Unit No. 4 is not required to monitor carbon monoxide on a continuous basis. All required data for USEPA Method 10 are located in Appendix A and Appendix G of the test report.

EPC Comment No. 4 Condition #19 of the authorization requires that the test be conducted at 90-100% of the 4330 MMBTU/Hr maximum heat input rate listed in the Site Certification and PSD permit. The test report listed the electrical energy generated during the testing in MW instead of the heat input of the fuel. The required heat input should be submitted with the report to demonstrated compliance with the condition, and ensure that the maximum heat input rate was not exceeded.

TEC's Response

Please find enclosed the heat input calculations during the emissions testing (Enclosure 2).

EPC Comment No. 5 Condition #20 of the authorization required that TECO get prior approval of the proposed test methods to be employed during testing. We never received TECO's proposal for approval. Condition #7 required that they test for PM, CO, and H₂SO₄ mist. TECO used method 5B "Determination of Nonsulfuric Acid Particulate Matter from Stationary Sources," which has a negative bias and under reports the particulate matter emissions since it does not include H₂SO₄ mist. TECO normally uses EPA method 17 to test for particulate matter which includes any H₂SO₄ acid mist being emitted. Based on the H₂SO₄ acid mist test (EPA Method 8), the negative bias appears to be approximately 12 lb/hr for the baseline test. Since the average emissions for the seven (7) particulate matter runs is approximately 13 lb/hr, the negative bias is considerable (-92%). The particulate emissions are, therefore, more closely equal to 0.005 lb/MMBTU for

Mr. John Reynolds
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the baseline or coal burn but, since the same bias was introduced during the petroleum coke blend test, the results are appropriate for comparison purposes only.

TEC's Response

As detailed in TEC's air emissions test plan submitted to the Department on September 29, 1994, all particulate matter testing would be conducted following Method 5B. TEC has used Method 5B for Big Bend Unit 4 particulate matter compliance tests since 1988. This method is the approved protocol for testing after a wet FGD according to 40 CFR 60-Subpart Da. Method 5B was approved by the Department in lieu of Method 5 on February 29, 1988 (copy of order enclosed.) TEC does not use Method 17 for particulate matter compliance testing on Big Bend Unit 4 (Enclosure 3).

EPC Comment No. 6 Table 4.1.1 and 4.1.3 lists CEM Data Daily Averages during the petroleum coke test burns. The overall averages for SO₂ outlet and NO_x inlet appear to be calculated incorrectly. The corrected averages are 0.33 and 0.51 lb/MMBTU, respectively.

TEC's Response

TEC has reviewed these tables and agrees with EPC. Corrected tables are enclosed (Enclosure 4).

EPC Comment No. 7 A review of the stack tests indicate that the particulate matter emissions increased over 40%; the sulfur dioxide emissions increased over 89%, the nitrogen oxide emissions increased over 18%. Using the CEM data daily averages, sulfur dioxide emissions increased over 32% and the nitrogen oxide emissions increased over 19%. Using the procedures referenced in 40 CFR 60, Appendix C and the authorization letter, an analysis of the results indicated an increase in actual emissions did occur. In 1992 and 1993, TECO Big Bend #4 reported average emissions of 58 TPY of particulate matter; 3,454 TPY of sulfur dioxide; 3,350 TPY of nitrogen oxides. This, along with the 40%, 89% and 18% increases for the particular pollutants during the test, suggest that significant increases (in excess of those listed in Table 62-212.400-2) in actual emissions would result and trigger PSD for particulate matter, sulfur dioxide; and nitrogen oxides. We suggest that TECO submit an application to modify their Site Certification

Mr. John Reynolds
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March 29, 1995

and PSD permits if they plan to burn petroleum coke blend as an alternative fuel in Unit #4.

TEC's Response

TEC disagrees with EPC's position that the results of the test burn show a significant emissions increase for the listed pollutants and triggers PSD review. Enclosed are graphs depicting two (2) years of historic actual emissions and the coal/petroleum coke blend emissions. As can be seen in these graphs, actual emissions fluctuate depending on unit operations. However, the most important conclusion from these graphs is the fact that the coal/petroleum coke blend does not cause an increase over actual coal emissions, but is within normal unit operations. Also enclosed is a table detailing Unit 4 annual emissions (tons/year) from our 1992 and 1993 annual operating reports. Therefore, TEC feels that no significant emissions increase has occurred and PSD applicability has not been triggered for this fuel flexibility project (Enclosure 5).

