

BEST AVAILABLE COPY
Department of

Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

September 6, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

RECEIVED

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

SEP 11 1995

ENVIRONMENTAL
PLANNING

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).

←
max 6.5

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

Mr. Patrick Ho
September 6, 1995
Page Two

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;
- (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 the petitioner wants the Department to take with respect to the Department's action or proposed action.

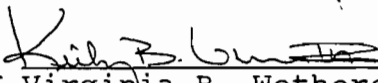
If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this amendment. Persons whose substantial interests will be affected by any decision of the Department with regard to the amendment request/application have the right to petition to become a party to

Mr. Patrick Ho
September 6, 1995
Page Three

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.

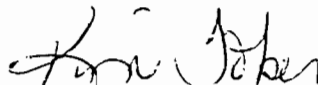
STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION


for 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 September 6 1995.

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

 9-6-95
(Clerk) (Date)

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



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

40HIL290039

Big Bend

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

RECEIVED

JUL 22 1988

E.P.C. OF H.C.
AIR PROGRAM

RECEIVED

JUL 18 1988

DER-BAQM

JUL 11 1988

4APT/APB-aes

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Jerry L. Williams, Environmental Director
Tampa Electric Company
P.O. Box 111
Tampa, Florida 33601-0111

Re: Tampa Electric Company, Big Bend Unit No. 4 (PSD-FL-040)

Dear Mr. Williams:

This is in response to your May 27, 1988, letter regarding the generating capacity restrictions contained in your federal PSD permit PSD-FL-040. We have reviewed your request to remove these restrictions and find that the changes will not in any way reduce the enforceability of the permit or affect the level of emissions generated. We hereby modify your federal PSD permit PSD-FL-040 as follows:

Part I: Specific Conditions

1. The proposed steam generating station shall be constructed and operated in accordance with the capabilities and specifications of the application, and the heat input to the No. 4 boiler shall not exceed 4330 mmBtu/hr.

Please be advised that the modification to your PSD permit herein described shall become a binding part of permit PSD-FL-040. This permit modification shall become effective upon receipt of this letter.

If you have any questions or comments regarding this permit modification, please contact me at (404) 347-4727 or Mr. Bruce P. Miller of my staff at (404) 347-2864.

Sincerely yours,

Greer C. Tidwell
Regional Administrator

cc: ~~Steve Smallwood~~, Chief
Bureau of Air Quality
Florida Department of Environmental Regulation

Chillicothe Co

TECO Big Bend 4
RECEIVED

JUN 4 1987

OCT 9 1985

E.P.C. of H.C.

REF: 4APT-AP

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. A. Spencer Autry, Manager
Environmental Planning
Tampa Electrical Company
P. O. Box 111
Tampa, Florida 33601

Re: PSD-FL-040, Permit Modification for TECO Big Bend Unit 4

Dear Mr. Autry:

On October 15, 1981, EPA issued a Prevention of Significant Deterioration (PSD) construction permit to the Tampa Electrical Company (TECO) for the construction of a coal-fired utility boiler (Big Bend Unit 4) near Ruskin, Florida. In the determinations for the permit to construct, a conservative, yet erroneous emission factor for carbon monoxide was provided by your company which EPA relied upon in issuing the final permit for this source. By letter dated January 30, 1985, TECO informed the Florida Department of Environmental Regulation (DER) that an error had been identified in the PSD application emissions estimate for carbon monoxide. Subsequently, the Florida DER recommended to EPA that the federal PSD permit be modified to correct the carbon monoxide emissions limit in the permit from 0.014 lb/MMBTU, 61 lbs/hr to 0.029 lb/MMBTU, 124 lbs/hr. On March 12, 1985, EPA responded to the DER recommendation by requesting that a public notice be published prior to modifying the federal PSD permit. The public notice was published in the Tampa Tribune on April 20, 1985, and the comment period expired thirty days later on May 20, 1985. No comments were received regarding the proposed permit modifications.

EPA has, in conjunction with the DER, determined that the proposed increase in carbon monoxide emissions will not affect the ambient air quality analysis, or the Best Available Control Technology (BACT) determination made during the initial review of the proposed coal-fired utility.

EPA hereby modifies Table 1-Allowable Emission Limits of the federal PSD construction permit PSD-FL-040 as follows:

| FACILITY | POLLUTANT - CO | | | |
|---|----------------|----------|-------|--|
| | | lb/MMBTU | lb/hr | |
| 1. Unit 4 Boiler (8330 MMBTU/hr) Continuous Limit | FROM: | 0.014 | 61 | |
| | TO: | 0.029 | 124 | |

TABLE 1
ALLOWABLE EMISSION LIMITS

| Facility | POLLUTANTS | | | | | | | | |
|---|-----------------|---------|-----------------|-------|----------|-------------------|----------|-------|------------------|
| | SO ₂ | | NO _x | | PM | | CO | | Opacity |
| | lb/MMBtu | lb/hour | lb/MMBtu | lb/hr | lb/MMBtu | lb/hr | lb/MMBtu | lb/hr | |
| 1. Unit 4 Boiler (4330 MMBtu/hr) Continuous Limit | | | | | 0.03 | 130 | 0.014 | 61 | 20% ^a |
| 30 Day Rolling Average | 0.82 | 3576 | 0.6 | 2598 | | | | | |
| 2. Limestone and Handling System Baghouse | | | | | | 0.65 ^b | | | 5% |
| 1. Limestone Dry Silo | | | | | | 0.05 ^b | | | 5% |
| 1. Flyash Silos and Handling System | | | | | | 0.2 ^b | | | 5% |

^a Not to be exceeded for more than one six minute period per hour and never to exceed 27 percent opacity.

^b Exempt from compliance testing provided opacity limit is maintained.

6. Any change in the information submitted in the application regarding facility emissions or changes in the quantity or quality of materials processed that will result in new or increased emissions must be reported to the permitting authority. If appropriate, modifications to the permit may then be made by the permitting authority to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause violation of the emission limitations specified herein.
7. In the event of any change in control or ownership of the source described in the permit, the permittee shall notify the succeeding owner of the existence of this permit by letter and forward a copy of such letter to the permitting authority. Such notification must be given prior to transfer of ownership.
8. The permittee shall allow representatives of the State environmental control agency and/or representatives (including contractors) of the Environmental Protection Agency, upon the presentation of credentials:
 - (a) to enter upon the permittee's premises, or other premises under the control of the permittee, where an air pollutant source is located or in which any records are required to be kept under the terms and conditions of the permit;
 - (b) to have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit, or the Act;
 - (c) to inspect at reasonable times any monitoring equipment or monitoring method required in this permit;
 - (d) to sample at reasonable times any emission of pollutants;and
 - (e) to perform at reasonable times an operation and maintenance inspection of the permitted source.
9. All correspondence required to be submitted by this permit to the permitting agency shall be mailed to the:

Chief, Compliance Branch
Enforcement Division, EPA Region IV
345 Courtland Street, NE
Atlanta, Georgia 30365
10. The conditions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

The emission of any pollutant more frequently or at a level in excess of that authorized by this permit shall constitute a violation of the terms and conditions of this permit.

1. The permittee shall notify the permitting authority in writing of the beginning of construction of the permitted source within 30 days of such action and the estimated date of start-up of operation.
2. The permittee shall notify the permitting authority in writing of the actual start-up of the permitted source within 30 days of such action and the estimated date of demonstration of compliance as required in the specific conditions.
3. Each emission point for which an emission test method is established in this permit shall be tested in order to determine compliance with the emission limitations contained herein within sixty (60) days of achieving the maximum production rate, but in no event later than 180 days after initial start-up of the permitted source. The permittee shall notify the permitting authority of the scheduled date of compliance testing at least thirty (30) days in advance of such test. Compliance test results shall be submitted to the permitting authority within forty-five (45) days after the complete testing. The permittee shall provide (1) sampling ports adequate for test methods applicable to such facility, (2) safe sampling platforms, (3) safe access to sampling platforms, and (4) utilities for sampling and testing equipment.
4. The permittee shall retain records of all information resulting from monitoring activities and information indicating operating parameters as specified in the specific conditions of this permit for a minimum of two (2) years from the date of recording.
5. If, for any reason, the permittee does not comply with or will not be able to comply with the emission limitations specified in this permit, the permittee shall provide the permitting authority with the following information in writing within five (5) days of such conditions:
 - (a) Qualitative and quantitative description of noncomplying emission(s),
 - (b) cause of noncompliance,
 - (c) anticipated time the noncompliance is expected to continue or, if corrected, the duration of the period of noncompliance,
 - (d) steps taken by the permittee to reduce and eliminate the non-complying emission,and
 - (e) steps taken by the permittee to prevent recurrence of the noncomplying emission.

Failure to provide the above information when appropriate shall constitute a violation of the terms and conditions of this permit. Submittal of this report does not constitute a waiver of the emission limitations contained within this permit.

assurance procedures of 40 CFR 58 Appendix B. Such monitoring will be continued for a period of at least 1 year and until determined by the Administrator (or his representative) that the effects of the modification on ambient air quality have been quantified.

7. The applicant will comply with all requirements and provisions of the New Source Performance Standard for electric utility steam generating units (40 CFR 60 Part Da). In addition, the applicant must comply with the provisions and the requirements of the attached General Conditions.
8. While Tampa Electric Company has complied with the regulations entitling them to this PSD permit (40 CFR 52.21), this does not constitute an environmental endorsement of this permit nor does it in any way prejudice or predetermine the ongoing EIS review.
9. If it is determined through the NPDES permitting process or related EIS review, that cooling towers would be required for the construction and operation of the facility at this location, this permit would be revoked and a complete new application would be required addressing all new emissions and subsequent requirements for this new plant configuration.
10. The applicant must submit to EPA Region IV's Consolidated Permits Branch within five (5) working days after it becomes available, copies of all technical data pertaining to the selected control devices, including formal bids from vendors, guaranteed efficiencies or emission rates. Although the type of control equipment described in the application has been determined by EPA to be adequate, EPA may, upon review of the data, disapprove the application if EPA determines the selected devices to be inadequate to meet the emission limits specified in this conditional approval.
11. The applicant shall maintain records of all coal washing and preparation activities for any coal which is to be fired in Big Bend Unit No. 4. These reports shall be submitted to EPA on a quarterly basis.

5. The following requirements will be met to minimize fugitive emissions of particulate from the coal storage and handling facilities, the limestone storage and handling facilities, haul roads and general plant operations:
 - a. All conveyors and conveyor transfer points will be enclosed to preclude PM emissions excepting the coal handling stacker reclaimer, the tail end conveyor feeding the tripper and the barge unloading belt which are exempted for feasibility considerations;
 - b. Coal storage piles will be shaped, compacted and oriented to minimize wind erosion;
 - c. Water sprays for storage piles, handling equipment etc., including the handling equipment exempted from the conveyor enclosure requirement, will be applied during dry periods and as necessary to all facilities to maintain opacity (determined with reference Method 9) below 20 percent;
 - d. The limestone handling receiving hopper, conveyor transfer points and day silos will be maintained at negative pressures with the exhaust vented to a control system(s); and
 - e. The flyash handling system (including transfer and silo storage) will be maintained at negative pressures and vented to a control system.

6. The applicant will perform post-construction continuous ambient monitoring of sulfur dioxide emissions in accordance with EPA Region IV policies and procedures and the guidance offered in "Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD)", EPA-450/2-78-013, May 1978 and the quality

PART I: SPECIFIC CONDITIONS

1. The proposed steam generating station shall be constructed and operated in accordance with the capabilities and specifications of the application including the 417 megawatt net generating capacity and the 4330 MMStu/hr heat input rate.
2. Emissions shall not exceed the allowable emission limits listed in Table 1 for SO_2 , NO_x , PM, and CO.
3. Compliance with the boiler allowable emission limits required in Condition 2 will be demonstrated with performance tests conducted in accordance with the provisions of 40 CFR 60.46a, 48a and 49a, including applicable test methods, sampling procedures, sample volumes, sampling periods, etc. Compliance with opacity limits on the limestone and flyash handling system baghouse, the limestone day silos and the flyash silos will be determined with EPA reference method 9 (Appendix A, 40 CFR 60). These facilities are exempted from mass emission rate compliance tests unless opacity limits are exceeded or the Administrator (or his representative) otherwise determines that such performance testing is required. All facilities will operate within 10 percent of maximum operating capacity during performance tests.
4. The applicant will install and maintain continuous monitoring and recording opacity meter, sulfur dioxide and nitrogen oxide analyzers, oxygen and/or CO_2 analyzer in accordance with the provisions of 40 CFR 60.47a.

BEST AVAILABLE COPY



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365PERMIT TO CONSTRUCT UNDER THE RULES FOR THE
PREVENTION OF SIGNIFICANT DETERIORATION OF AIR QUALITY

Pursuant to and in accordance with the provisions of Part C, Subpart 1 of the Clean Air Act, as amended, 42 U.S.C. § 7470 et seq., and the regulations promulgated thereunder at 40 C.F.R. § 52.21, as amended at 45 Fed. Reg. 52676, 52735-41 (August 7, 1980),

Tampa Electric Company
Post Office Box 111
Tampa, Florida 33601

is hereby authorized to construct/modify a stationary source at the following location:

Big Bend Station, Unit 4
Tampa Electric Company
Ruskin, Florida

UTM Coordinates: 361.6 East, 3075.0 North

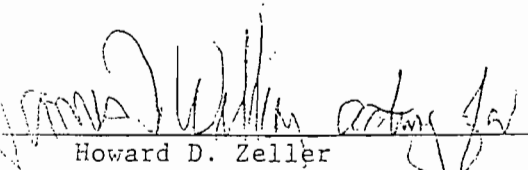
Upon completion of this authorized construction and commencement of operation/production, this stationary source shall be operated in accordance with the emission limitations, sampling requirements, monitoring requirements and other conditions set forth in the attached Specific Conditions (Part I) and General Conditions (Part II).

This permit shall become effective on November 14, 1981.

If construction does not commence within 18 months after the effective date of this permit, or if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time this permit shall expire and authorization to construct shall become invalid.

This authorization to construct/modify shall not relieve the owner or operator of the responsibility to comply fully with all applicable provisions of Federal, State, and Local law.

12/15/81
Date Signed


Howard D. Zeller
Acting Director
Enforcement Division

Please note that this modification is effective upon receipt of this letter and does not alter other conditions of this permit as stipulated in General Condition 10 of your permit. A Federal Register notice will be published in the near future announcing this permit modification.

If you have any questions or comments regarding this modification, please contact me.

Sincerely yours,

/s/ John A. Little

Deputy Regional Administrator

Jack E. Ravan
Regional Administrator

On October 18, 1981, EPA issued a Prevention of Significant Construction permit to the Tampa Electrical Co. for the construction of a coal-fired utility boiler at the Tampa Electric Plant, Florida. In the permit conditions for the boiler, the permittee was required to install a particulate emission control device which would reduce particulate emissions to the following level: 0.022 lb/AMSTU, 124

BRANDON:clhaynes:x4901:9/18/85

BRANDON ARONSON MILLER SMITH LITTLE this ltr is on Program Support's general disk.

Brandon *WB* *BPH*
10/3/85 *10/3/85* *10/7/85*

EPA has in consultation with the DER, determined that the proposed increase in sulfur dioxide emissions will not affect the ambient air quality criteria of the Best Available Control Technology (BACT) determination made during the initial review of the proposed coal-fired utility.

Applicable to the Tampa Electric Plant, Florida. The Federal Register notice will be published in the near future announcing this permit modification.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

OCT 9 1985

RECEIVED

REF: 4APT-AP

OCT 14 1985

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

ENVIRONMENTAL
PLANNING

Mr. A. Spencer Autry, Manager
Environmental Planning
Tampa Electrical Company
P. O. Box 111
Tampa, Florida 33601

Re: PSD-FL-040, Permit Modification for TECO Big Bend Unit 4

Dear Mr. Autry:

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EPA has, in conjunction with the DER, determined that the proposed increase in carbon monoxide emissions will not affect the ambient air quality analysis, or the Best Available Control Technology (BACT) determination made during the initial review of the proposed coal-fired utility.

EPA hereby modifies Table 1-Allowable Emission Limits of the federal PSD construction permit PSD-FL-040 as follows:

| FACILITY | POLLUTANT - CO | | | |
|---|----------------|----------|-------|--------------------|
| | FROM: | lb/MMBTU | lb/hr | TO: lb/MMBTU lb/hr |
| 1. Unit 4 Boiler (4330 MMBTU/hr) Continuous Limit | 0.014 | 61 | 0.029 | 124 ✓ |

Please note that this modification is effective upon receipt of this letter and does not alter other conditions of this permit as stipulated in General Condition 10 of your permit. A Federal Register notice will be published in the near future announcing this permit modification.

If you have any questions or comments regarding this modification, please contact me.

Sincerely yours,

John A. Little, Deputy for
Jack E. Ravan
Regional Administrator

cc: Mr. Clair Fancy, P. E.
Deputy Director
Bureau of Air Quality Management
Florida Dept. of Environmental Regulation

Best Available Control Technology (BACT) Determination

Tampa Electric Company

Hillsborough County

Tampa Electric Company proposes to increase electric generating capacity by the addition of a 425 megawatt coal-fired steam generating unit to the existing Big Bend facility located near Tampa, Florida. The unit will use approximately 207 tons per hour of bituminous coal with a maximum sulfur content of 4.0 percent by weight. In addition, coal and limestone materials handling, storage and preparation systems will be constructed. The unit is scheduled to start up during the first quarter of 1985.

BACT Determination Requested by the Applicant:

| <u>Pollutant</u> | <u>Emission Limit lb/million BTU</u> | <u>Percent Reduction</u> |
|------------------|--|------------------------------|
| Particulate | 0.03 | 99.7 |
| NO _x | 0.60 | 65.0 |
| SO ₂ | 90% reduction | 90.0 |

Particulates will be controlled by an electrostatic precipitator (ESP); SO₂ emissions will be minimized by a combination of coal washing and use of a flue gas desulfurization (FGD) system; NO_x will be minimized by proper design and operation of the boiler and combustion air control system.

Review Group Members:

There was no formal review group. Comments and recommendations were obtained from the BAQM New Source Review Section and Air Modeling Section, the Power Plant Siting Committee, the Hillsborough County Environmental Protection Commission and the DER Southwest District office.