TEC believes the above comments satisfactorily address EPC's concerns and request the permit modifications be granted as soon as possible. Please call Ms. Janice Taylor or me at (813) 228-4839 if you have any further questions

Sincerely,



Patrick A. Ho, P.E.
Manager
Environmental Planning

EPJKT703

Enclosures

c/enc: Hamilton Oven - FDEP - Tallahassee
Al Linero - FDEP - Tallahassee ✓
Jerry Kessel - FDEP - Tampa
Jerry Campbell - EPCHC

ENCLOSURE 1

BIG BEND STATION UNIT NO 4
CEM DATA COMPARISON
BASELINE TEST BURN
OCTOBER 30, 1994 THRU NOVEMBER 5, 1994
PETROLEUM TEST BURN
NOVEMBER 7, 1994 THRU DECEMBER 1, 1994
DECEMBER 19, 1994 THRU DECEMBER 21, 1994

	SO2 OUTLET (LB/MMBTU)	SO2 INLET (LB/MMBTU)	REDUCTION (%)	NOx INLET (LB/MMBTU)	OPACITY (%)
BASELINE TEST BURN AVERAGE					
10-30-94 THRU 11-5-94	0.25	5.33	95	0.43	7
PETROLEUM TEST BURN AVERAGE					
11-07-94 THRU 12-01-94					
12-19-94 THRU 12-21-94	0.33	5.24	94	0.51	7

TABLE 4.1.1

BIG BEND STATION BOILER NO 4
CEM DATA
DAILY AVERAGES
PETROLEUM COKE TEST BURN
NOVEMBER 7, 1994 THRU DECEMBER 1, 1994
DECEMBER 19, 1994 THRU DECEMBER 21, 1994

DATE	SO2 OUTLET (LB/MMBTU)	SO2 INLET (LB/MMBTU)	REDUCTION (%)	NOx INLET (LB/MMBTU)	OPACITY (%)
11-07-94	0.29	5.17	94	0.39	8
11-08-94	0.34	5.08	94	0.34	9
11-09-94	*	*	*	*	*
11-10-94	*	*	*	*	*
11-11-94	*	*	*	*	*
11-12-94	*	*	*	*	*
11-13-94	0.25	5.33	89	0.54	7
11-14-94	0.48	5.16	91	0.49	5
11-15-94	0.52	5.23	90	0.48	4
11-16-94	0.63	5.13	88	0.52	3
11-17-94	0.50	5.14	90	0.50	10
11-18-94	0.39	5.18	94	0.51	12
11-19-94	0.32	5.16	94	0.59	13
11-20-94	0.31	5.14	94	0.58	13
11-21-94	0.32	5.21	94	0.54	12
11-22-94	0.20	5.28	98	0.46	13
11-23-94	0.29	5.27	96	0.45	10
11-24-94	0.29	5.39	95	0.48	5
11-25-94	0.29	5.39	95	0.48	5
11-26-94	**	**	**	**	4
11-27-94	**	**	**	**	4
11-28-94	0.33	5.17	94	0.58	4
11-29-94	0.29	5.08	94	0.55	4
11-30-94	0.22	5.12	96	0.47	3
12-01-94	0.25	5.13	95	0.55	6
12-19-94	0.26	5.43	95	0.56	4
12-20-94	0.28	5.57	95	0.53	4
12-21-94	0.27	5.44	95	0.54	5
PETROLEUM COKE					
TESTBURN AVERAGES	0.33	5.24	94	0.51	7

* BOILER NO 4 OUTAGE NOVEMBER 9,10,11,12, 1994

** NOx AND SO2 CEMS OUT OF SERVICE NOVEMBER 26,27, 1994

TABLE4.1.3

ENCLOSURE 2

**BIG BEND GENERATING STATION
HEAT INPUT CALCULATIONS**

BIG BEND STATION BOILER NO. 4 PETCOKE BASELINE TEST NOVEMBER 1, 1994	
September Gross Heat Rate =	9.335×10^6 Btu/MWH
BOILER NO. 4 SOURCE TEST HEAT INPUT CALCULATIONS	
Final MWH (643263) - Initial MWH (638960) =	4303 MWH
Time =	9.32 Hrs
Average MW = $4303 \text{ MWH} \div 9.32 \text{ H} =$	461 MW
$9.335 \times 10^6 \text{ Btu/MWH} \times 4303 \text{ MWH} \div 9.32 \text{ H} =$	$4310 \times 10^6 \text{ Btu/H}$

**BIG BEND GENERATING STATION
HEAT INPUT CALCULATIONS**

BIG BEND STATION BOILER NO. 4 PETCOKE BASELINE TEST NOVEMBER 2, 1994	
September Gross Heat Rate =	9.335×10^6 Btu/MWH
BOILER NO. 4 SOURCE TEST HEAT INPUT CALCULATIONS	
Final MWH (653043) - Initial MWH (647623) =	5420 MWH
Time =	11.78 Hrs
Average MW = $5420 \text{ MWH} \div 11.78 \text{ H} =$	460 MW
$9.335 \times 10^6 \text{ Btu/MWH} \times 5420 \text{ MWH} \div 11.78 \text{ H} =$	4295×10^6 Btu/H

**BIG BEND GENERATING STATION
HEAT INPUT CALCULATIONS**

BIG BEND STATION BOILER NO. 4 PETCOKE BASELINE TEST NOVEMBER 3, 1994	
September Gross Heat Rate =	9.335×10^6 Btu/MWH
BOILER NO. 4 SOURCE TEST HEAT INPUT CALCULATIONS	
Final MWH (663989) - Initial MWH (658707) =	5282 MWH
Time =	11.48 Hrs
Average MW = $5282 \text{ MWH} \div 11.48 \text{ H} =$	460 MW
$9.335 \times 10^6 \text{ Btu/MWH} \times 5282 \text{ MWH} \div 11.48 \text{ H} =$	$4295 \times 10^6 \text{ Btu/H}$

**BIG BEND GENERATING STATION
HEAT INPUT CALCULATIONS**

BIG BEND STATION BOILER NO. 4 PETCOKE BASELINE TEST NOVEMBER 16, 1994	
October Gross Heat Rate =	9.417×10^6 Btu/MWH
BOILER NO. 4 SOURCE TEST HEAT INPUT CALCULATIONS	
Final MWH (761925) - Initial MWH (756957) =	4968 MWH
Time =	10.83 Hrs
Average MW = $4968 \text{ MWH} \div 10.83 \text{ H} =$	459 MW
$9.417 \times 10^6 \text{ Btu/MWH} \times 4968 \text{ MWH} \div 10.83 \text{ H} =$	4320×10^6 Btu/H

**BIG BEND GENERATING STATION
HEAT INPUT CALCULATIONS**

BIG BEND STATION BOILER NO. 4 PETCOKE BASELINE TEST NOVEMBER 17, 1994	
October Gross Heat Rate =	9.417×10^6 Btu/MWH
BOILER NO. 4 SOURCE TEST HEAT INPUT CALCULATIONS	
Final MWH (769598) - Initial MWH (767390) =	2208 MWH
Time =	4.82 Hrs
Average MW = $2208 \text{ MWH} \div 4.82 \text{ H} =$	458 MW
$9.417 \times 10^6 \text{ Btu/MWH} \times 2208 \text{ MWH} \div 4.82 \text{ H} =$	4314×10^6 Btu/H

**BIG BEND GENERATING STATION
HEAT INPUT CALCULATIONS**

BIG BEND STATION BOILER NO. 4 PETCOKE BASELINE TEST NOVEMBER 18, 1994	
October Gross Heat Rate =	9.417×10^6 Btu/MWH
BOILER NO. 4 SOURCE TEST HEAT INPUT CALCULATIONS	
Final MWH (779359) - Initial MWH (776844) =	2515 MWH
Time =	5.48 Hrs
Average MW = $2515 \text{ MWH} \div 5.48 \text{ H} =$	459 MW
$9.417 \times 10^6 \text{ Btu/MWH} \times 2515 \text{ MWH} \div 5.48 \text{ H} =$	$4322 \times 10^6 \text{ Btu/H}$

ENCLOSURE 3



DER

December 15, 1987

DEC 18 1987

BAQM

Mr. Dale Twachtmann
Secretary
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Secretary Twachtmann:

This letter is a request by Tampa Electric Company (TEC) for approval of the use of Method 5B as an alternate sampling procedure for particulate testing for Big Bend Station Unit No. 4. This request is made pursuant to the provisions of Rule 17-2.700(3), Florida Administrative Code (FAC).