BACT Determination by DER:

| <u>Pollutant</u> | <u>Emission Limit lb/million BTU</u> | <u>Minimum Reduction</u> |
|------------------|--|------------------------------|
| Particulate | 0.03 | 99% |
| SO ₂ | 1.2 | 90% |
| NO _x | 0.6 | 65% |
| VE | 20% (6-minute average), except one 6-minute period per hour of not more than 27% opacity | |

Justification of DER Determination:

The facility is located in the area of influence of the Hillsborough county nonattainment area for particulate matter (17-2.13(1)(2)F.A.C.). The major modification does not significantly impact the nonattainment area and is therefore exempt from the nonattainment requirements (17-2.17(2)(b)F.A.C.). It must, however, comply with the provisions of 17-2.04 F.A.C. (Prevention of Significant Deterioration).

No increase in pollutant concentration over the baseline is allowed unless BACT is employed to control emissions. BACT in this case is determined to be equivalent to the New Source Performance Standard (NSPS) Subpart Da, Section 60.40a, promulgated June 11, 1979. Federal Register (44 FR 33580).

Details of the Analysis May be Obtained by Contacting:

Edward Palagyi, BACT Coordinator
Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

Recommended By:

Lawrence A. George, Jr.
Steve Smallwood, Chief, BAQM

Date: April 9, 1981

Approved:

Victoria Tschinkel
Victoria Tschinkel, Secretary

Date: April 10, 1981

6-23-81
PRESENTED @
HEARING
File PA 17

APPENDIX I

Conditions of Certification

State of Florida Department of Environmental Regulation
Tampa Electric Company
Big Bend Unit 4
PA 79-12
CONDITIONS OF CERTIFICATION (Revised 6-2-81)

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CONDITIONS OF CERTIFICATION (Revised 6-2-81)

I. Air

The construction and operation of Big Bend Unit 4 at the Tampa steam electric power plant site shall be in accordance with all applicable provisions of Chapters 17-2, 17-4, 17-5 and 17-7, Florida Administrative Code. In addition to the foregoing, the permittee shall comply with the following conditions of certification:

A. Emission Limitations

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:
 - a. SO₂ - 1.2 lb. per million ~~BTU~~ heat input, maximum two hour average, 0.84 lb/MMBtu on a 30-day rolling average.
 - b. NO_x - 0.60 lb. per million BTU heat input.
 - c. Particulates - 0.03 lb. per million BTU heat input.
 - d. Visible emissions - 20% (6-minute average), except one 6-minute period per hour of not more than 27% opacity.
2. The height of the boiler exhaust stack for Unit 4 shall not be less than 490 ft. above grade.
3. Particulate emissions from the coal handling facilities:
 - a. The permittee shall not cause to be discharged into the atmosphere from any coal processing or conveying equipment, coal storage system or coal transfer and loading system processing coal, visible emissions which exceed 20 percent opacity. Particulate emissions shall be controlled by use of control devices.
 - b. The permittee must submit to the Department within ten (10) working days after it becomes available, copies of technical data pertaining to the selected particulate emissions control for the coal handling facility. These data should include, but not be limited to, guaranteed efficiency and emission rates, and major design parameters such as air/cloth

ratio and flow rate. The Department may, upon review of these data, disapprove the use of such device if the Department determines the selected control device to be inadequate to meet the emission limits specified in 3(a) above. Such disapproval shall be issued within 30 days of receipt of the technical data.

4.

Particulate emissions from limestone and flyash handling shall not exceed the following:

- a. Limestone silos - 0.05 lb/hr. ✓ 0.219 T_{PM}
- b. Limestone hopper/transfer conveyors - 0.65 lb/hr. ✓ 2.847
- c. ✓ Flyash handling system - 0.2 lb/hr. ✓ 0.876 T_{PM}

5. Visible emissions from the following facilities shall be limited to 5% opacity: (a) limestone and flyash handling system, (b) limestone day silos and (c) flyash silos. ✓

6. Compliance with opacity limits of the facilities listed in Condition 5 will be determined by EPA reference method 9 (Appendix A, 40 CFR 60). ✓

7. Construction shall reasonably conform to the plans and schedule given in the application.

8. The permittee shall report any delays in construction and completion of the project to the Department's Southwest District Office.

9. Reasonable precautions to prevent fugitive particulate emissions during construction, such as coating of roads and construction sites used by contractors, will be taken by the permittee.

10. Coal should not be burned in the unit unless both electrostatic precipitator and limestone scrubber are operating properly. ✓

11. Coal burned in the unit should be washed before it is transported to the plant site. ✓

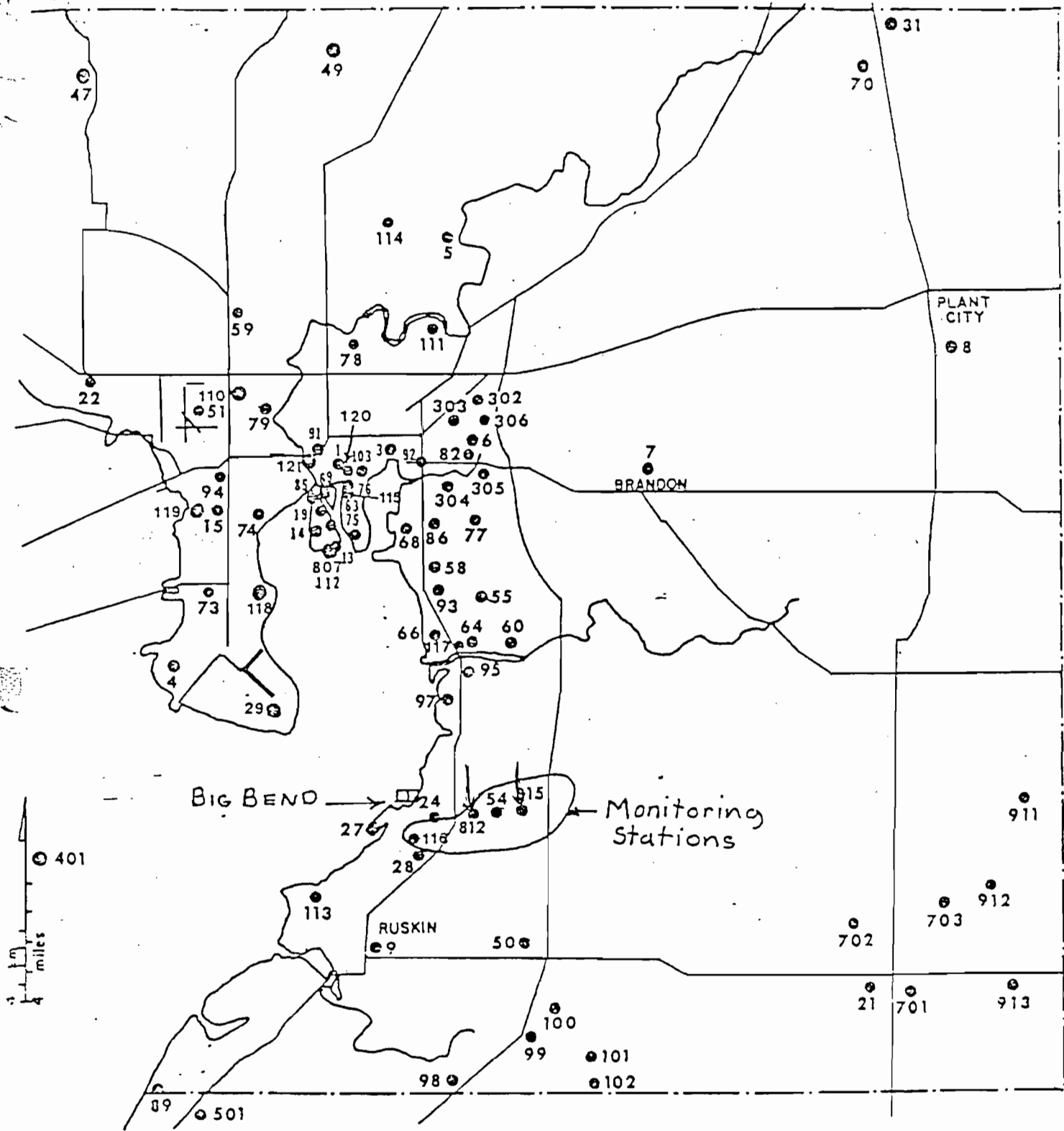
3. Air Monitoring Program

1. The permittee shall install and operate continuously monitoring devices for the Unit 4 boiler exhausts for sulfur dioxide, nitrogen dioxide, oxygen and opacity. ✓ The monitoring devices shall meet the applicable requirements of Section 17-2.08, FAC, and 40 CFR 60.47a. The opacity monitor may be placed in the duct work between the electrostatic precipitator and the FGD scrubber.

2. The permittee or Hillsborough county shall operate the two ambient monitoring devices for sulfur dioxide in accordance with EPA reference methods in 40 CFR, Part 53, and two ambient monitoring devices for suspended particulates. The monitoring devices shall be specifically located at a location approved by the Department. The frequency of operation shall be every six days commencing as specified by the Department.
3. The permittee shall maintain a daily log of the amounts and types of fuels used and copies of fuel analyses containing information on sulfur content, ash content and heating values.
4. The permittee shall provide sampling ports into the stack and shall provide access to the sampling ports, in accordance with DER publication, Standard Sampling Techniques and Methods of Analysis for the Determination of Air Pollutants from Point Source, July, 1975.
5. The ambient monitoring program may be reviewed by the Department and the permittee annually beginning two years after start-up of Unit 4.
6. Prior to operation of the source, the permittee shall submit to the Department a standardized plan or procedure that will allow the permittee to monitor emission control equipment efficiency and enable the permittee to return malfunctioning equipment to proper operation as expeditiously as possible.

C. Stack Testing:

1. Within 60 calendar days after achieving the maximum capacity at which each unit will be operated, but no later than 180 operating days after initial start-up, the permittee shall conduct performance tests for particulates SO_2 , NO_x and visible emissions during normal operations near 4,330 MMBtu/hr heat input and furnish the Department a written report of the results of such performance tests within 30 days. The performance tests will be conducted in accordance with the provisions of 40 CFR 60.46a, 48a, and 49a.
2. Performance tests shall be conducted and data reduced in accordance with methods and procedures in accordance with DER's Standard Sampling Techniques and Methods of Analysis for Determination on Air Pollutants from Point Sources, July, 1975.



AIR SAMPLING STATIONS
 HILLSBOROUGH COUNTY, FLORIDA
 1979

Figure I

3. Performance tests shall be conducted under such conditions as the Department shall specify based on representative performance of the facility. The permittee shall make available to the Department such records as may be necessary to determine the conditions of the performance tests.
4. The permittee shall provide 30 days prior notice of the performance tests to afford the Department the opportunity to have an observer present.
5. Stack tests for particulates and SO₂ shall be performed annually in accordance with conditions C. 2, 3, and 4 above.

D. Reporting

1. For Unit 4, stack monitoring, fuel usage and fuel analysis data shall be reported to the Department's Southwest District Office on a quarterly basis commencing with the start of commercial operation in accordance with 40 CFR, Part 60, Section 60.7., and in accordance with Section 17-2.08, FAC.
2. Utilizing the SAROAD or other format approved in writing by the Department, ambient air monitoring data shall be reported to the Bureau of Air Quality Management of the Department quarterly. Commencing on the date of certification, such reports shall be due by the last day of the month following the quarterly reporting period.
3. Beginning one month after certification, the permittee shall submit to the Department a quarterly status report briefly outlining progress made on engineering design and purchase of major pieces of equipment (including control equipment). All reports and information required to be submitted under this condition shall be submitted to the Administrator of Power Plant Siting, Department of Environmental Regulation, 2600 Blair Stone Road, Tallahassee, Florida, 32301.

II. Water Discharges

Any discharges into any waters of the State during construction and operation of Big Bend Unit 4 shall be in accordance with all applicable provisions of Chapter 17-3, Florida Administrative Code, and 40 CFR, 423, Effluent Guidelines and Standards for Steam Electric Power Generating Point Source Category, except as provided herein. Also, the permittee shall comply with the following conditions of certification:

A. Plant Effluents and Receiving Body of Water

For discharges made from the power plant the following conditions shall apply:

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241



BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

February 8, 1985

Mr. James T. Wilburn, Chief
Air Management Branch
USEPA - Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Re: Request from Tampa Electric Company
to Modify PSD-FL-040

Dear Mr. Wilburn:

The Bureau of Air Quality Management received a request from Tampa Electric Company on February 4, 1984, to modify their federal permit, PSD-FL-040, for their Big Bend Station Unit 4 in Ruskin, Florida. In their permit application, Tampa Electric used an incorrect emission estimate from AP-42 which underestimated the emissions of CO by a factor of two.

After reviewing this request, the bureau recommends that Table 1 of permit PSD-FL-040 be modified to reflect the proper AP-42 emission factor CO as follows:

From:

| <u>Facility</u> | <u>Pollutants</u> | |
|---|-------------------|--------------|
| | <u>lb/MMBtu</u> | <u>lb/hr</u> |
| 1. Unit 4 Boiler (4330 MMBtu/hr) Continuous Limit | 0.014 | 61 |

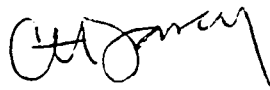
To:

| <u>Facility</u> | <u>Pollutants</u> | |
|---|-------------------|--------------|
| | <u>lb/MMBtu</u> | <u>lb/hr</u> |
| 1. Unit 4 Boiler (4330 MMBtu/hr) Continuous Limit | 0.029 | 124 |

Mr. James T. Wilburn
Page Two
February 8, 1985

Should you require any further information, please feel free to contact me.

Sincerely,



C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management

CHF/ES/s

cc: Richard Garrity
Iwan Choronenko
Jerry Williams

attachment



January 30, 1985

Mr. Steve Smallwood
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

RE: Request for Permit Modification
Big Bend Station Unit 4
Tampa Electric Company
PSD-FL-040

Dear Mr. Smallwood:

As you are probably aware, Tampa Electric Company is in the final stages of constructing a 417 MW (net) coal fired electric generating unit at the Big Bend Station in Ruskin, Florida. The commercial operation date for this new unit, Big Bend Unit 4, is expected to be in March of 1985.

In anticipation of our upcoming commercial operation of Unit 4, Tampa Electric Company has been reviewing all permitting associated with the new unit. On reviewing the above referenced Prevention of Significant Deterioration (PSD) permit and associated application documents, a calculation error was identified in the PSD application emissions estimate for carbon monoxide (CO). In the application, an incorrect emission factor from the EPA document Compilation of Air Pollutant Emission Factors, AP-42, was inadvertently used to estimate the CO emissions. The use of the incorrect emission factor lead to an underestimation of the CO emissions by a factor of two. Attachment I contains the calculations for the corrected estimate.

As seen in Attachment I, the CO emission rate is expected to be approximately 124 lb/hr and 0.029 lb/MMbtu.

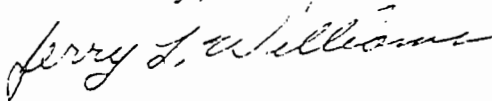
DER .
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Mr. Steve Smallwood
January 30, 1985
Page Two

Tampa Electric Company requests a modification of the CO limits listed in Table 1 of permit number PSD-FL-040 to reflect the corrected estimate. Attachment II contains the corrected pages to our PSD application.

If you should have any questions please feel free to call me.

Sincerely,



Jerry L. Williams
Director
Environmental

JLW/jbj/047/1

Attachment

cc: Dr. Richard Garrity (DER)

CARBON MONOXIDE (CO) EMISSIONS ESTIMATE
BIG BEND STATION UNIT 4
PSD-FL-040

Fuel input rate at 100% load = 413,000 $\frac{\text{lbs coal}}{\text{hour}}$

Heat input rate at 100% load = 4330 $\frac{\text{MMbtu}}{\text{hour}}$

CO emission factor = 0.6 $\frac{\text{lbs CO}^*}{\text{ton coal}}$

$$(a) \quad 413,000 \frac{\text{lbs coal}}{\text{hour}} \times \frac{1}{2000} \frac{\text{tons coal}}{\text{lbs coal}} \times 0.6 \frac{\text{lbs CO}^{**}}{\text{ton coal}} \\ = 123.9 \frac{\text{lbs CO}}{\text{hour}}$$

$$(b) \quad 123.9 \frac{\text{lbs CO}}{\text{hour}} \times \frac{1}{4330} \frac{\text{hour}}{\text{MMBtu}} = 0.0286 \frac{\text{lbs CO}}{\text{MMBtu}}$$

* Compilation of Air Pollutant Emission Factors, AP-42. See Table 1.1-1. attached.

** In the previously submitted and approved PSD application an emission factor of 0.3 $\frac{\text{KgCO}}{\text{Mg Coal}}$ was mistakenly used as 0.3 $\frac{\text{lb CO}}{\text{Ton Coal}}$. See Table 1.1-1. attached.