In accordance with the requirements of Rule 17-2.700(3)(b), FAC, the following information is provided:

1. The specific source and permit number for which a revision is sought is Big Bend No. 4 operating under Permit No. PA 79-12 Conditions of Certification.
2. The provision of Section 17-2.700 from which revision is requested is from Table 700-1 (Applicable Test Procedures for Point Source Compliance Tests). TEC is requesting the option to use Method 5B in addition to Methods 5 and 17 specified in Table 700-1.
3. The basis for the revision is the promulgation of Method 5B by the United States Environmental Protection Agency (EPA). The EPA Federal Register notice, dated November 26, 1986, states that Method 5B is now a fully approved test method for determining particulate matter emissions from fossil fuel steam generators.
4. Based upon EPA's promulgation of final rules adding Method 5B to the list of approved referenced methods for compliance testing, it is reasonable to conclude that Method 5B is fully adequate for use as a compliance method.

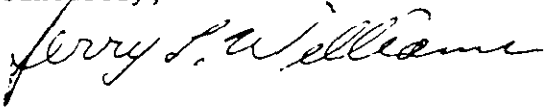
Based on this information, TEC requests that the Department issue an order providing the use of Method 5B as a viable option for demonstrating compliance of particulate emissions at Big Bend Unit No. 4.

EXHIBIT I

We would appreciate a response on this matter as soon as possible.

If there are any questions, please call.

Sincerely,



Jerry L. Williams
Director
Environmental

JLW/cpc/016/NN

cc: Steve Smallwood (FDER)

EX-127 I

17-2.700(3) EXCEPTIONS AND APPROVAL OF ALTERNATE

RECEIVED

PROCEDURES AND REQUIREMENTS

Tampa Electric Company

APR 4 1988

REQUEST FOR EXCEPTION

ENVIRONMENTAL
PLANNING

UNIT: Coal
Steam Fired
Electric
Generating-486 megawatts/
unit

PERMIT NO: PSD-FL-040
Conditions of Certification
No: PA79-12
EMISSION LIMITING STANDARD:
PM-0.03 pounds per million
Btu Heat Input

PLANT: Big Bend Station

DESCRIPTION: Compliance Testing for PM for Big Bend Station
Unit No. 4.

PROVISION TO BE EXCEPTED: Section 17-2.700(2)(1)., F.A.C. and
Specific Condition 3 of the Air Permit
PSD-FL-040 and Specific Condition I.C
of the Conditions of Certification
PA79-12.

EXCEPTION REQUESTED: Use of EPA Reference Method 5B in lieu
of EPA Reference Method 5.

BASIS FOR REQUEST: EPA Reference Method 5B has been promulgated
in the Federal Register and will allow more
accurate testing.

*This is the revised page to correct
the company name with regard to*

RECEIVED

THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

MAR 7 1988

In the matter of:)
)
Tampa Electric Company)
)
Petitioner)
_____)

ASP-87-G01

ENVIRONMENTAL
PLANNING

ORDER APPROVING REQUEST FOR ALTERNATIVE
PROCEDURES AND REQUIREMENTS

Pursuant to Section 17-2.700 (3), Florida Administrative Code, Petitioner Tampa Electric Company ("Petitioner") submitted to the Department a request for approval of alternate source sampling procedures and requirements. Having considered the written request, a copy of which is attached hereto as Exhibit 1, and supporting documentation, the following Findings of Fact, Conclusions of Law and Order are entered:

FINDINGS OF FACT

1. On December 18, 1987, Petitioner submitted a written request for approval of alternative procedures and requirements for Big Bend Station Unit No. 4.
2. The petition requested that the Department grant Petitioner the authority to use EPA Reference Method 5B as an alternate procedure for measuring particulate matter (PM) emissions from the facility.

Such relief does not relieve Petitioner of the responsibility to comply with all applicable emission limiting standards, ambient air quality standards, or other permit conditions.

ORDER

6. Having considered the petition and supporting documentation, it is hereby ORDERED that:

The relief requested by Petitioner is granted. Therefore, specific condition No. 3 of permit No. PSD-FL-040 and specific condition I.C of the conditions of certification No. PA79-12 are hereby amended to reflect that Petitioner, Tampa Electric Company, is authorized to utilize EPA Reference Method 5B to demonstrate compliance at Big Bend Station Unit No. 4.