TABLE 1.1-1. EMISSION FACTORS FOR EXTERNAL BITUMINOUS AND SUBBITUMINOUS COAL COMBUSTION^a

| Firing Configuration | Particulate ^b | | Sulfur Oxides ^c | | Nitrogen Oxides ^d | | Carbon Monoxide ^e | | Nonmethane VOC ^{e, f} | | Methane ^e | |
|---|--------------------------|-----------------|----------------------------|----------|------------------------------|---------------------|------------------------------|--------|--------------------------------|--------|----------------------|--------|
| | kg/Mg | lb/ton | kg/Mg | lb/ton | kg/Mg | lb/ton | kg/Mg | lb/ton | kg/Mg | lb/ton | kg/Mg | lb/ton |
| Pulverized coal fired | | | | | | | | | | | | |
| Dry bottom | 5A | 10A | 19.5S(17.5S) | 39S(35S) | 10.5(7.5) ^k | 21(15) ^k | 0.3 | 0.6 | 0.04 | 0.07 | 0.015 | 0.03 |
| Wet bottom | 3.5A ^h | 7A ^h | 19.5S(17.5S) | 39S(35S) | 17 | 34 | 0.3 | 0.6 | 0.04 | 0.07 | 0.015 | 0.03 |
| Cyclone furnace | 1A ^h | 2A ^h | 19.5S(17.5S) | 39S(35S) | 10.5 | 37 | 0.3 | 0.6 | 0.04 | 0.07 | 0.015 | 0.03 |
| Spreader stoker | | | | | | | | | | | | |
| Uncontrolled | 30 ^l | 60 ^l | 19.5S(17.5S) | 39S(35S) | 7 | 14 | 2.5 | 5 | 0.04 | 0.07 | 0.015 | 0.03 |
| After multiple cyclone | | | | | | | | | | | | |
| With flyash reinjection from multiple cyclone | 8.5 | 17 | 19.5S(17.5S) | 39S(35S) | 7 | 14 | 2.5 | 5 | 0.04 | 0.07 | 0.015 | 0.03 |
| No flyash reinjection from multiple cyclone | 6 | 12 | 19.5S(17.5S) | 39S(35S) | 7 | 14 | 2.5 | 5 | 0.04 | 0.07 | 0.015 | 0.03 |
| Overfeed stoker ^j | | | | | | | | | | | | |
| Uncontrolled | 8 ^k | 16 ^k | 19.5S(17.5S) | 39S(35S) | 3.25 | 7.5 | 3 | 6 | 0.04 | 0.07 | 0.015 | 0.03 |
| After multiple cyclone | 4.5 | 9 | 19.5S(17.5S) | 39S(35S) | 3.25 | 7.5 | 3 | 6 | 0.04 | 0.07 | 0.015 | 0.03 |
| Underfeed stoker | | | | | | | | | | | | |
| Uncontrolled | 7.5 ^l | 15 ^l | 15.5S | 31S | 4.75 | 9.5 | 5.5 | 11 | 0.65 | 1.3 | 0.4 | 0.8 |
| After multiple cyclone | 5.5 | 11 | 15.5S | 31S | 4.75 | 9.5 | 5.5 | 11 | 0.65 | 1.3 | 0.4 | 0.8 |
| Handfired units | 7.5 | 15 | 15.5S | 31S | 1.5 | 3 | 45 | 90 | 5 | 10 | 4 | 8 |

^a Factors represent uncontrolled emissions unless otherwise specified and should be applied to coal consumption as fired.

^b Based on EPA Method 5 (front half catch) as described in Reference 12. Where particulate is expressed in terms of the coal ash content (A), the factor is determined by multiplying the weight % ash content of the coal (as fired) by the numerical value preceding the "A". For example, if a coal having 8% ash is fired in a dry bottom unit, the particulate emission factor would be 5 x 6 or 40 kg/Mg (80 lb/ton). On average, the "condensable" material collected in the back half catch of EPA Method 5 is less than 5% of the front half, or "filterable", catch for pulverized coal and cyclone furnaces; about 10% for spreader stokers; about 15% for other stokers; and about 50% for handfired units (References 6, 19, and 49).

^c Expressed as SO₂, including SO₂, SO₃ and gaseous sulfates. The factors in parentheses should be used to estimate gaseous sulfur oxide emissions for subbituminous coal. In all cases, "S" is the weight % sulfur content of the coal as fired. See Footnote b for an example calculation. On average for bituminous coal, 97% of the fuel sulfur is emitted as SO₂, whereas only about 0.7% of the fuel sulfur is emitted as SO₃ and gaseous sulfate. An equally small percent of the fuel sulfur is emitted as particulate sulfate (References 9, 13). Small quantities of sulfur are also retained in the bottom ash. With subbituminous coal, generally about 10% more fuel sulfur is retained in the bottom ash and particulate, because of the more alkaline nature of the coal ash. Conversion to gaseous sulfate appears to be about the same as for bituminous coal.

^d Expressed as NO₂. Generally, 95 - 99 volume % of the nitrogen oxides present in combustion exhaust will be in the form of NO, the rest being NO₂ (Reference 11). To express these factors as NO, multiply by a factor of 0.66. All factors represent emissions at baseline operation (i.e., 60 - 110% load and no NO_x control measures, as discussed in the text).

^e Nominal values achievable under normal operating conditions. Values one or two orders of magnitude higher can occur when combustion is not complete.

^f Nonmethane volatile organic compounds (VOC), expressed as C₂ to C₁₆ n-alkane equivalents (Reference 58). Because limited data on NMVOC were available to distinguish the effects of firing configuration, all data were averaged collectively to develop a single average for pulverized coal units, cyclones, spreader and overfeed stokers.

^g Parenthetic value is for tangentially fired boilers.

^h Uncontrolled particulate emissions, when no flyash reinjection is employed. When a control device is installed, and collected flyash is reinjected to the boiler, particulate from the boiler reaching the control equipment can increase by up to a factor of two.

ⁱ Accounts for flyash settling in an economizer, air heater or breeching upstream of a control device or stack. (Particulate directly at the boiler outlet typically will be twice this level.) This factor should be applied even when flyash is reinjected to the boiler from boiler, air heater or economizer dust hoppers.

^j Includes traveling grate, vibrating grate and chain grate stokers.

^k Accounts for flyash settling in the breeching or stack base. Particulate loadings directly at the boiler outlet typically can be 50% higher.

^l Accounts for flyash settling in the breeching downstream of the boiler outlet.

Attachment II

Revised pages to:

VOLUME I

Prevention of Significant Deterioration (PSD)
Application - Tampa Electric Company

(PSD-FL-040)

system for measuring SO₂ emissions will be installed, calibrated, maintained, and operated at a point downstream of the FGD system.

4.3 Oxides of Nitrogen

The emission of NO_x from the combustion system will be minimized by the design of the burners and boiler to be provided by CE. The tangentially-fired boiler has been demonstrated to be capable of limiting NO_x formation to 0.6 lb/MMBtu, the NSPS, when firing bituminous coal. The EPA cites several CE boilers in operation that are able to meet the NSPS, although these boilers are neither designed nor guaranteed to have an NO_x emission at these levels.

The formation of thermally produced NO_x is inhibited in the CE boiler by the off-stoichiometric combustion, that is, operating the burners at a fuel-rich mixture. Off-stoichiometric combustion can be accomplished by two techniques: biased-firing and two-staged combustion. The former technique consists of operating selected burners at fuel-rich mixtures and others at lean mixtures. Initial combustion then occurs in a reducing atmosphere, followed by complete combustion after substantial heat loss. The resultant lower flame temperatures inhibit the formation of thermal NO_x. The latter technique, two-staged combustion, is accomplished by diverting a portion of the combustion air to over-fire air ports located above the burners. The same fuel-rich combustion occurs with the attendant heat loss, followed by complete mixing and combustion above the primary combustion zone. Although CE has incorporated over-fire air ports in the boiler design to maintain NO_x concentrations at the NSPS, operation of these ports has been found to be unnecessary below 90% MCR. Two-stage combustion will thus be used should monitoring indicate that the NO_x emissions may exceed standards. The NO_x emission limitation is equivalent to an emission rate of 2,598 lb/hr.

The EPA sponsored a test program, performed by CE, at the Alabama Power Company's Barry Station #2. This program assessed the effects of modifications in boiler operation and design on the emission of

NO_x. Included in the modifications were variations in excess air, biased-firing, over-fire air, burner tilt, and water-wall slagging. The results of this program that are applicable to Unit 4 boiler operation are summarized in Table 4-7. Note that all tests demonstrated boiler compliance with the NSPS for NO_x, with the exception of that test with no modifications and water-wall slagging.

Compliance with the NSPS for NO_x will be demonstrated in accordance with Section 60.48a, Subpart Da, and by procedures prescribed in Method 19, Appendix A, 40 CFR 60. A continuous monitoring system for measuring NO_x emissions will be installed, calibrated, maintained, and operated at a point downstream of the economizer outlet.

4.4 Carbon Monoxide

The only significant source of CO is the Unit 4 steam generator. CE does not include monitoring of combustibles in the design of their boilers because CO emissions are expected to be negligible. The recording of combustibles, however, may be included in the specification of the combustion air control system. Using the emission factor from the EPA document Compilation of Air Pollution Emission Factors, AP-42, the CO emission rate will be approximately ¹²⁴~~62~~ lb/hr based on Coal F-1A and boiler performance data. This factor represents a consensus mean emission from both boilers of older and more recent design. The EPA test on the Alabama Power Company's Barry Station #2 demonstrates that CO emissions typically range from 0.016 to 0.022 lb/MMBtu, which is equivalent to 70 to 95 lb/hr (see Table 4-7). These data then generally support the AP-42 emission factor, which is used to estimate the CO emission rate.

4.5 Summary

The emission of pollutants from the proposed Unit 4 steam generator is summarized in Table 4-8. The applicable NSPS for electric utility facilities are also presented for direct comparison.

TABLE 4-7

EPA TEST PROGRAM FOR NO_x REDUCTION

| <u>Test No.</u> | <u>Test Condition*</u> | <u>Excess Air</u> | <u>Emission (lb/MMBtu)</u> | |
|-----------------|---------------------------------|-------------------|----------------------------|-----------|
| | | | <u>NO_x**</u> | <u>CO</u> |
| 1 | No modification | 22.7 | 0.58 | 0.022 |
| 2 | No modification; WW slagging | 26.0 | 0.68 | 0.024 |
| 3 | BF | 24.2 | 0.33 | 0.019 |
| 4 | OFA | 25.4 | 0.55 | 0.016 |
| 5 | OFA; WW slagging | 25.9 | 0.50 | 0.016 |
| 6 | OFA; -5° burner tilt | 25.9 | 0.39 | 0.016 |
| 7 | OFA; +19° burner tilt | 25.1 | 0.43 | 0.023 |
| 8 | Optimum conditions | 27.4 | 0.39 | 0.018 |

*WW = water-wall; BF = biased-firing; OFA = over-fire air.

**As NO₂.

Source: EPA 1975.

TABLE 4-8

POLLUTANT EMISSIONS SUMMARY
BIG BEND STATION UNIT 4

| Pollutant | Pollutant Emission | | | Applicable NSPS/SIP Requirement |
|-------------------|--------------------|------------------|-------------|---------------------------------------|
| | lb/hr | lb/MMBtu | % Reduction | |
| PM | 129.9 | 0.03 | 99.7 | 0.03 lb/MMBtu |
| NO _x | 2,598. | 0.60 | 65.0 | 0.60 lb/MMBtu |
| SO ₂ * | 2,592.-5,184. | 0.60-1.2 | 90.0 | 90% reduction |
| CO | 124 -62. | 0.029 -0-014- | NA | NA |

*SO₂ emission represents range of sulfur content of raw coals of 3.0 and 6.0 lb/MMBtu.

APIS# 40-206
01/20/94

DEPARTMENT OF ENVIRONMENTAL PROTECTION
AIR PROGRAM INFORMATION SYSTEM
AIR INDEX

Best Available Copy

APIS#: 40-HIL-29-0106 FACIL-DWN: TARMAC FLORIDA, INC.
** CONTINUED ** N/L: POST OFFICE BOX 2998

OF SRC: 002 TYPE: 23 STATUS: A

| SRC# | SRC DESCRIPTION | STAT | CONST PERMIT | CONST ISS DATE | CONST EXP DATE | OPER PERMIT | OPER ISS DATE | OPER EXP DATE |
|------|--|------|--------------|----------------|----------------|-------------|---------------|---------------|
| 02 | CEMENT SILO WITH PORTEC DF-4A BAGHOUSE | A | - | 00/00/00 | 00/00/00 | AD29-185011 | 10/16/90 | 10/10/95 |

APIS#: 40-HIL-29-0039 FACIL-DWN: TECO-BIG BEND STA.
N/L: BIG BEND

OF SRC: 019 TYPE: 01 STATUS: A

| SRC# | SRC DESCRIPTION | STAT | CONST PERMIT | CONST ISS DATE | CONST EXP DATE | OPER PERMIT | OPER ISS DATE | OPER EXP DATE |
|------|---|------|--------------|----------------|----------------|-------------|---------------|---------------|
| 01 | UNIT #1 COAL FIRED BOILER W/RESEARCH-COTRELL ESP | A | - | 00/00/00 | 00/00/00 | AD29-219924 | 11/24/92 | 12/01/97 |
| 02 | UNIT #2 RILEY-STOKER COAL FIRED BOILER W/ ESP | A | - | 00/00/00 | 00/00/00 | AD29-179912 | 11/19/90 | 10/18/95 |
| 03 | UNIT #3 RILEY-STOKER COAL-FIRED BOILER W/ ESP | A | - | 00/00/00 | 00/00/00 | AD29-179911 | 08/29/90 | 08/30/95 |
| 04 | UNIT #4 COAL-FIRED BOILER W/ BELCO ESP PSD-FL-040 | A | PA79-12 | 00/00/00 | 00/00/00 | AD29-3904 | 03/15/84 | 12/31/99 |
| 05 | BIG BEND STATION COMBUST. TURBINE #2 - FIRED BY NO. | A | - | 00/00/00 | 00/00/00 | AD29-174596 | 03/14/90 | 03/09/95 |
| 06 | GAS TURBINE #3 - WESTINGHOUSE TURBINE FIRED BY NO. 2 | A | - | 00/00/00 | 00/00/00 | AD29-174611 | 05/08/90 | 04/27/95 |
| 07 | GAS TURBINE #1 FIRED BY #2 FUEL OIL | A | - | 00/00/00 | 00/00/00 | AD29-160257 | 01/19/90 | 07/07/94 |
| 08 | BIG BEND STATION UNIT NO. 1 & NO. 2 FLY ASH SILO WIT | A | - | 00/00/00 | 00/00/00 | AD29-160255 | 01/19/90 | 12/22/94 |
| 09 | FLY-ASH SILO FOR UNIT #3 | A | - | 00/00/00 | 00/00/00 | AD29-161082 | 01/19/90 | 07/07/94 |
| 10 | BIG BEND COAL YARD, PERMITTED UNDER PA79-12 & PSD-FL- | A | PA79-12 | 00/00/00 | 00/00/00 | AD29-3904 | 08/07/86 | 12/31/99 |
| 11 | TRUCK UNLOADING OF LIMESTONE | A | - | 00/00/00 | 00/00/00 | AD29-3904 | 08/07/86 | 12/31/99 |
| 12 | LIMESTONE SILO A W/ 2 BAGHOUSES. 1 IS 100% BACK-UP | A | - | 00/00/00 | 00/00/00 | AD29-3904 | 08/07/86 | 12/31/99 |
| 13 | LIMESTONE SILO B W/ 2 BAGHOUSES. 1 IS 100% BACK-UP | A | - | 00/00/00 | 00/00/00 | AD29-3904 | 08/07/86 | 12/31/99 |
| 14 | FLYASH SILO FOR UNIT #4 | A | - | 00/00/00 | 00/00/00 | AD29-3904 | 08/07/86 | 12/31/99 |
| 15 | UNIT 1 COAL BUNKER W/ROTO-CLONE | A | - | 00/00/00 | 00/00/00 | AD29-163788 | 10/06/89 | 06/30/94 |
| 16 | UNIT 2 COAL BUNKER W/ROTO-CLONE | A | - | 00/00/00 | 00/00/00 | AD29-163788 | 10/06/89 | 06/30/94 |
| 17 | UNIT 3 COAL BUNKER W/ROTO-CLONE | A | - | 00/00/00 | 00/00/00 | AD29-163788 | 10/06/89 | 06/30/94 |
| 18 | BIG BEND STATION UNIT NO. 1 AND NO. 2 OPEN BED TRUCK | A | - | 00/00/00 | 00/00/00 | AD29-160255 | 01/19/90 | 12/22/94 |
| 19 | FLY-ASH SILO FOR UNIT #3 | A | - | 00/00/00 | 00/00/00 | AD29-161082 | 10/16/91 | 07/07/94 |

APIS#: 40-HIL-29-0040 FACIL-DWN: TECO-GANNON STA.
N/L: GANNON

OF SRC: 019 TYPE: 01 STATUS: A

| SRC# | SRC DESCRIPTION | STAT | CONST PERMIT | CONST ISS DATE | CONST EXP DATE | OPER PERMIT | OPER ISS DATE | OPER EXP DATE |
|------|--|------|--------------|----------------|----------------|-------------|---------------|---------------|
| 01 | UNIT #1 STEAM GENERATOR | A | - | 00/00/00 | 00/00/00 | AD29-204434 | 01/31/92 | 01/31/97 |
| 02 | 125MW BABCOCK&WILCOX CORP WET BOTTOM CYCLONIC FIRING | A | - | 00/00/00 | 00/00/00 | AD29-189206 | 02/07/91 | 02/06/96 |
| 03 | UNIT #3 - B&W WET BOTTOM COAL FIRED BOILER | A | - | 00/00/00 | 00/00/00 | AD29-172179 | 04/26/90 | 04/19/95 |
| 04 | UNIT #4 - B&W WET BOT CYCLONIC FIRING CADL FIRED BOILE | A | - | 00/00/00 | 00/00/00 | AD29-160269 | 10/06/89 | 09/30/94 |
| 05 | UNIT #5 COAL FIRED BOILER | A | - | 00/00/00 | 00/00/00 | AD29-203511 | 01/01/92 | 01/01/97 |
| 06 | UNIT #4 - COAL FIRED BOILER WITH ESP | A | - | 00/00/00 | 00/00/00 | AD29-203512 | 02/15/92 | 02/15/97 |

PORT SUTTON ROAD



Department of Environmental Protection

route: DZ
file

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

September 6, 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:

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

RECEIVED
SEP 07 1995

Department of Environmental Protection
BY _____
SOUTHWEST DISTRICT

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

Mr. Patrick Ho
September 6, 1995
Page Two

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;
- (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 the petitioner wants the Department to take with respect to the Department's action or proposed action.

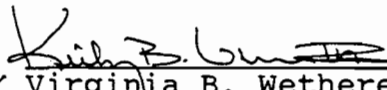
If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this amendment. Persons whose substantial interests will be affected by any decision of the Department with regard to the amendment request/application have the right to petition to become a party to

Mr. Patrick Ho
September 6, 1995
Page Three

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.

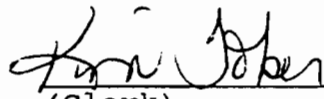
STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION


for 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 September 6 1995.

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


(Clerk) 9-6-95
(Date)

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

I N T E R O F F I C E M E M O R A N D U M

file

Date: 01-Aug-1995 12:20pm EST
From: Alvaro Linero TAL
LINERO_A@A1@DER
Dept: Air Resources Management
Tel No: 904/921-9532
SUNCOM:

TO: Hamilton Buck Oven TAL (OVEN_H@A1@DER)
CC: Syed Arif TAL (ARIF_S@A1@DER)
CC: Jerry N. Campbell TPA (CAMPBELL_JN@A1@EPIC66)
CC: Elizabeth Deken TPA (DEKEN_E@A1@EPIC66)
CC: Gerald Kissel TPA (KISSEL_G@A1@TPA1)

Subject: Final Order TECO Big Bend 4 Peteoke and Coal Yard Projects

Buck. As we discussed, the Final Order does not reflect all of our July 18th input regarding the coal yrad. Can you please have a look at that communication and reconcile it with the draft final order? We did not indicate removal of the last sentence "Particulate emissions shall be controlled by use of control devices." Apparently we did not reproduce that line in our input nor did we cross it out. Unless someone else provided a good reason to remove it, then it should be left in. Thanks.



RECEIVED
JUN 27 1995

June 21, 1995

Bureau of
Air Regulation

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

Certified Mail No. P 880 003 417
Return Receipt Requested

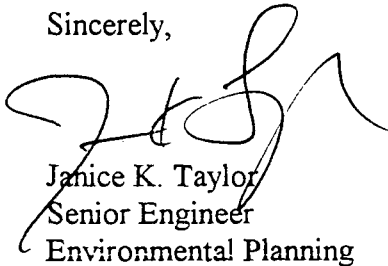
Re: Tampa Electric Company
Big Bend Station
Unit 4 PSD Amendment

Dear Mr. Linero:

Enclosed, please find proof of publication of the Notice of Intent to issue a permit amendment to PSD-FL-040 to allow the firing of 80% coal/20% petroleum coke blend. The notice was published in the legal ad section of the June 17, 1995 issue of the Tampa Tribune.

If you have any additional questions, please contact me at 813/228-4839.

Sincerely,


Janice K. Taylor
Senior Engineer
Environmental Planning

EP\gm\JKT715

Enclosure

c: Hamilton S. Owen-FDEP,
Tallahassee (enc.)

John R. *Jewell Harper*
Cleve H. *John Bunyak*
Bill T. *Liz Katen, EPC + C*

RECEIVED
JUN 30 1995
Environmental Protection
SOUTHWEST DISTRICT

THE TAMPA TRIBUNE

Published Daily

Tampa, Hillsborough County, Florida

State of Florida }
County of Hillsborough } ss.

Before the undersigned authority personally appeared R. Putney, who on oath says that he is Accounting Manager of The Tampa Tribune, a daily newspaper published at Tampa in Hillsborough County, Florida; that the attached copy of advertisement being a

LEGAL NOTICE

in the matter of

STATE OF FLORIDA

was published in said newspaper in the issues of

JUNE 17, 1995

Affiant further says that the said The Tampa Tribune is a newspaper published at Tampa in said Hillsborough County, Florida, and that the said newspaper has heretofore been continuously published in said Hillsborough County, Florida, each day and has been entered as second class mail matter at the post office in Tampa, in said Hillsborough County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm, or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Signature of R. Putney

Sworn to and subscribed before me, this 19 day of JUNE, A.D. 1995

Personally Known or Produced Identification
Type of Identification Produced

(SEAL)

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. Lirero 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. 3220 6/17/95

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 1111, 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 part 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 file a 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., or to participate as a party in this proceeding. Any subsequent intervention will only



D.E.P.

JUN 19 1995

SOUTHWEST DISTRICT
TAMPA

June 14, 1995

Mr. A. A. Linero
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

**Via Facimile and
Certified Mail No. P 880 003 416
Return Receipt Requested**

**Re: Tampa Electric Company
Big Bend Unit No. 4; PSD-FL-040**

Dear Mr. Linero:

On June 6, 1995, we received correspondence and attachments from Mr. Clair Fancy concerning our request for an amendment to PSD-FL-040 for Tampa Electric Company's Big Bend Unit 4. The material includes the Department's Notice of Intent to Issue the Permit Amendment to allow firing of a blend of coal and petroleum coke in the unit. Proposed permit conditions are included.

We have reviewed the proposed revision to the specific permit conditions and have the following suggestions: the new proposed specific conditions should be clarified as follows:

New Specific Condition 1. A.:

1. A. Fuels fired shall consist of coal or a coal/petroleum coke blend containing a maximum of 20% 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 scale data verifying that the 20% maximum petroleum coke content by weight on a monthly 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.

Mr. A. A. Linero
June 14, 1995
Page 2 of 2

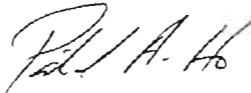
New Specific Condition 1. C.:

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 emissions as defined in 40 CFR 52.21(b)(33), **when the unit is firing petroleum coke**. 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 emission increase.

These changes will make clear that the amendments to the PSD permit apply to the operational change that has been proposed, in accordance with the applicable regulations.

We are available to discuss this clarification at your convenience. If you have any questions, please contact Janice Taylor or me at (813) 228-4839.

Sincerely,



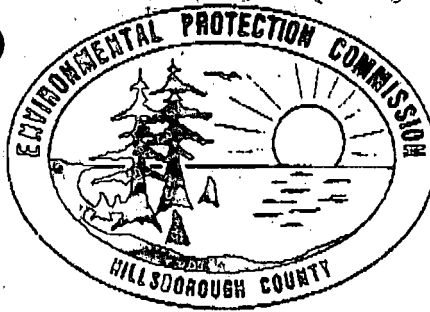
Patrick A. Ho, P.E.
Manager
Environmental Planning

EP\gm\JKT711

c: B. Thomas, FDEP, Tampa
J. Kessel, FDEP, Tampa
J. Harper, EPA
J. Bunyak, NPS
H. Oven, FDEP, Tallahassee

COMMISSION

MOTTIE BERGER
PHYLLIS BUSANSKY
JOE CHILLURA
CHRIS HART
JIM NORMAN
ED TURANCHIK
SANDRA WILSON



ADMINISTRATIVE OFFICES, LEGAL &
WATER MANAGEMENT DIVISION
1900 - 9TH AVENUE
TAMPA, FLORIDA 33605
TELEPHONE (813)272-5960
FAX (813)272-5157

AIR MANAGEMENT DIVISION
TELEPHONE (813)272-5530

WASTE MANAGEMENT DIVISION
TELEPHONE (813)272-6788

ECOSYSTEMS MANAGEMENT DIVISION
TELEPHONE (813)272-7104

EXECUTIVE DIRECTOR

ROGER F. STEWART

ENVIRONMENTAL PROTECTION COMMISSION
OF HILLSBOROUGH COUNTY

FAX TRANSMITTAL SHEET

DATE: 5/8/95

TO: Jerry Kiesel

FAX PHONE: 744-6458 VOICE PHONE: 744-6100

TOTAL NUMBER OF PAGES INCLUDING THIS COVER PAGE: 6

EPC FAX TRANSMISSION LINE: (813) 272-5605

FOR RETRANSMISSION OR ANY FAX PROBLEMS, CALL: (813) 272-5530

FROM: Liz DeLeon

(CIRCLE APPLICABLE SECTION BELOW)

AIR DIVISION

- ENFORCEMENT

- ENGINEERING

- SUPPORT OPERATIONS

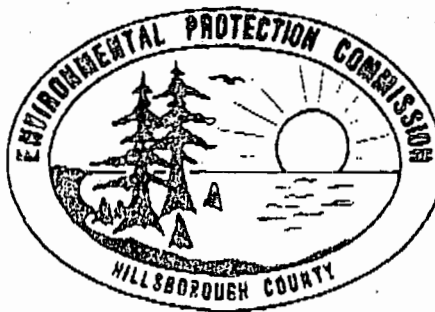
SPECIAL INSTRUCTIONS: _____

COMMISSION

DOTTIE BERGER
 PHYLLIS BUSANSKY
 JOE CHILLURA
 CHRIS HART
 JIM NORMAN
 ED TURANCHIK
 SANDRA WILSON

EXECUTIVE DIRECTOR

ROGER P. STEWART



ADMINISTRATIVE OFFICES, LEGAL &
 WATER MANAGEMENT DIVISION
 1900 - 9TH AVENUE
 TAMPA, FLORIDA 33605
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 FAX (813) 272-5157

AIR MANAGEMENT DIVISION
 TELEPHONE (813) 272-5530

WASTE MANAGEMENT DIVISION
 TELEPHONE (813) 272-5788

WETLANDS MANAGEMENT DIVISION
 TELEPHONE (813) 272-7104

MEMORANDUM

DATE: May 8, 1995

TO: Al Linero

FROM: Liz Deken *LD*

Through: Jerry Campbell *JC*

SUBJECT: Tampa Electric Company (TEC) - Request to Burn Petroleum
Coke in Unit #4 at the Big Bend Facility

The Environmental Protection Commission (EPC) of Hillsborough County in conjunction with the Florida Department of Environmental Protection's Southwest District Office has reviewed the supplemental information submitted by TEC on April 4, 1995. Based on a review of all available information on the coal/petroleum coke fuel blend project, the EPC has the following comments:

1. Unit 4 at the Big Bend Facility is a 417 MW coal-fired unit with a flue gas desulfurization scrubber, ESP, and CEMS for SO₂ and NO_x. The unit was permitted in 1981 under PSD (PSD-FL-040) and is subject to 40 CFR 60, Subpart Da for utility boilers. The BACT determination for the plant at the time for SO₂ was a 25% reduction in sulfur as a result of coal washing, 5% of remaining sulfur is accounted for in the recovered flyash, and a minimum of 86% of remaining sulfur is required to be removed in the flue gas desulfurization unit. The combination of the three control items results in an overall minimum 90% total sulfur removal. Because the unit was permitted as a coal-fired unit, the request to burn petroleum coke constitutes a change in the method of operation and therefore requires a determination of whether an increase in actual emissions occurs.

Because the coal baseline test and the petroleum coke/coal fuel blend test conducted by TEC were not conducted under equivalent conditions (ie. exact same boiler operating conditions, same fuel to air ratio, same scrubber operating parameters, etc.) it is not appropriate to rely solely on the



Page 3
Al Linero
May 8, 1995

Therefore, the representative actual annual emissions is 5331 tons/yr of SO₂. The table below illustrates the actual annual emissions as reported in TEC's AORs.

| | <u>SO₂</u> <u>lb/MMBTU</u> | <u>SO₂</u> <u>tons/yr</u> |
|------|--|---|
| 1992 | 0.5 | 7064 |
| 1993 | 0.5 | 6664 |
| 1994 | 0.5 | 6911 |

* Based on CEM data.

The same methodology used to obtain the representative actual annual emissions appears to be the same methodology TEC currently uses in preparing their AORs. Based on a comparison of the average of the previous two year actual annual emissions of 6788 tons/year (average of 1993 and 1994) and the representative actual annual emissions of 5331 tons/year, there is not a net significant emissions increase therefore PSD review is not triggered at this time.

Pursuant to Rule 62-212, F.A.C., TEC must maintain and submit to the Department annually for a period of 5 years information that demonstrates the burning of the petroleum coke did not result in an emissions increase. If the information that is submitted shows an increase over the previous two year average actual emission rate for SO₂ of 6788 tons/year that exceeds 40 tons/year, then the provisions of Rule 62-212, F.A.C. for PSD review apply at that point. Further combustion of petroleum coke would be prohibited at this point until a modified PSD permit was issued.

3. The fuel analysis that was submitted and referenced earlier in this memo indicates that the ash content of the petroleum coke is less than 1.0% by weight and the ash content of the coal is 11.5% by weight. This would seem to indicate that the particulate emissions from the petroleum coke should be less than those emitted when burning coal. The test burn results do not support this, however, based on the fuel analysis it seems unlikely that the increase in particulate matter emissions observed in the test burn were due to the petroleum coke. Therefore, based on the fuel analysis we do not believe the use of the petroleum coke will result in an increase in particulate matter emissions unless the petroleum coke ash exhibits and increased resistivity over coal ash.

Page 2
 Al Linero
 May 8, 1995

test results to determine which pollutants, if any, showed an increase in actual emissions as a result of the petroleum coke. However, using the tests in combination with the fuel analysis that was supplied by TEC for the coal and the petroleum coke, we can determine whether burning the petroleum coke resulted in or could result in an increase in actual emissions and, subsequently, whether a modification occurred.

Based on the fuel analysis provide in TEC's submittal of September 1, 1994, the petroleum coke contains 4-5% by weight sulfur and the typical coal contains 3.5% by weight. This indicated under equivalent operating conditions that burning petroleum coke would result in more sulfur emissions on a lb/MMBTU basis and the test results support this statement.

In order to determine whether PSD is triggered, it must be determined whether a significant net emissions increase will occur as a result of the proposed change. For a utility, the actual annual emissions prior to the change are compared to the representative actual annual emissions following the change to determine if the increase exceeds the significant levels established for each pollutant under review.

2. Based on our review, we believe the proposed change constitutes a change in the method of operation which results in an increase in actual emissions for SO₂ on a lb/MMBTU basis. Therefore, the representative actual emissions following the proposed change must be determined. This term (representative actual emissions) is defined precisely in 40 CFR 52.21(b)(33). Based on the TEC Annual Operating Reports (AORs) for the last three years the annual heat input rates for Unit 4 are shown below:

| <u>Year</u> | <u>Heat Input Rate</u> <u>MMBTU/yr</u> |
|-------------|---|
| 1992 | 27560547 |
| 1993 | 31691925 |
| 1994 | 32309160 |

Using the emission rate obtained from the CEM data for the 22 day period that the fuel blend was burned and the 1994 heat input rate, the projected annual emissions following the proposed change are calculated as shown below:

$$(0.33 \text{ lb SO}_2/\text{MMBTU}) (32309160 \text{ MMBTU/yr}) (\text{ton SO}_2/2000 \text{ lb}) = 5331$$

Page 4
Al Linero
May 8, 1995

4. The fuel analysis also indicated that the nitrogen content of the coke ranges from 0.6-1.6% by weight and the typical coal is 1.27% by weight. Because of the range present for the coke it appears that the increase in NO_x emissions observed in the test burn could be a result of the fuel nitrogen content itself. The increase could also be as a result of thermal NO_x due to different combustion conditions, however, specific combustion conditions such as the fuel/air ratio were not included in the test results for either the seven day baseline test or the 22 days the fuel blend test that were conducted. Based on the information submitted it appears there was and could be an increase in NO_x emissions as a result of burning petroleum coke over coal. The NO_x emission rate from the test burn was 0.51 lb/MMBTU. Based on the average of the previous two years actual annual emissions of 6763 tons NO_x/yr, the representative actual annual emissions can not exceed this by the significant level of 40 tons/year or PSD review is triggered.

5. While the proposed burning of the fuel blend does not appear to trigger PSD as discussed in item 2 above, it nonetheless is a modification which would require applicable restrictions to be federally enforceable. Normally that is accomplished through the state's construction permit program, but the Department may have the latitude to handle this through the conditions of certification under the Power Plant Siting Program. In any event, the modified permit that is issued to allow the burning of the petroleum coke/coal fuel blend should contain the following items:

a. TEC shall not be allowed to burn petroleum coke in an amount that exceeds 20% of the fuel input to unit 4 by weight.

b. The methodology that was outlined in this memo to calculate annual emissions shall be used to determine emissions which must be submitted to the Department and the EPC for a period of 5 years after the fuel blend is being utilized in unit 4. Annual emissions should be calculated and reported for both SO₂ and NO_x and compared to the actual annual baseline of 6788 tons/yr and 6763 tons/yr respectively as determined from AOR data. If the reported annual emissions during this 5 year period exceed the baseline by 40 tons for either SO₂ or NO_x, TEC shall be required to suspend further fuel blend burning until PSD permit modification is obtained.

Page 5
Al Linero
May 8, 1995

c. The annual stack test for PM should be conducted while burning the blend and a second test while burning just coal, if the unit still operates under that condition. Recall that the coal has a higher ash content and would seem to represent a worse case for PM emissions.

d. A means to determine that the unit is never charged with more than 20% petroleum coke by weight. In other words, how will this be monitored?

e. Under their current BACT they receive a 25% credit for coal washing on sulfur removal. Unless they can demonstrate that they can wash the petroleum coke with the same efficiency, the FGD removal rate will have to compensate. Between this and the 5% credit in the ash, they need to make a new demonstration and periodically report it to the Department and the EPC.

6. It is our understanding that TEC has requested that their Power Plant Siting permit be modified to reflect the proposed fuel blend change. TEC also has a PSD permit which was issued by EPA that appears to be active. Is the permit PSD-FL-040 still active? If it is then this permit also needs to be modified to reflect all of the changes that have occurred or have been authorized by the Department for unit 4. It was issued by the EPA and does not list an expiration date.

Should you have any questions or require additional information regarding these comments please contact me at Suncomm 543-5530. We would like to see any drafts that you intend to issue prior to issuance so we can continue to coordinate with your office. Please keep us apprised.

cc: Jerry Kissel, DEP Southwest District Office
Janice Taylor, TEC
Hamilton S. Oven, Jr., PE, DEP
John Reynolds

DEP ROUTING AND TRANSMITTAL SLIP

TO: (NAME, OFFICE, LOCATION)

1. John Reynolds

3. _____
4. _____
5. _____

PLEASE PREPARE REPLY FOR:

- SECRETARY'S SIGNATURE
- DIV/DIST DIR SIGNATURE
- MY SIGNATURE
- YOUR SIGNATURE
- DUE DATE _____

ACTION/DISPOSITION

- DISCUSS WITH ME
- COMMENTS/ADVISE
- REVIEW AND RETURN
- SET UP MEETING
- FOR YOUR INFORMATION
- HANDLE APPROPRIATELY
- INITIAL AND FORWARD
- SHARE WITH STAFF
- FOR YOUR FILES

COMMENTS:

John -
I just wanted to document the fact that, per my conversations w/ Al Linero, we (SWD) will have a chance to comment on permit language before Big Bend 4 petcock permit issuance ignored
This was ignored
JRK 6/95

FROM:

J. Kinard

DATE:

5/4/95

PHONE: _____

FACSIMILE TRANSMITTAL SHEET

Environmental Planning
Tampa Electric Company
813/228-4836
813/228-4881 FAX

DATE: 5/4/95

FOR IMMEDIATE DELIVERY

TO: Jerry Kissel

COMPANY: FDEP-SW

NUMBER OF PAGES (Plus cover page): 26

FROM: Ron Laws

COMMENTS: _____

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Florida Administrative Weekly

Volume 21, Number 14, April 7, 1995

A request for administrative hearing, if any, must be made in writing and must be actually received by this agency within 21 days of the first day of publication of this notice in the *Florida Administrative Weekly* pursuant to chapter 120, *Florida Statutes*, and Chapter 59C-1, *Florida Administrative Code*.