This order shall constitute final agency action by the Department pursuant to Section 120.52 (9), Florida Statutes. The Petitioner may file a petition for an administrative hearing on this order within twenty-one (21) days of receipt of the order. The petition shall be filed with the Department of Environmental Regulation, Office of General Counsel, Twin Towers Office Building, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, and shall be in the form required by Chapters 17-103 and 28-5, Florida Administrative Code. Failure to file a petition within the time specified above shall constitute a waiver by the Petitioner to an

17-2.700(3) EXCEPTIONS AND APPROVAL OF ALTERNATE
PROCEDURES AND REQUIREMENTS

Florida Power and Light Co., Inc.

REQUEST FOR EXCEPTION

UNIT:	Coal	PERMIT NO:	PSD-FL-040
	Steam Fired	Conditions of Certification	
	Electric	No:	PA79-12
	Generating-486 megawatts/ unit	EMISSION LIMITING STANDARD:	
		PM-0.03 pounds per million	
		Btu Heat Input	

PLANT: Big Bend Station

DESCRIPTION: Compliance Testing for PM for Big Bend Station
Unit No. 4.

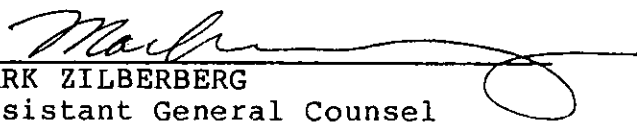
PROVISION TO BE EXCEPTED: Section 17-2.700(2)(1)., F.A.C. and
Specific Condition 3 of the Air Permit
PSD-FL-040 and Specific Condition I.C
of the Conditions of Certification
PA79-12.

EXCEPTION REQUESTED: Use of EPA Reference Method 5B in lieu
of EPA Reference Method 5.

BASIS FOR REQUEST: EPA Reference Method 5B has been promulgated
in the Federal Register and will allow more
accurate testing.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that an true copy of the foregoing Order has been mailed, postage prepaid, to Jerry L. Williams, Tampa Electric Company, P. O. Box 111, Tampa, Florida 33601-0111; this 2^d day of MARCH, 1988.


MARK ZILBERBERG
Assistant General Counsel

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida
32399-1400
Telephone (904) 488-9730

ENCLOSURE 4

BIG BEND STATION UNIT NO. 4
TRACE METALS FUEL ANALYSIS
STACK TEST FUEL SAMPLES
BASELINE TEST BURN
NOVEMBER 1,2,3, 1994
PETROLEUM COKE TEST BURN
NOVEMBER 16, 17, 18 AND DECEMBER 20, 1994

ZINC (ug/g)
ASTM D 3683-78 (REAPPROVED 1989)

RUN	1	2	3	AVG.
BASELINE TESTS	154.0	72.2		113.1
20% PETROLEUM COKE TESTS	41.6	41.6	52.4	45.2

NICKEL (ug/g)
ASTM D 3683-78 (REAPPROVED 1989)

RUN	1	2	3	AVG.
BASELINE TESTS	13.6	14.3		14.0
20% PETROLEUM COKE TESTS	76.0	78.8	68.8	74.5

BERYLLIUM (ug/g)
ASTM D 3683-78 (REAPPROVED 1989)

RUN	1	2	3	AVG.
BASELINE TESTS	0.84	0.92		0.88
20% PETROLEUM COKE TESTS	0.76	0.75	0.80	0.77

TABLE 4.2.2

BIG BEND STATION UNIT NO. 4
TRACE METALS FUEL ANALYSIS
STACK TEST FUEL SAMPLES
BASELINE TEST BURN
NOVEMBER 1,2,3, 1994
PETROLEUM COKE TEST BURN
NOVEMBER 16, 17, 18 AND DECEMBER 20, 1994

LEAD (ug/g)
ASTM D 3683-78 (REAPPROVED 1989)

RUN	1	2	3	AVG.
BASELINE TESTS	8.64	7.58		8.11
20% PETROLEUM COKE TESTS	6.91	6.51	6.42	6.61

CHROMIUM (ug/g)
ASTM D 3683-78 (REAPPROVED 1989)

RUN	1	2	3	AVG.
BASELINE TESTS	28.9	21.4		25.2
20% PETROLEUM COKE TESTS	20.4	25.5	19.4	21.8

VANADIUM (ug/g)
ASTM D 3683-78 (REAPPROVED 1989)