AHCA Purchase Order Number S5900C00058.

AGENCY FOR HEALTH CARE ADMINISTRATION
CERTIFICATE OF NEED
DECISIONS ON BATCHED APPLICATIONS

The Agency For Health Care Administration made the following decisions on Certificate of Need applications for nursing home projects with an application due date of November 30, 1994:

County: Manatee Service District: 6
CON #: 7937 Decision Date: 03/24/95 Decision: D
Facility/Project: Memorial Hospital

Applicant: Manatee Hospitals and Health Systems, Inc.
Project Description: Add up to 65 HBSNF beds thru the conversion of up to 63 acute care beds.

Approved Cost: 30

County: Manatee Service District: 6
CON #: 7938 Decision Date: 03/24/95 Decision: D
Facility/Project: Manatee Health Care and Rehabilitation Center

Applicant: Vantage Healthcare Corporation
Project Description: Construct a 105 bed SNF comprised of 63 new and 42 old beds.

Approved Cost: 50

County: Manatee Service District: 6
CON #: 7939 Decision Date: 03/24/95 Decision: A
Facility/Project: Mediplex Rehab-Bradenton

Applicant: Manatee Springs Nursing Center, Inc.
Project Description: Add up to 63 skilled nursing facility beds
Approved Cost: \$2,018,972

A request for administrative hearing, if any, must be made in writing and must be actually received by this department within 21 days of the first day of publication of this notice in the *Florida Administrative Weekly* pursuant to Chapter 120, *Florida Statutes*, and Chapter 59C-1, *Florida Administrative Code*.

AHCA Purchase Order Number B5900500099.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

NOTICE OF AVAILABILITY
FLORIDA FINDING OF NO SIGNIFICANT IMPACT
CHARLOTTE COUNTY
COLLECTION, INFLUENT TRANSMISSION,
TREATMENT, AND REUSE FACILITIES

The Florida Department of Environmental Protection has determined that Charlotte County's Wastewater Treatment Facilities project will not adversely affect the environment. The total project cost for Phase IB is estimated at \$266,031,000. The project may qualify for a State Revolving Fund (SRF) loan composed of 83.33% in federal funds and 16.67% in state matching funds. A full copy of the Florida Finding of No Significant Impact can be obtained by writing to: Dick Smith, Bureau of Water Facilities Funding, Department of Environmental Protection, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

NOTICE OF INTENT TO ISSUE PROPOSED
MODIFICATION OF POWER PLANT CERTIFICATION

The Department of Environmental Protection gives notice of its intent to grant a request for modification of the conditions of certification for the Power Plant Site Certification that was issued pursuant to the Florida Electrical Power Plant Siting Act, Section 403.501, et seq., Florida Statutes (F.S.), concerning:

Tampa Electric Company
Big Bend Station
Power Plant Siting Application
No. PA 79-12D

The Department proposes to modify the conditions of certification for Tampa Electric Company (TECO) to allow integration of the Unit 3 and Unit 4 flue gases into the Unit 4 FGD system at the Big Bend Station. A copy of the proposed modification is available from Hamilton S. Owen, P.E., Administrator, Siting Coordination Office, Department of Environmental Protection, 3900 Commonwealth Boulevard, M.S. 48, Tallahassee, Florida 32399-3000, (904)487-0472.

Pursuant to Section 403.516, F.S., a party to the original certification proceeding has 45 days from the date of receipt of this notice in which to respond to the requested modification. A person who is not already a party to the certification proceeding and whose substantial interest will be affected by the proposed modification has 30 days from the date of publication of this notice in which to object to the requested modification. Such an objection must be in writing and

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Florida Administrative Weekly

Volume 21, Number 14, April 7, 1995

received in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitioner shall mail a copy of the petition to the applicant's attorney, Lawrence N. Curtin, Esquire, P.O. Drawer 810, Tallahassee, Florida 32302, and a copy of the petition to the Division of Administrative Hearings, The Desoto Building, 1230 Apalachee Parkway, Tallahassee, Florida 32399-1550. Failure to file a response constitutes a waiver of objection to the requested modification.

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 an objection is raised, TECO may file a petition for modification with the Division of Administrative Hearings, pursuant to paragraph 403.516(1)(c), F.S. If TECO files such a petition, the administrative hearing process is designed to formulate agency action. Therefore, the Department's final action may be different from the position taken by it in this notice.

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DRAFT

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

IN RE:

TAMPA ELECTRIC COMPANY
BIG BEND STATION UNIT 4
MODIFICATION OF CONDITIONS
OF CERTIFICATION PA 79-12
HILLSBOROUGH COUNTY, FLORIDA

DEP CASE NO. PA 79-12D
OGC CASE NO. 94-0914

FINAL ORDER MODIFYING
CONDITIONS OF CERTIFICATION

On August 17, 1981, the Governor and Cabinet, sitting as the Siting Board, issued a final order approving certification for Tampa Electric Company's (TECO's) Big Bend Station Unit 4. That certification order approved the construction and operation of a 466 MW (gross) coal-fired facility and associated facilities located in Hillsborough County, Florida.

On January 30, 1995, TECO filed a request to modify the conditions of certification pursuant to Section 403.516(1)(b), Florida Statutes, (F.S.). TECO requested that the conditions be modified to approve changes in the monitoring requirements necessary to implement in plant modifications and operation of flue gas treatment systems. These proposed changes allow treatment of flue gas from Unit 3 in the Unit 4 FGD scrubbers.

Copies of TECO's proposed modification were distributed to all parties to the certification proceeding and made available for public review in February, 1995. On April 7, 1995, Notice of Intent to Issue Proposed Modification of power plant certification was published in the Florida Administrative Weekly. As of April __, 1995, all parties to the original

proceeding had received copies of the intent to modify. The notice specified that a hearing would be held if a party to the original certification hearing objects within 45 days from receipt of the proposed notice of modification or if a person whose substantial interests will be affected by the proposed modification objects in writing within 30 days after issuance of the public notice. No written objection to the proposed modifications has been received by the Department.

Accordingly, in the absence of any timely objection,

IT IS ORDERED:

The proposed changes to TECO Big Bend Station as described in the January 30, 1995, and March 6, 1995, requests for modification are APPROVED. Pursuant to Section 403.516(1)(b), F.S., the conditions of certification for the TECO Big Bend Station are MODIFIED as follows:

Condition I.B. Air Monitoring Program

1. The permittee shall install and operate continuously monitoring devices for the Unit 4 boiler exhausts for sulfur dioxide, nitrogen dioxide, oxygen and/or carbon dioxide, and opacity. The monitoring devices shall meet the applicable requirements of Section 62-214, F.A.C. 17-2-987-FAC, 40 CFR 60.47a., and 40 CFR 75. The opacity monitor shall be placed in the duct work between the electrostatic precipitator and the FGD scrubber.

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a. When Units 3 and 4 are operating in the integrated mode (Unit 3 flue gases routed through the Unit 4 FGD system), the continuous monitoring system will measure sulfur dioxide emissions at the inlet and outlet of the Unit 4 FGD system and from the Unit 3 stack, while emissions of nitrogen oxides, oxygen and/or carbon dioxide, and opacity shall be measured in the Unit 4 duct prior to the FGD system.

b. When Units 3 and 4 are not operating in the integrated mode, the continuous monitoring system will measure only Unit 4's inlet duct and stack for SO₂ emissions. The emissions of nitrogen oxides, oxygen and/or carbon dioxide, and opacity shall be measured in the Unit 4 duct prior to the FGD system.

Any party to this Notice has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the clerk of the Department of Environmental Protection in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate

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District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date that the Final Order is filed with the Department of Environmental Protection.

DONE AND ENTERED this _____ day of April, 1995 in Tallahassee, Florida.

STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL PROTECTION

VIRGINIA B. WETHERELL, SECRETARY, 3900 Commonwealth Boulevard, Tallahassee, FL 32399-3000



Department of Environmental Protection

sent

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

FACSIMILE TRANSMISSION SHEET

DATE

5/3/95

To:

A. LINERO/
J. REYNOLDS

Department _____

Phone _____

Fax _____

From:

J. KISSEL

DEP Southwest District Office - Air Program

Phone: (813) 744-6100 (Suncom 542-6100) Ext. 107

Operator: _____

Subject:

BIG BEND 4 - PETCOKE

ATTACHED MEMO IS UNCHANGED FROM DRAFT I SENT
J. REYNOLDS LAST WEEK. WE'RE WILLING TO HELP

Total Number of Pages, Including Cover Page: 4

WRITE PERMIT CONDITIONS. JANICE TAYLOR OF TAMPA
ELEC. HAS BEEN FOLLOWING THIS CLOSELY & HAS
ASKED FOR A COPY OF THIS MEMO, WHICH I'M FAXING
TO HER ALSO.

DEP SWD AIR PROGRAM FAX NUMBER: (813) 744-6458
(SUNCOM 542-6458)



Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

FACSIMILE TRANSMISSION SHEET

DATE MAY 03 1995

To:

Janice Taylor

Department

TECO

Phone _____

Fax

228-4881

From:

Jerry Kissel

DEP Southwest District Office - Air Program

Phone: (813) 744-6100 (Suncom 542-6100)

Ext.

107

Operator: _____

Subject:

Big Bend 4 - Pet Coke

Total Number of Pages, Including Cover Page: _____

4


DEP SWD AIR PROGRAM FAX NUMBER:

(813) 744-6458)

(SUNCOM 542-6458)

MEMORANDUM

TO: File

FROM: J. Kissel 

DATE: April 24, 1995

SUBJECT: Tampa Electric Big Bend 4 - Petcoke

This memo is written in a format such that, with a few minor changes, it could be sent to Brian Bealls of EPA for comment. That may not be appropriate, since this may be a straightforward situation as far as our Tallahassee people are concerned, who deal more frequently with these utility PSD issues.

This is a 417 MW coal-fired unit with a scrubber and CEM's for SO₂ and NO_x, permitted in 1981 under PSD and Subpart Da. The BACT determination for the plant at the time, used a scrubber efficiency of about 90%, which is about where the scrubber has been operating. Some of the following parameters have been simplified/rounded for the purposes of this memo.

In November 1994, a three day baseline test burn was conducted, followed by a three day test burn of a coal/petroleum coke blend, with the scrubber operating at about 95% efficiency during both of those periods. Thus:

| | <u>SO₂, lb/MMBtu</u> | <u>SO₂, Tons/Year</u> | <u>Scrubber Efficiency</u> |
|--------------------------|---------------------------------|----------------------------------|----------------------------|
| Permit allowable | 0.82 | - | - |
| 1992 | 0.5 | 7,064 | 90% |
| 1993 | 0.5 | 6,664 | 90% |
| 1994 | 0.5 | 6,911 | 90% |
| 11/94 coal baseline | 0.25 (from CEM | - | 95% |
| 11/94 coal/petcoke | 0.33 over entire | - | 95% |
| *Future yrs coal/petcoke | 0.33 periods) | 5,797 | 95% |

*Utility projection, using 8135 hours/yr (actual hours in 1994), showing future "representative actual annual emissions," as in the attached Florida Rule 62-212.200(2)(d).

Regulatory issues seem to include:

1) Although the use of petcoke might trigger a modification based on the increase from .25 to .33, there is no increase in "representative actual annual emissions" as on the previous page; thus PSD is not triggered.

2) If emissions were to increase above prior actuals (plus 40 TPY - the significant increment), this would seem to trigger PSD per 62-212.200(2)(d). In other words, our determination at this point that PSD is not triggered would be proven to be incorrect if emissions were to increase over prior actuals. Furthermore, it seems appropriate to revise the permit to restrict future SO₂ emissions to a level which would not allow an increase over prior actuals, e.g., the average of 1992 and 1993 operation, or 6864 TPY, plus the significant increment, or 6864 + 40 = 6904 TPY. This figure could be further adjusted for capacity utilization/demand growth, as specified in 52.21(b)(33) as referenced in 62-212.200(2)(d).

Actually, the permit would not limit future emissions; it would just require that if emissions increased, a PSD application would have to be submitted. A practical consequence of that scenario would be that future operation on petcoke would be precluded until the PSD process was completed.

3) What we don't want is a permit that allows the use of petcoke and operation of the scrubber at an efficiency such that emissions may go to 8,000 TPY SO₂ with no consequences. If the permit is changed only to allow petcoke without addressing the issues above, this would seem to be the case.

The above discussion was written regarding SO₂. The same reasoning would apply to NO_x. Note that this is based on corrected figures of .33 lb/MMBtu SO₂ and .51 lb/MMBtu NO_x for the petcoke test burn (ref Tampa Electric 4/4/95 letter to John Reynolds), as confirmed in my meeting with Tampa Electric April 18. For particulate matter, since the ash content of petcoke is a lot lower than for the coal they've been burning, this may be able to be addressed by a condition in the permit along those lines (since PM emissions correlate well with ash content).

The test conditions of the associated permit should also be changed to address the integration of Big Bend 3 into the Big Bend 4 scrubber. We also have an application in-house to amend the Big Bend 3 operating permit which will have to address this issue as well. Tampa Electric has told us that their intent is to eventually burn petcoke in Big Bend 3 also.

cc: L. Deken, A. Linero/J. Reynolds, H. Oven, D. Zell

(d) For an electric utility steam generating unit (other than a new unit or the replacement of an existing unit) actual emissions of the unit following a physical or operational change shall equal the representative actual annual emissions of the unit following the physical or operational change, provided the owner or operator maintains and submits to the Department on an annual basis for a period of 5 years from the date the unit resumes regular operation, information demonstrating that the physical or operational change did not result in an emissions increase. A longer period, not to exceed 10 years, may be required by the Department if it determines such a period to be more representative of the normal post-change operations of the unit. The definition of "representative actual annual emissions" found in 40 C.F.R. 52.21(b)(33) is hereby incorporated by reference.

§52.21 (b)

40 CFR Ch. I (7-1-93 Edition)

technology, including but not limited to advanced flue gas desulfurization, sorbent injection for sulfur dioxide and nitrogen oxides controls and electrostatic precipitators;

(ii) An activity or project to accommodate switching to a fuel which is less polluting than the fuel in use prior to the activity or project, including, but not limited to natural gas or coal re-burning, or the co-firing of natural gas and other fuels for the purpose of controlling emissions;

(iii) A permanent clean coal technology demonstration project conducted under title II, section 101(d) of the Further Continuing Appropriations Act of 1985 (sec. 5903(d) of title 42 of the United States Code), or subsequent appropriations, up to a total amount of \$2,500,000,000 for commercial demonstration of clean coal technology, or similar projects funded through appropriations for the Environmental Protection Agency; or

(iv) A permanent clean coal technology demonstration project that constitutes a repowering project.

(33) *Representative actual annual emissions* means the average rate, in tons per year, at which the source is projected to emit a pollutant for the two-year period after a physical change or change in the method of operation of a unit, (or a different consecutive two-year period within 10 years after that change, where the Administrator determines that such period is more representative of normal source operations), considering the effect any such change will have on increasing or decreasing the hourly emissions rate and on projected capacity utilization. In projecting future emissions the Administrator shall:

(i) Consider all relevant information, including but not limited to, historical operational data, the company's own representations, filings with the State or Federal regulatory authorities, and compliance plans under title IV of the Clean Air Act; and

(ii) Exclude, in calculating any increase in emissions that results from the particular physical change or change in the method of operation at an electric utility steam generating unit, that portion of the unit's emissions following the change that could

have been accommodated during the representative baseline period and is attributable to an increase in projected capacity utilization at the unit that is unrelated to the particular change, including any increased utilization due to the rate of electricity demand growth for the utility system as a whole.

(34) *Clean coal technology* means any technology, including technologies applied at the precombustion, combustion, or post combustion stage, at a new or existing facility which will achieve significant reductions in air emissions of sulfur dioxide or oxides of nitrogen associated with the utilization of coal in the generation of electricity, or process steam which was not in widespread use as of November 15, 1990.

(35) *Clean coal technology demonstration project* means a project using funds appropriated under the heading "Department of Energy-Clean Coal Technology", up to a total amount of \$2,500,000,000 for commercial demonstration of clean coal technology, or similar projects funded through appropriations for the Environmental Protection Agency. The Federal contribution for a qualifying project shall be at least 20 percent of the total cost of the demonstration project.

(36) *Temporary clean coal technology demonstration project* means a clean coal technology demonstration project that is operated for a period of 5 years or less, and which complies with the State implementation plans for the State in which the project is located and other requirements necessary to attain and maintain the national ambient air quality standards during the project and after it is terminated.

(37) (i) *Repowering* means replacement of an existing coal-fired boiler with one of the following clean coal technologies: atmospheric or pressurized fluidized bed combustion, integrated gasification combined cycle, magnetohydrodynamics, direct and indirect coal-fired turbines, integrated gasification fuel cells, or as determined by the Administrator, in consultation with the Secretary of Energy, a derivative of one or more of these technologies, and any other technology capable of controlling multiple combus-



Department of Environmental Protection

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,

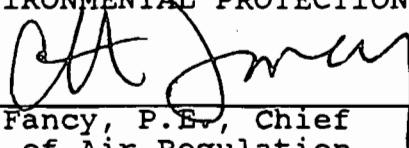
(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

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;
- (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 the 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 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

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
SOUTHWEST DISTRICT

CONVERSATION RECORD

Date 4/13/95
Time _____

Subject Big Bend 4 Pet Coke
Permit No. _____

County _____

M Larry Elmore NSR Section, EPA
Representing _____

Telephone No. 919-541-5433

Telephoned Me Was Called Scheduled Meeting Unscheduled Meet

Other Individuals Involved in Conversation/Meeting _____

Summary of Conversation/Meeting Federal Rules changed re Wepco etc, see 40CFR 51, e.g.,
40CFR 51.166(b)(2)
(iii)h

Off Fla. has a
delegated program, federal rules changes are
automatic; if Fla has an approved program,
then Fla. has to adopt changes to make them effective.

I ~~think~~ think Fla. has an approved program & hasn't adopted
PSD changes (I have call in to L George on this).

(On another conv'n w/ Al Kinew, Al said C. Fancy/H. Rhodes want us to take WEPKO into
acc't even if not yet in Fla. rules)
He suggested reading preamble off bulletin board (TTN, NSR - same
place we got draft rule).

If source has been thru PSD in last 10 yrs & has BACT, EPA's view nowadays
is why do it again if results would be moot. He volunteered: 'you have
to decide how much your mgt. is willing to fight the utility on this.'
By changing fuels, they're triggering mod'n & can then bound ops w/ O&M
for scrubber.

He suggested going thru Region II on these questions so it isn't like we're
bypassing Region II.

(continue on another
sheet, if necessary)

Signature [Signature]

Title APS

Mtg 4/19/85 of Taylor/J. Kessel

from test report SO₂ pg 14 .28 .53 from CEM, over the time period of the stack tests hours of for PM, etc.

baseline was 7 days of normal ops

to on pg 13, baseline, from CEM over 7 days

.25

.29 should be .33 as in EPC comment

see 212.200 (3)(d) ~~as~~ reflects 52.2(b)(3)

& Teco willing to submit continuous reports, as may be required by 212.200(3)(d), to show that emissions haven't increased to trigger PSD.

Big Bend 4 AOR based on CEM data

- James J.

qtrly SO₂ CEM reports go to DEP

9/21 mtg 02/10/JK

SO₂ as in letter, but 5yr annual showing in future which could throw into PSD, not conf to, but stop continued use of petroli
some for NO_x.

PM: if ash content lower, stop - just have condition in permit to the effect



RECEIVED
APR 05 1995

Department of Environmental Protection
SOUTHWEST DISTRICT
BY _____

April 4, 1995

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

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 | 0.25 0.29 | 4318.7 | 1252.42 1252.42 | 8135 | 5094.2 |
| NO _x | 0.43 0.51 | 4318.7 | 1813.85 2261 | 8135 | 7377.9 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 | | | 353 -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) <i>test burn (previous pg.)</i> | Load (MMBtu/hr) | Emission Rate (Lb/hr) <i>1725.2</i> | Annual Utilization (hr/yr)* | Annual Emission (tpy) <i>5797.0</i> | 1993 ² & 1994 ³ Annual Emission (tpy)** <i>5094.2</i> | Annual Emission (tpy) |
| SO ₂ | <i>0.33</i> 0.29 | 4318.7 | <i>1725.2</i> 1252.42 | 8135 | <i>5797.0</i> 5094.2 | (1) <i>6864.0</i> | -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

see mtg notes 4/18/95

*(1) EPC comment 7 in memo 3/29/95
= 3454TPY SO₂ in '92 & '93
last pg of 3/29/95*

1994 = 6911



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)

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
Page 4 of 5
March 29, 1995

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 land 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
Page 5 of 5
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 |

16

TABLE4.1.1

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 SEVICCE 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 |
| $9.335 \times 10^6 \text{ Btu/MWH} \times 4303 \text{ MWH} \div 9.32 \text{ H} =$ | 4310×10^6 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 |
| $9.335 \times 10^6 \text{ Btu/MWH} \times 5282 \text{ MWH} \div 11.48 \text{ H} =$ | 4295×10^6 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 |
| $9.417 \times 10^6 \text{ Btu/MWH} \times 2208 \text{ MWH} \div 4.82 \text{ H} =$ | $4314 \times 10^6 \text{ Btu/H}$ |
| | |

**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 |
| $9.417 \times 10^6 \text{ Btu/MWH} \times 2515 \text{ MWH} \div 5.48 \text{ H} =$ | 4322×10^6 Btu/H |
| | |

ENCLOSURE 3



DER

December 15, 1987

DEC 18 1987

5AQM

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

December 15, 1987

Page 2

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)

EXHIBIT I

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

RECEIVED

Tampa Electric Company

APR 4 1988

REQUEST FOR EXCEPTIONENVIRONMENTAL
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
TEC's approval to use Method 5B
for stack testing Big Bend Unit #4*

THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

RECEIVED

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.

3. As grounds for the request, Petitioner has stated that using EPA Reference Method 5B in place of the existing EPA Reference Method 5 would allow the testing to be done more accurately. The Petitioner also stated that Reference Method 5B was promulgated in the Federal Register as an approved method on November 26, 1986.

4. After review of the petition and supporting documentation, the Department finds that the alternative procedures and requirements would be adequate for the affected air pollution sources to demonstrate compliance with applicable emission limiting standards.

CONCLUSION OF LAW

5. The relief requested is within the scope of relief which can be granted by the Department pursuant to Section 403.061, Florida Statutes, and Section 17-2.700 (3), Florida Administrative Code.

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.

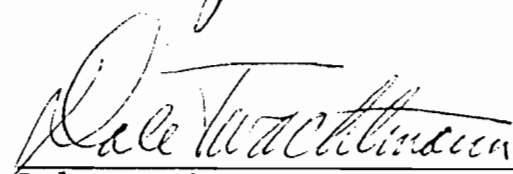
ORDER

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 administrative hearing under Chapter 120, Florida Statutes.


Done and ordered this 29 day of February, 1988 in Tallahassee, Florida.


Dale Twachtmann
Secretary

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
Telephone: (904) 488-4805

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a 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 2nd 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

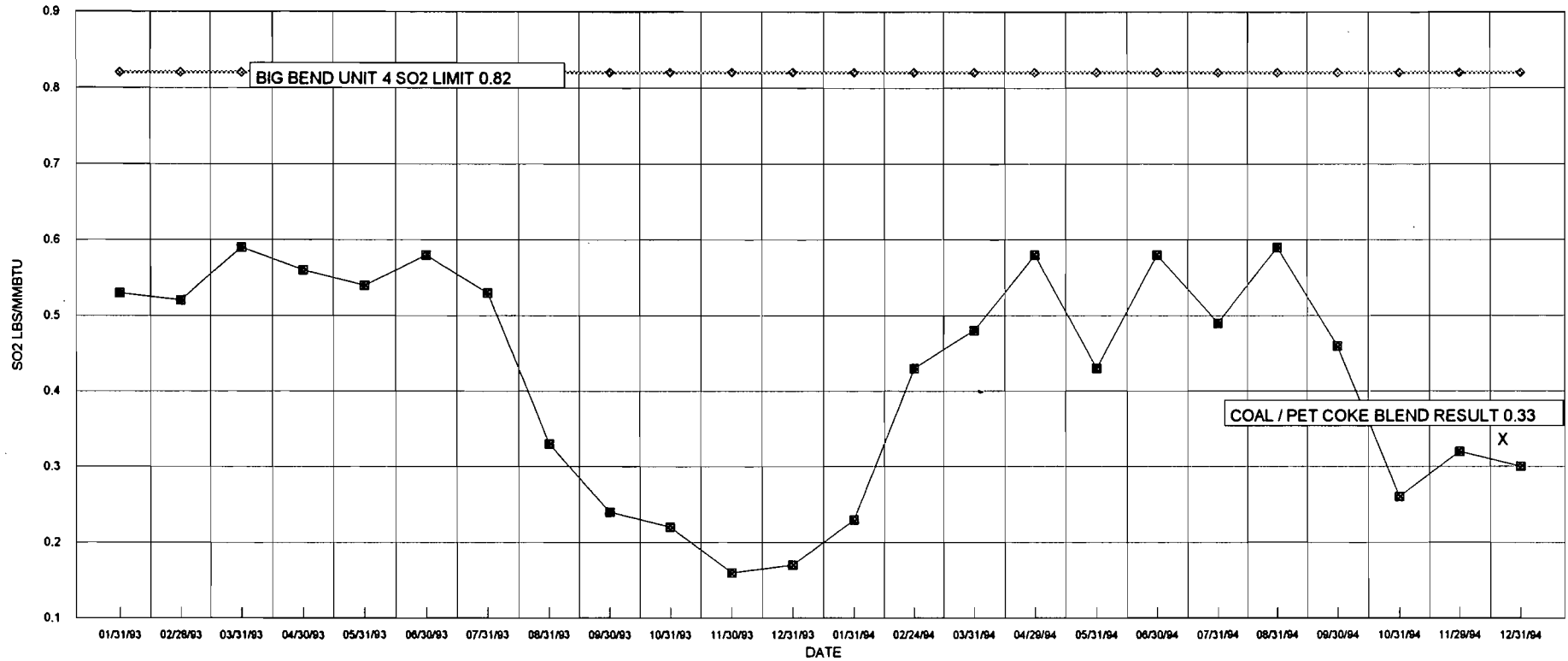
MERCURY (ug/g)
ASTM D 3684-94

| 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 |

23

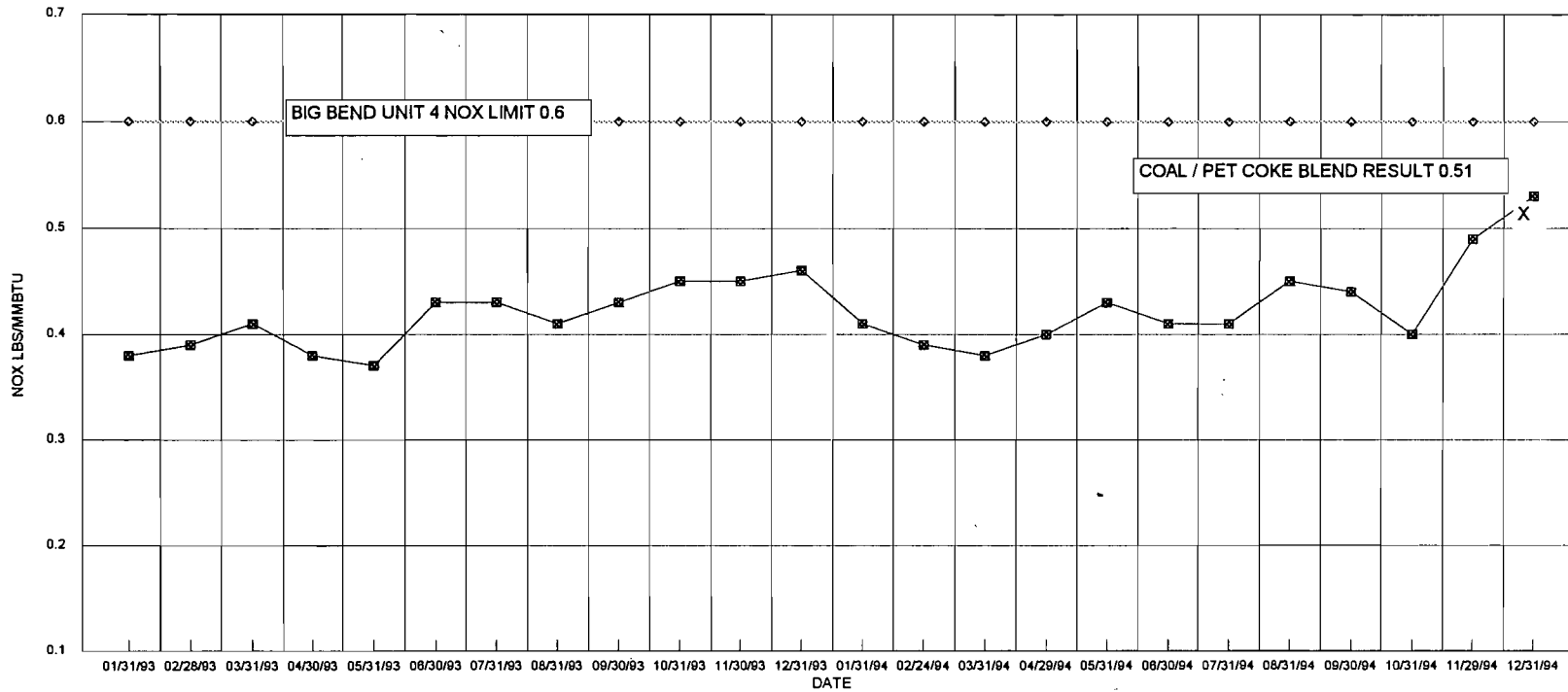
TABLE 4.2.4

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 NOX CEM DATA
30 DAY ROLLING AVERAGE

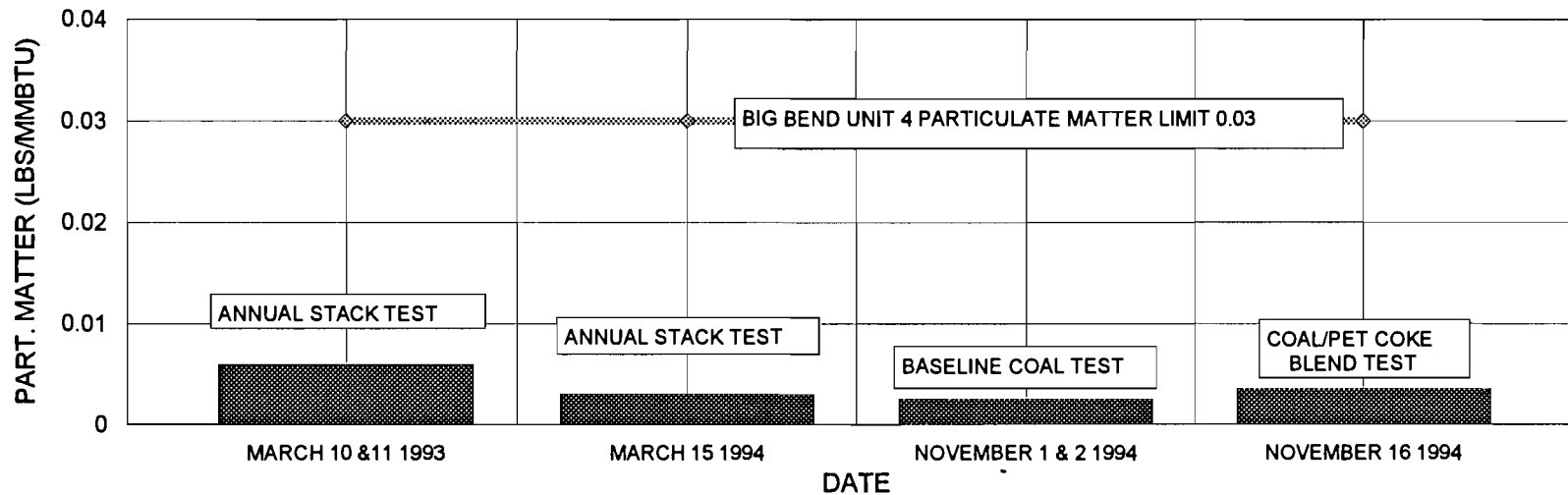


| DATE | NOX (LBS/MMBTU) | DATE | NOX (LBS/MMBTU) | DATE | NOX (LBS/MMBTU) | DATE | NOX (LBS/MMBTU) | DATE | NOX (LBS/MMBTU) |
|---------|-----------------|----------|-----------------|----------|-----------------|---------|-----------------|----------|-----------------|
| 1/31/93 | 0.38 | 6/30/93 | 0.43 | 11/30/93 | 0.45 | 4/29/94 | 0.40 | 9/30/94 | 0.44 |
| 2/28/93 | 0.39 | 7/31/93 | 0.43 | 12/31/93 | 0.46 | 5/31/94 | 0.43 | 10/31/94 | 0.40 |
| 3/31/93 | 0.41 | 8/31/93 | 0.41 | 1/31/94 | 0.41 | 6/30/94 | 0.41 | 11/29/94 | 0.49 |
| 4/30/93 | 0.38 | 9/30/93 | 0.43 | 2/24/94 | 0.39 | 7/31/94 | 0.41 | 12/31/94 | 0.53 |
| 5/31/93 | 0.37 | 10/31/93 | 0.45 | 3/31/94 | 0.38 | 8/31/94 | 0.45 | | |
| | | | | | | | | AVG. | 0.42 |

ENCLOSURE 5

BIG BEND UNIT 4 EMISSIONS TESTS

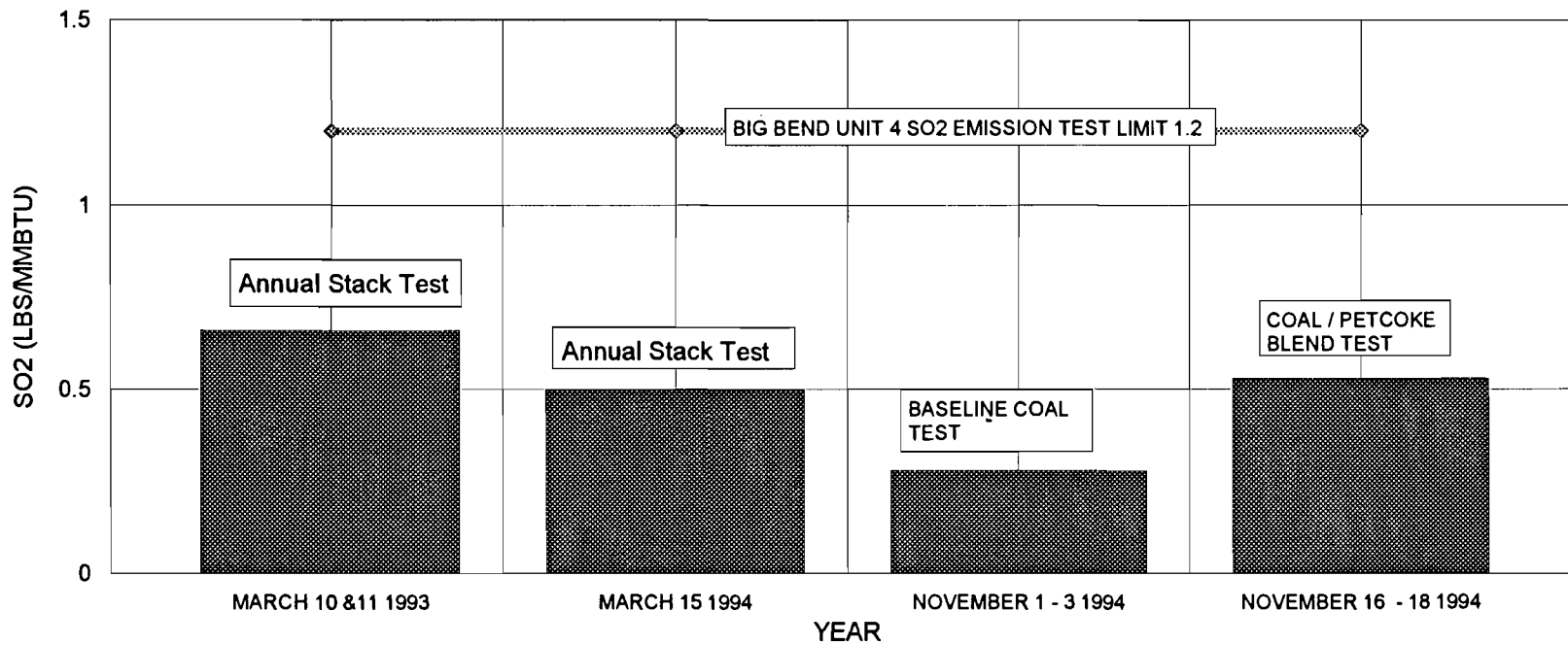
PARTICULATE MATTER RESULTS



| 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
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 |

avg = 6864
6911 6933 49

1994 6911



RECEIVED
FEB 01 1995

January 30, 1995

Mr. Hamilton S. Oven, Jr., P.E.
Administrator
Siting

Department of Environmental Protection
BY _____
SOUTHWEST DISTRICT

Via Federal Express

Florida Department of Environmental Protection
3900 Commonwealth Boulevard
Tallahassee, Florida 32309-3000

**Re: Tampa Electric Company
Big Bend Station Unit 4
Site Certification PA79-12 Modifications**

Dear Mr. Oven:

As previously discussed, changes planned to Big Bend Unit 4 will require modifications to the subject Site Certification. The unit changes affect the Air Monitoring Program (Condition I.B.1) and Air Emissions Limitations (Condition I.A.1). The specific modifications are summarized below along with suggested language and five (5) copies of each modification are enclosed for your review.