RUN	1	2	3	AVG.
BASELINE TESTS	41.9	40.7		41.3
20% PETROLEUM COKE TESTS	405.0	407.0	350.0	387.3

TABLE 4.2.3

BIG BEND STATION UNIT NO. 4
 TRACE METALS FUEL ANALYSIS
 STACK TEST FUEL SAMPLES
 BASELINE TEST BURN
 NOVEMBER 1,2,3, 1994
 PETROLEUM COKE TEST BURN
 NOVEMBER 16, 17, 18 AND DECEMBER 20, 1994

MERCURY (ug/g)
 ASTM D 3684-94

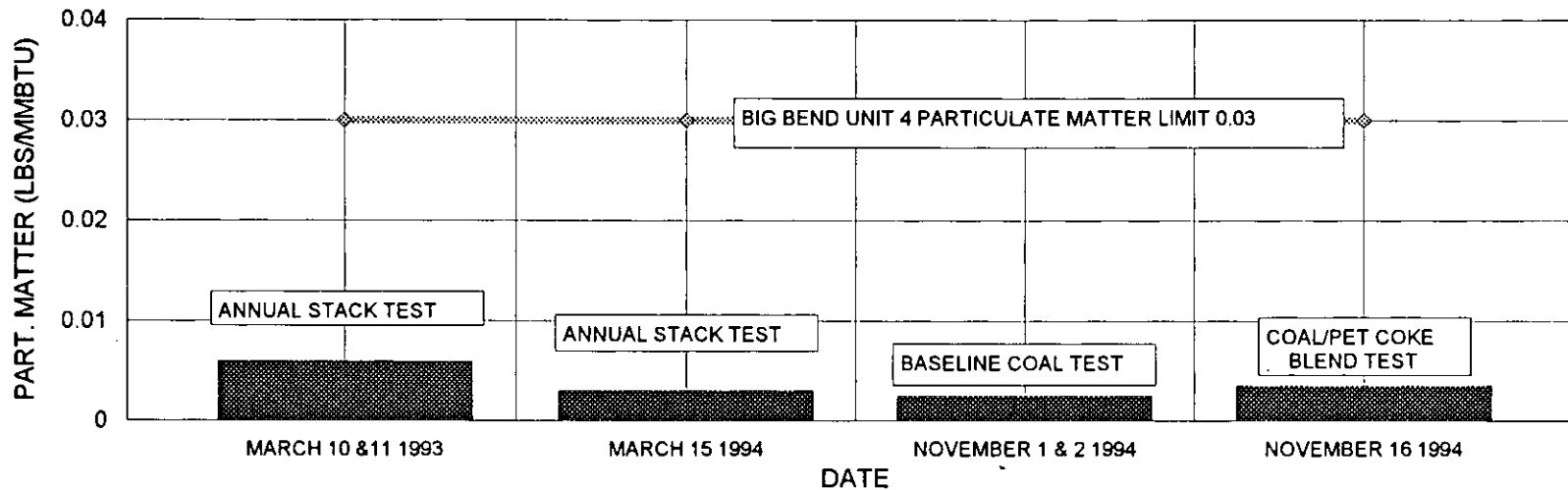
	RUN	1	2	3	AVG.
BASELINE TESTS		0.075	0.069		0.072
20% PETROLEUM COKE TESTS		0.100	0.113	0.064	0.092