Modification 1

The changes involving the Air Monitoring Program (condition I.B.1) are a result of Tampa Electric's efforts to comply with the Clean Air Act Amendments of 1990. The first portion of this change is related to including flexibility in the condition to select the type of diluent to measure (O₂ or CO₂).

The other portion of the Air Monitoring Program is to integrate the Big Bend Unit 3 flue gases into the Unit 4 Flue Gas Desulfurization (FGD) System. The modifications specifically involve the manner in which the Unit 4 emissions will be determined for compliance.

Suggested language modifications:

Condition I.B.1 Air Monitoring Program (page 2)

Current language:

The permittee shall install and operate continuously monitoring devices for the Unit 4 boiler exhausts for sulfur dioxide, nitrogen dioxide, oxygen and opacity. The monitoring devices shall meet the applicable requirements of Section 17-2.08, FAC, and 40 CFR 60.47a. The opacity monitor may be placed in the duct work between the electrostatic precipitator and the FGD scrubber.

Mr. Hamilton S. Oven, Jr., P.E.
January 30, 1995
Page 2

Amended Language:

The permittee shall install and operate continuous monitoring devices for the Unit 4 boiler exhausts for sulfur dioxide, nitrogen dioxide, oxygen and/or carbon dioxide, and opacity. The monitoring devices shall meet the applicable requirements of 40 CFR 60.47a. The opacity monitor may be placed in the duct work between the electrostatic precipitator and the FGD scrubber.

When Unit 3 and 4 are operating in the integrated mode, the continuous monitoring system will measure SO₂ from both the Unit 3 and 4 inlet ducts as well as SO₂ exiting from the Unit 3 and Unit 4 chimneys. The unit emissions will be calculated by taking a ratio of the unit's generating load in megawatts. The emissions of nitrogen oxides, oxygen and/or carbon dioxide and opacity will be measured in the Unit 4 inlet duct prior to the FGD system.

When Unit 3 and 4 are not operating in the integrated mode, the continuous monitoring system will measure only Unit 4 inlet duct and Unit 4 chimney for SO₂ emissions. The emissions of nitrogen oxides, oxygen and/or carbon dioxide and opacity will be measured in the Unit 4 inlet duct prior to the FGD system.

Modification 2

The changes involving the Air Emissions Limitations (Condition I.A.1) are related to incorporating the use of Petroleum Coke as a portion of the fuel input. Recent testing conducted on Unit 4 demonstrated the performance of the unit with a blend of coal and petroleum coke. The test results enclosed indicate full compliance with the Conditions of Certification while using petroleum coke as part of the fuel input. Therefore, TEC requests a modification to the SCA and Conditions of Certification to allow the use of petroleum coke as part of the fuel input.

Suggested language modifications:

Condition I.A.1 Air Monitoring Program (page 1)

Current language:

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:

Revised language:

Based on a maximum heat input of 4,330 million BTU per hour, stack emissions from Big

Mr. Hamilton S. Oven, Jr., P.E.
January 30, 1995
Page 3

Bend Unit 4 shall not exceed the following when burning coal and/or coal/petroleum coke blend:

Schedule for these items are critical particularly for the Air Monitoring Program. Modifications to for integrating the Unit 3 flue gases into the Unit 4 FGD system are currently being constructed. These modifications are scheduled to be in commercial operation by June 1, 1995.

Thank you for your assistance in these matters.

If you have any comments or questions, please contact Mr. Ronald Laws at (813) 228-4843 or Ms. Janice Taylor (813) 228-4839.

Sincerely,



Patrick A. Ho
Manager
Environmental Planning

EP/gm/REL020

Enclosures

c: ~~William Thomas, DEP-SW (w/enc)~~
Jerry Cambell, HCEPC (w/enc)

COMMISSION

DOTTIE BERGER
PHYLLIS BUSANSKY
JOE CHILLURA
CHRIS HART
JIM NORMAN
ED TURANCHIK
SANDRA WILSON



ADMINISTRATIVE OFFICES, LEGAL &
WATER MANAGEMENT DIVISION
1900 - 9TH AVENUE
TAMPA, FLORIDA 33605
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FAX (813)272-5157

AIR MANAGEMENT DIVISION
TELEPHONE (813)272-5530

WASTE MANAGEMENT DIVISION
TELEPHONE (813)272-5788

ECOSYSTEMS MANAGEMENT DIVISION
TELEPHONE (813)272-7104

EXECUTIVE DIRECTOR

ROGER P. STEWART

D.E.R.

M E M O R A N D U M

JAN 31 1995

**SOUTHWEST DISTRICT
TAMPA**

DATE: January 27, 1995

TO: Hamilton S. Oven, P.E., FDEP

FROM: *RR* Richard C. Kirby, IV, P.E., Chief, Air Permitting Section

THRU: Jerry Campbell, P.E. *JK*

SUBJECT: Tampa Electric Company, Big Bend Unit 4, PA79-12

This office received a copy of a letter to you from TECO regarding the subject facility. The letter requests amendment of the conditions of certification to allow monitoring of oxygen and/or CO₂ to demonstrate PSD compliance. This will be in line with acid rain monitoring.

The request has been reviewed by the compliance and permitting sections. We have no objection to the requested amendment with the understanding that it does not relieve Tampa Electric Company from meeting visible emissions requirements.

mjh

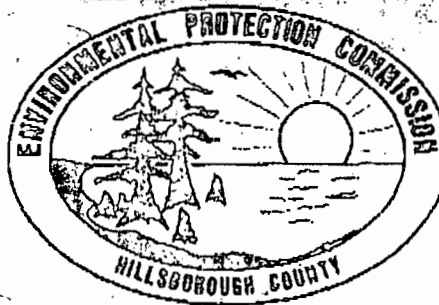
*FDEP
Kissel, Air*

BEST AVAILABLE COPY

COMMISSION

PHYLLIS BUSANSKY
 JOE CHILLURA
 SYLVIA KIMBELL
 LYDIA MILLER
 JIM NORMAN
 JAN KAMINIS PLATT
 ED TURANCHIK

FAX (813) 272-5157



P. STEWART
 VE DIRECTOR
 ADMINISTRATIVE OFFICES
 AND
 WATER MANAGEMENT DIVISION
 1500 - 9TH AVENUE
 TAMPA, FLORIDA 33605
 TELEPHONE (813) 272-5960

AIR MANAGEMENT DIVISION
 TELEPHONE (813) 272-6530

WASTE MANAGEMENT DIVISION
 TELEPHONE (813) 272-5768

ECOSYSTEMS MANAGEMENT DIVISION
 TELEPHONE (813) 272-7104

March 24, 1993

D.E.R.

Mr. Hamilton S. Oven, P.E.
 Administrator, Siting
 Coordination Office
 Twin Towers Office Building
 2600 Blair Stone Road
 Tallahassee, FL 32399-2400

MAR 29 1993

SOUTHWEST DISTRICT
 TAMPA

Re: Big Bend Coal Yard Modification, DER Case No. PA 79-12C

Dear Mr. Oven:

We have the following comments relative to the subject application:

1. The basic equation which was used to estimate emissions is from AP-42, Section 11.2.3, "Aggregate Handling and Storage". It contains a term for moisture content, but in the case of coal, the concept of moisture content is not a simple phenomenon. Some of the moisture is bound up in the coal and some can be free moisture. The application uses 15% moisture content for its calculations which leads to very low emission rates. Although the basic equation is apparently intended to apply to coal, it may be the case that a 15% moisture content coal is a different situation from an emissions standpoint than 15% moisture in gravel (the same equation would be applied to both). Also, the AP-42 text (reference Table 11.2.3-3) implies that the basic equation becomes less reliable outside of a moisture content range of 0.25%-4.88.

As an example, the first case in the application's emission summary, "Transfer from barge to conveyor A-1" shows emissions of 1.14 lbs./hr. for the transfer of 4,000 tons/hr. of coal. If 7.5% moisture is used rather than 15%, the equation yields 3.0 lbs./hr. Furthermore, on the face of it, 1.14 lbs. appears to be a small quantity of emissions relative to the open transfer of 4,000 tons.

Due to the issues discussed above, we would prefer to see a standard for opacity from transfer operations of 5%, rather than the 20% proposed in the application. Another aspect leading to a 5% standard is the applicant's statement (reference "Design Criteria 2.2.4") that "control of fugitive dust emissions will be achieved . . . by wet dust suppression . . ." The measure of achievement of that control can be the achievement of 5% opacity.

Mr. Hamilton S. Owen, P.E.
March 24, 1993
Page 2

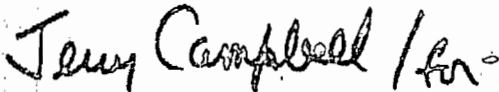
2. It is not clear from the application what the relative change in emissions or coal throughput would be. It appears that an increase of 1,700,000 TPY is proposed. It would be of interest to know how much the coal yard has been handling previously and what the prior emissions were.

3. The application discusses loading of one hundred sixty-five 28 ton trucks per day (reference "Design Criteria 2.2.1"). Although not part of air permitting, it appears that the environmental impacts of truck traffic would be addressed by Tallahassee as part of this application.

4. Does the annual movement of 1.7 million tons of coal arriving in Tampa Bay by barge and being trucked to the neighboring county, trigger the need for a development of regional impact review?

Thank you for the opportunity to provide comment.

Sincerely,



Iwan Choronenko
Director
Air Management Division

ph

cc: Sara Fotopoulos, Chief Counsel, EPC
Bill Thomas, DER
Julia E. Greene, Executive Director, TBRPC

Larry ?

State of Florida
Department of Environmental Regulation

District Routing Slip

To: BILL THOMAS Date: 10/7

C.C. To:

| | | | |
|---|------------------------|-------------------------------------|--|
| | Pensacola | Northwest District | |
| | Panama City | Northwest District Branch Office | |
| | Tallahassee | Northwest District Branch Office | |
| | Apalachicola | Northwest District Satellite Office | |
| ✓ | Tampa | Southwest District | |
| | Punta Gorda | Southwest District Branch Office | |
| | Bartow | Southwest District Satellite Office | |
| | Orlando | Central District | |
| | Melbourne | Central District Satellite Office | |
| | Jacksonville | Northeast District | |
| | Gainesville | Northeast District Branch Office | |
| | Fort Myers | South District | |
| | Marathon | South District Branch Office | |
| | West Palm Beach | Southeast District | |
| | Port St. Lucie | Southeast District Branch Office | |

Reply Optional Reply Required Info Only
 Date Due _____ Date Due: _____

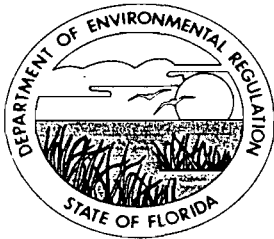
Comments:

D.E.R.

OCT 09 1992

SOUTHWEST DISTRICT TAMPA

From: BUCK OVEN Tel.: 277-0472



Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

October 7, 1992

Mr. Lynn F. Robinson
Tampa electric Company
P.O. Box 111
Tampa, Florida 33601-0111

Re: TECO Big Bend Modification PA 79-12

Dear Mr. Robinson:

The Department of Environmental Regulation has initiated its review of your request for modification of the Big Bend Station's coal yard. Analysis of the air modeling revealed impacts that are well below the significant impact levels for particulate matter for both the annual and 24-hour averaging periods. However, upon reviewing the PSD analysis for Big Bend Unit 4, it was noticed that the predicted maximum annual average TSP concentration exceeded the new particulate matter annual standard for PM_{10} of $50 \text{ ug}/\text{m}^3$. There is some concern that the small increase in particulate matter emissions in conjunction with any contemporaneous increases may show violations of the ambient standard. There is also some concern regarding the 24-hour ambient standard. TECO should satisfy the Department that all particulate matter ambient air quality standards are met or that your sources do not significantly contribute to a violation of a standard. It is suggested that you submit a complete and detailed list of all contemporaneous particulate matter emission changes to help resolve this matter.

If you have questions regarding these concerns, you may wish to contact Max Linn at (904) 488-6140.

Sincerely,

Hamilton S. Oven

Hamilton S. Oven, P.E.
Administrator, Siting
Coordination Office

cc: Clair Fancy
✓ Bill Thomas
Max Linn
Jerry Campbell



Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

September 21, 1992

Mr. Lynn F. Robinson
Tampa electric Company
P.O. Box 111
Tampa, Florida 33601-0111

Re: TECO Big Bend Modification PA 79-12

Dear Mr. Robinson:

The Department of Environmental Regulation has received your request for modification of the Big Bend Station's coal yard. Enclosed is a receipt for the modification fee. Please provide a copy of the modification materials to the Hillsborough County Environmental Protection Commission, Air Management Division.

Sincerely,

Hamilton S. Owen

Hamilton S. Owen, P.E.
Administrator, Siting
Coordination Office

cc: Clair Fancy
Bill Thomas



State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

| For Routing To Other Than The Addressee | |
|---|------------------------|
| To: <u>Bill Thomas</u> | Location: <u>Tampa</u> |
| To: _____ | Location: _____ |
| To: _____ | Location: _____ |
| From: _____ | Date: _____ |

Interoffice Memorandum

TO: Power Plant Siting Review Committee
FROM: Buck Oven *qfo*
DATE: September 21, 1992
SUBJECT: TECO Big Bend Station - PA 79-12
Mod 8022

We have received the attached request for modification of the certification for the Tampa Electric Company Big Bend Power Station coal yard. Copies of the modification are being distributed. Any completeness comments should be sent to me by October 21, 1992.

cc: Clair Fancy
Tom Rogers
Bill Thomas
Richard Donelan



RECEIVED
SEP 21 1992
OFFICE OF ENVIRONMENTAL REGULATION

September 17, 1992

Mr. Hamilton S. Oven, Jr., P.E.
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Federal Express
Air Bill 2228300034

Re: Tampa Electric Company (TEC)
Big Bend Site Certification


Dear Mr. Oven:

Consistent with Section 403.516, Florida Statutes, TEC is requesting a modification to the Big Bend Station's site certification. The proposed modification involves changes in the coal yard to facilitate the loading of coal into the trucks for off site delivery. TEC has enclosed four (4) copies of the proposed modification, along with a check in the amount of \$10,000.00, to modify the site certification.

Additionally, TEC is providing you four (4) copies of an equipment replacement of the north pile reclaimer to update your files. TEC plans to commence this equipment replacement upon acknowledgement from you.

In accordance with our meeting of August 31, 1992, it is TEC's understanding that the above submittal will adequately address the Department's review requirements. If you have any further questions, please feel free to call Ms. Janice Taylor or me at (813) 228-4839.

Sincerely,


Lynn F. Robinson
Manager
Environmental Planning

PA 79-12

gt\QQ543

Enclosures

8022



Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

July 11, 1991

Lynn F. Robinson, P.E.
Tampa Electric Company
Post Office Box 111
Tampa, Florida 33601-0111

RE: Tampa Electric Company
Big Bend Unit 4
PA 79-12

Dear Mr. Robinson:

The Department has reviewed your June 7, 1991, letter concerning the pugmill for the Big Bend 4 ash silo. We have no objection to its construction. Please notify the Southwest District Office when construction is complete and the scheduled date for a verification test.

Sincerely,

Hamilton S. Owen, Jr. P.E.
Administrator
Siting Coordination Office
Division of Air Resources
Management

HSO/ah

cc: Bill Thomas, SWD ✓
Jerry Campbell, EPCHC

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

DISTRICT ROUTING SLIP

TO: BILL THOMAS

DATE: 5/22

CC:
TO:

| | | | |
|---|------------------------|---|------------------------------------|
| | PENSACOLA | Northwest District | |
| | PANAMA CITY | Northwest District Branch Office | |
| | TALLAHASSEE | Northwest District Branch Office | |
| ✓ | TAMPA | Southwest District | |
| | ORLANDO | Central Florida District | |
| | MELBOURNE | Central Florida District Branch Office | |
| | JACKSONVILLE | Northeast District | |
| | GAINESVILLE | Northeast District Branch Office | |
| | FORT MYERS | South Florida District | |
| | PUNTA GORDA | South Florida District Branch Office | |
| | MARATHON | South Florida District Branch Office | |
| | WEST PALM BEACH | Southeast Florida District | |
| | PORT ST. LUCIE | Southeast Florida District Branch Office | |
| Reply Optional <input type="checkbox"/> | | Reply Required <input type="checkbox"/> | Info Only <input type="checkbox"/> |
| Date Due: _____ | | Date Due: _____ | |

COMMENTS:

D.E.R.