TABLE 4.2.4

ENCLOSURE 5

BIG BEND UNIT 4 EMISSIONS TESTS

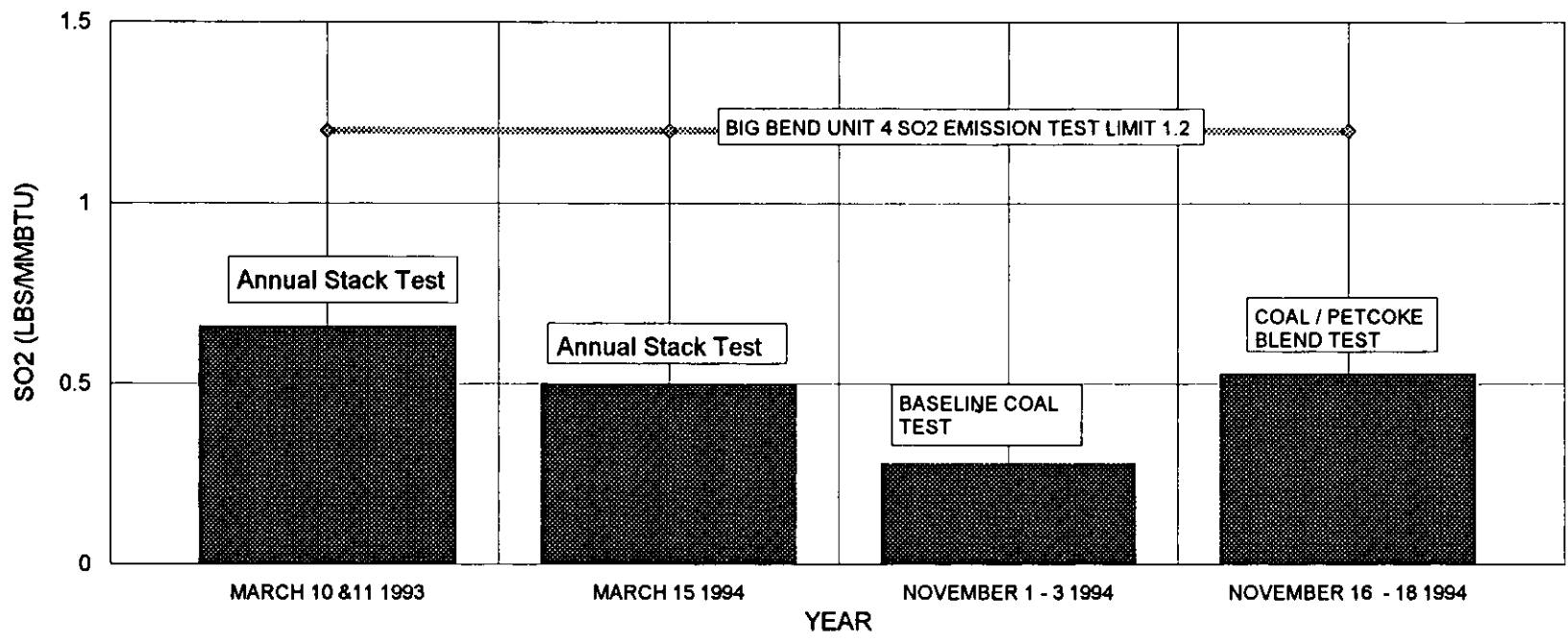
PARTICULATE MATTER RESULTS



YEAR	PARTICULATE LBS/MMBTU
1993	.006
1994	.003

YEAR	PARTICULATE LBS/MMBTU
BASELINE COAL TESTS	.0025
COAL / PETCOKE BLEND	.0035

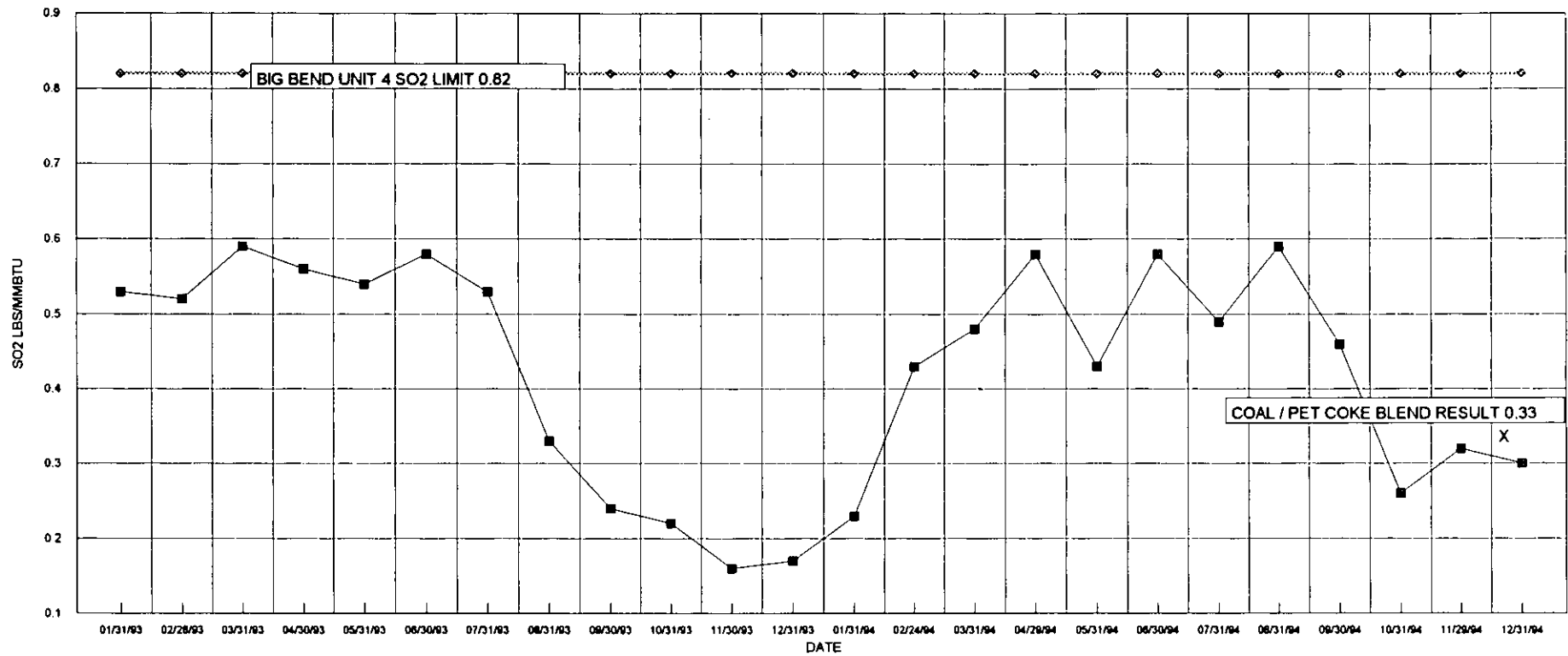
BIG BEND UNIT 4 EMISSIONS TESTS
SO2 TEST RESULTS



YEAR	SO2 LBS/MMBTU
1993	.66
1994	.50

YEAR	SO2 LBS/MMBTU
BASELINE COAL TESTS	.28
COAL / PETCOKE BLEND	.53

BIG BEND UNIT 4 SO2 CEM DATA
30 DAY ROLLING AVERAGE



DATE	SO2 (LBS/MMBTU)	DATE	SO2 (LBS/MMBTU)	DATE	SO2 (LBS/MMBTU)	DATE	SO2 (LBS/MMBTU)	DATE	SO2 (LBS/MMBTU)
1/31/93	0.53	6/30/93	0.58	11/30/93	0.16	4/29/94	0.58	9/30/94	0.46
2/28/93	0.52	7/31/93	0.53	12/31/93	0.17	5/31/94	0.43	10/31/94	0.26
3/31/93	0.59	8/31/93	0.33	1/31/94	0.23	6/30/94	0.58	11/29/94	0.32
4/30/93	0.56	9/30/93	0.24	2/24/94	0.43	7/31/94	0.49	12/31/94	0.30
5/31/93	0.54	10/31/93	0.22	3/31/94	0.48	8/31/94	0.59		
								AVG.	0.42

BIG BEND UNIT 4
ANNUAL OPERATING REPORT
EMISSIONS INVENTORY

1992	SO2	NOX	PM
ANNUAL EMISSIONS (TONS/YEAR)	7064	5898	42

1993	SO2	NOX	PM
ANNUAL EMISSIONS (TONS/YEAR)	6664	6593	95

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1 Addressee's Address

2 Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
 Patrick Ho, P.E.
 Tampa Electric Co
 P.O. Box 111
 Tampa, FL 33601-0111

4a. Article Number
 Z 311 902 898

4b. Service Type

Registered Insured

Certified COD

Express Mail Return Receipt for Merchandise

7. Date of Delivery
 JUN 5 1995

5. Signature (Addressee)

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1991 U.S. GPO: 1993-352-714 **DOMESTIC RETURN RECEIPT**

Is your RETURN ADDRESS completed on the reverse side? Thank you for using Return Receipt Service.

Z 311 902 898



Receipt for Certified Mail

No Insurance Coverage Provided
 Do not use for International Mail
 (See Reverse)

PS Form 3800, March 1993

Sent to	Patrick Ho
Street No.	TECO
City, State and ZIP Code	Tampa, FL
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	6-1-95
PSD-FI-040	