MAY 24 1991

SOUTHWEST DISTRICT TAMPA

H. OVEN
FROM:

8-1344
TEL:



Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

May 22, 1991

Lynn F. Robinson, P.E.
Tampa Electric Company
Post Office Box 111
Tampa, Florida 33601-0111

RE: Tampa Electric Company
Big Bend Unit 4
PA 79-12

Dear Mr. Robinson:

Your letter of May 15, 1991, referenced the future installation of a pugmill on the Big Bend Unit 4 fly ash silo. In addition to the location drawing, please provide sufficient drawings and design details to demonstrate that the pugmill will not be a source of air pollution or water pollution.

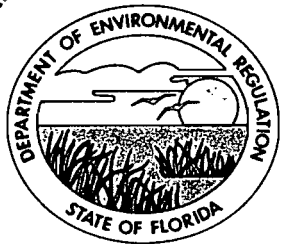
Sincerely,

Hamilton S. Owen, Jr. P.E.
Administrator
Siting Coordination Office
Division of Air Resources
Management

HSO/ah

cc: Bill Thomas, SWD
Jerry Campbell, EPCHC

Bill s.



Florida Department of Environmental Regulation

Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347 • 813-623-5561

Bob Martinez, Governor

Dale Twachtman, Secretary

John Shearer, Assistant Secretary
Dr. Richard Garrity, Deputy Assistant Secretary

October 22, 1990

D. E. R.

OCT 23 1990

SOUTHWEST DISTRICT
TAMPA

The Honorable S. L. Clements
State Representative
Post Office Box 2370
Brandon, Florida 33509-2370

RE: TAMPA ELECTRIC COMPANY
Big Bend Station

Dear Representative Clements:

This letter is in regard to our recent joint visit to the referenced facility as requested by Mr. Bobby Glover. We have investigated each item that was presented. The results follow.

1. Complaint

The condenser cooling water discharge is limited to a maximum temperature of 92°F; however, Mr. Glover has measured the temperature at 102°F.

Response

The referenced facility has been granted thermal mixing zones of 4980 acres for condenser cooling water discharges from Unit 4 and 4580 acres for discharges from Units 1, 2 and 3. The maximum allowable temperature at the points of discharge is specified as 109°F in the Unit 4 siting certification as well as the State permit for Units 1, 2 and 3.

The reading of 102°F which Mr. Glover obtained is therefore in regulatory compliance.

2. Complaint

The fine mesh screens with appropriate sprays and screen wash sluice return system for minimizing entrainment which are installed on the intakes of Units 3 and 4 are not being continuously operated.

Response

The requirement for operating the fine mesh screens on the intake structures of Units 3 and 4 with the organism return mechanisms was amended on October 6, 1987, by the Governor and Cabinet. The new requirement is that the fine mesh screens and organism return mechanisms be operated from March 15 through October 15 of each year. We will remind Tampa Electric Company of these dates.

3. Complaint

Gypsum is falling into the discharge canal and other ditching from an overhead conveyor belt installation.

Response

Other than some very minor spots, it could not be confirmed that gypsum is falling from the conveyor belt at any location to cause problems.

4. Complaint

Runoff from the gypsum stockpile is polluting surface waters of the State.

Response

We were not able to attribute coloration of the ditch water to gypsum contaminated runoff, and the gypsum stockpile is completely surrounded by an appropriately-sized berm.

5. Complaint

Tampa Electric Company has dumped solid waste into a pond on its property adjacent to 420 Noonan Branch Road.

Response

The Department's Division of Waste Management inspected and confirmed the validity of the complaint. Solid waste consisting mainly of land clearing debris has been disposed of in a pond on the property and a meter box, metal conduit and part of the exhaust system from a diesel motor were observed along the pond's western bank.

State legislation on solid waste prohibits the disposal of solid waste in water. Waste Management has requested that Tampa Electric Company remove the solid waste from the property. See Attachment I.

6. Complaint Tampa Electric Company has dumped debris and used construction materials into a jurisdictional area off of Noonan Road.
- Response The District's Water Management Program has investigated and confirmed that the complaint is valid. Tampa Electric Company has been contacted in regard to settlement of the violations.
7. Complaint The sediments from the bottom ash pond are dredged up and stored on the ground at a site adjacent to Big Bend Road. Leachate from the bottom ash pile could be polluting nearby residents' water supply.
- Response The bottom ash is being purchased from Tampa Electric Company by an industrial facility and stored at the site on Big Bend Road prior to transporting it to the plant for processing. Monitoring wells positioned downgradient of the subject storage site show no violations of the primary drinking water standards.
8. Complaint Fugitive emissions from the gypsum stack blow onto Mr. Glover's property during windy days.
- Response This statement could not be confirmed although it is conceivable that it may occur. Wetting of the gypsum is supposed to minimize the possibility but we will ask Tampa Electric Company to take special precautions to be sure they are using all due efforts to abide by our permit conditions.
9. Complaint Mr. Glover often finds coal dust on his property and presumes that the dust consists of fugitive emissions from coal handling at the power station.
- Response The samples taken at the Glover residence did not show a significant amount of coal dust or fly ash. The special purpose air monitoring results indicated that only trace amounts of fly ash were present in the Apollo Beach area. The annual stack test report indicated no violations of Chapter 17-2, Florida Administrative Code.

10. Complaint Acid rain and other fallout from the smoke stacks are causing accelerated weathering of Mr. Glover's property and are placing environmental stress on his plants and trees.

Response Mr. Glover's supposition regarding acid rain fallout from the stack could not be substantiated. Due to the height of the stack (490 feet), we would not expect acid rain to form in the immediate environs.

11. Complaint Subsequent to our meeting with Mr. Glover at the site, a report of possible noncompliance with applicable environmental regulations regarding stack emissions on September 12 and 13, 1990, was received.

Response Mr. Jerry Campbell of the Environmental Protection Commission of Hillsborough County (EPCHC) has informed us that, on both of the above-cited days, Tampa Electric Company was in regulatory compliance. It was noted, however, that on September 13, 1990, readings of up to 70% opacity in the stack discharge were obtained. The statutes require only that the opacity values show an average of 20% over each six-minute interval, however. The highest six-minute opacity average was 15% and the average standard was thus met.

12. Complaint During operations at the coal offloading station, coal spills into the waters of the Hillsborough Bay. Coal is also periodically hosed into the Bay from the deck of the delivery ship.

Response Off-loading was not taking place at the time of our inspection of the coal transfer facilities. Representatives of GC Service Company, Inc., stated that the deck of the ship is hosed to keep it cool during performance of maintenance work within the barge, but that the deck is always cleaned prior to such operations.

The allegation that coal spills into the Bay during off-loading was verified. Letters requiring corrective action plans from Tampa Electric Company and GC Service Company, Inc., within a given time period have been posted. See Attachments II and III.

13. Complaint

When inspectors arrive at the facility to conduct an inspection for determination of regulatory compliance, they are required to wait approximately two hours before being admitted to the premises. An unannounced evaluation of the normal compliance status is therefore not possible.

Response

We have found that in the past there may have been lengthy waiting periods. In order to gain prompt admittance, compliance inspectors have had to notify Tampa Electric Company of the time of arrival in advance. The permittee has been asked to make arrangements for immediate admittance of compliance personnel in the future. If such is not given, appropriate enforcement measures will be taken.

Thank you for the time that you have spent in bringing this matter to our attention. Mr. Glover's interest in protecting the environment is appreciated. If we can be of further help, please contact us.

Sincerely,



Richard D. Garrity, Ph.D.
Deputy Assistant Secretary
Southwest District

RDG/hdw

cc: Jerry L. Williams, Director-Environmental, Tampa Electric Company
Rodney A. Palmer, General Manager, GC Service Company, Inc.
Roger Stewart, Director, EPCHC
Michael S. Hickey, P.E., Water Programs
Administrator, Southwest District
William C. Thomas, P.E., Air Program
Administrator, Southwest District
Bob Stetler, Water Management Administrator, Southwest District
Bobby Glover



Florida Department of Environmental Regulation

Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347 • 813-623-5561

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

Dr. Richard Garrity, Deputy Assistant Secretary

September 14, 1990

Mr. Jerry L. Williams
 Director - Environmental
 Tampa Electric Company
 Post Office Box 111
 Tampa, FL 33601-0111

Dear Mr. Williams:

District personnel conducted an inspection of TECO property located adjacent to 420 Noonan Branch Road on September 12, 1990 in response to a complaint. The complaint investigation revealed that solid waste consisting mainly of land clearing debris has been disposed of in the pond on the property. The inspector also observed a meter box, metal conduit and part of the exhaust system from a diesel motor along the pond's western bank.

The State's legislation on solid waste prohibits the disposal of solid waste in water. It is my understanding that in June, 1990, TECO removed some of the solid waste, white goods and construction and demolition debris, from this pond. The Department requests that TECO remove the remainder of the solid waste from the property. The Department would advise TECO to install a fence or some type of access control at this site in order to prevent any promiscuous dumping.

Please advise of your plans to complete cleanup of this property. You may direct your plans and any questions you may have on this matter to Ms. Sandra Tippin of the District's Solid Waste Program at (813) 623-5561, extension 370.

Sincerely,

Clabe Polk
 Administrator
 Division of Waste Management

CRP/stc



Florida Department of Environmental Regulation

Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347 • 813-623-5561

Bob Martínez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary
Dr. Richard Garrity, Deputy Assistant Secretary

September 19, 1990

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Patrick Ho
Manager of Environmental Planning
TAMPA ELECTRIC COMPANY
Post Office Box 111
Tampa, Florida 33601-0111

RE: Big Bend Station

Dear Mr. Ho:

Mr. Richard Schmitz of the Environmental Protection Commission of Hillsborough County (EPCHC) and I would like to thank you for the courtesies extended during our visit to the referenced facility on September 5, 1990. As discussed, it was determined that coal is being discharged into the Hillsborough Bay from the storage area as described below.

Containment had been installed underneath the portion of the conveyor belt which is situated above the waters of the Bay. Spillage to the ground occurring past the shoreline is therefore not contained, however, and rolls back down into waters of the State.

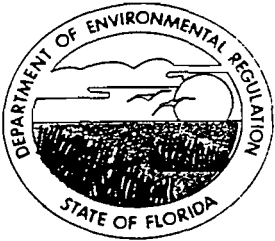
Please present your written and illustrated proposal for containment of the above-described spillage within 21 days of receipt of this communication. If we can be of assistance, please call.

Sincerely,

Henry B. Dominick
Compliance/Enforcement Engineer
Industrial Waste Program

HBD/saw

cc: Rodney A. Palmer, G C Service Company, Inc.
Chris Dunn, EPCHC
Richard Schmitz, EPCHC



Florida Department of Environmental Regulation

Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347 • 813-623-5561

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary
Dr. Richard Garrity, Deputy Assistant Secretary

September 18, 1990

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Rodney A. Palmer
General Manager
G C SERVICE COMPANY, INC.
5405 West Cypress Street
Suite 300
Tampa, Florida 33607

RE: Tampa Electric Company
Big Bend Station
Coal Offloading Facilities

Dear Mr. Palmer:

Mr. Richard Schmitz of the Environmental Protection Commission of Hillsborough County (EPCHC) and I would like to thank you for the courtesies extended during our visit to the referenced site on September 5, 1990. The facility was not in operation at that time. As discussed, it was determined that coal is being discharged to the Hillsborough Bay during offloading as well as when the facility is not in operation. Details follow.

1. Coal spillage had been swept into a pile and was left standing adjacent to the edge of the dock. Any occurring rainfall would wash the coal into the Bay.
2. Coal had been piled around rails on the surface of the dock at vehicular access locations in order to mitigate bumping. Stormwater would effect a discharge to the Bay.
3. It was obvious that, during operation of the facility, spillage of coal from the conveyor belts onto the dock and loss of a portion thereof into the Bay would occur. Furthermore, any precipitation would wash material present on the dock overboard.

Mr. Rodney A. Palmer
Page Two

4. A number of expansion joints in the dock provide approximately 1 1/4-inch apertures through which a significant volume of coal will fall into the water below.
5. The offloading dock has numerous floor drains into which coal is being discharged during operation of the facilities. The destination of these appears to be the Bay waters below.

Some of the above-listed deficiencies were noted by the EPCHC in previous inspections. Within 30 days of receipt of this communication, you are requested to submit a written proposal of the corrective measures to be implemented. If we can be of assistance, please call.

Sincerely,



Henry B. Dominick
Compliance/Enforcement Engineer
Industrial Waste Program

HBD/saw

cc: Patrick Ho, Tampa Electric Company
Chris Dunn, EPCHC
Richard Schmitz, EPCHC

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241



BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

May 6, 1985

Mr. James T. Wilburn, Chief
Air Management Branch
USEPA-Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Re: Modification to PSD-FL-040
TECO Big Bend Unit 4

D. E. R.
MAY 8 1985
SOUTH WEST DISTRICT
HILLS
TAMPA

Dear Mr. Wilburn:

This is to acknowledge the receipt of your March 12, 1985 letter requesting a public notice to be published prior to a modification of the above referenced permit.

Tampa Electric Company (TECO) requested that the carbon monoxide (CO) emission limits contained in this permit be changed to correct an error when an incorrect emission factor was used in their application. The correction of this error will result in a theoretical significant increase in the CO emission limits. At your request, we have enclosed a copy of the proof of publication so you can proceed to revise the PSD permit to reflect the emission change for CO.

Should you require any further information, please feel free to contact me.

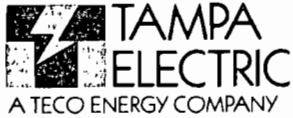
Sincerely,

C. H. Fancy
C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management

CHF/ES/s

cc: Richard Garrity ✓
Iwan Choronenko
Jerry Williams

attachment



DER
MAY 3 1985
BAQM

May 1, 1985

Mr. C.H. Fancy, P.E.
State of Florida
Department of Environmental
Regulation
Bureau of Air Quality
Management
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

Re: Proof of Public Notice
Modification to PSD-FL-040
Big Bend Unit #4

Dear Mr. Fancy:

Please find attached a copy of the "Public Notice" for the above referenced source as published in the Tampa Tribune on Saturday, April 20, 1985.

If you have any questions, please call.

Sincerely,

A. Spencer Autry
Manager
Environmental Planning

ASA/jst/024/3

attached

cc: Richard Garrity
Iwan Choronenko

MAY 01 1985

THE TAMPA TRIBUNE

Published Daily
Tampa, Hillsborough County, Florida

ENVIRONMENTAL
PLANNING

State of Florida }
County of Hillsborough } ss.

Before the undersigned authority personally appeared
G. T. Gleason, who on oath says that he is Controller of The Tampa Tribune, a daily
newspaper published at Tampa in Hillsborough County, Florida; that the attached copy
of advertisement being a

LEGAL NOTICE

in the matter of PUBLIC NOTICE BY THE TAMPA ELECTRIC
COMPANY REQUESTED THAT THEIR PREVENTION OF
SIGNIFICANT DETERIORATION PERMIT (PSD-FL-040)

was published in said newspaper in the issues of
-----APRIL 20th, 1985-----

Affiant further says that the said The Tampa Tribune is a newspaper published at
Tampa, in said Hillsborough County, Florida, and that the said newspaper has
heretofore been continuously published in said Hillsborough County, Florida, each day
and has been entered as second class mail matter at the post office in Tampa, in said
Hillsborough County, Florida, for a period of one year next preceding the first publica-
tion of the attached copy of advertisement; and affiant further says that he has neither
paid nor promised any person, firm, or corporation any discount, rebate, commission or
refund for the purpose of securing this advertisement for publication in the said
newspaper.

G. T. Gleason

Sworn to and subscribed before me, this 22nd day
of APRIL 1985

Debra Anne Bouchard
Notary Public, State of Florida

My Commission Expires Jan. 6, 1989
Bonded Thru Troy Fain - Insurance, Inc.

(SEAL)

PUBLIC NOTICE
On January 30, 1985, the
Tampa Electric Company re-
quested that their Prevention
of Significant Deterioration
permit (PSD-FL-040) for the
coal-fired boiler, Unit 4, at the
Big Bend facility near Ruskin,
Florida, be revised. The re-
quested revision will result in
a projected increase of 271
tons per year of carbon
monoxide.
EPA has reviewed the pro-
posal to increase emissions.
The increase is due to an
error in emissions calculations
for this source and no process
or structural modifications
are involved. The projected
increase in emissions from
272 tons per year to 543 tons
per year of carbon monoxide

will increase the ambient
concentration (8 hour
average) to approximately 26
ug/m3. The significant level
for carbon monoxide is 575
ug/m3 and therefore, no
adverse impacts are expected
due to the increase. The best
available control technology
has been determined to be
proper combustion controls
and is not changed in this pro-
posed revision.
Any person may submit
written comments regarding
this proposed permit revision.
All comments must be re-
ceived not later than 30 days
from the date of this notice in
order to be considered. A pub-
lic hearing may be held if surfi-
cient justification is provided,
as determined by the Adminis-
trator. Letters should be ad-
dressed to:
Mr. Clair Fancy, P.E.
State of Florida
Department of
Environmental Regulation
Bureau of Air
Quality Management
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301
2111 4/20/85

Hamilton Owen

File



June 8, 1985

Mr. Jack Ravan
Administrator
United States Environmental
Protection Agency
Region IV
345 Courtland Street
Atlanta, Georgia 30365

D. E. R.

JUN 10 1985

**SOUTH WEST DISTRICT
TAMPA**

Re: Tampa Electric Company
Proposed Backup NO_x Continuous
Emission Monitor
Big Bend Station Unit 4
PSD-FL-040

Dear Mr. Ravan:

In order to ensure that the minimum Nitrogen Oxide (NO_x) monitoring data capture requirements are met for the above referenced source, Tampa Electric Company proposes to utilize a back-up NO_x monitor whenever the primary NO_x monitor is inoperative. The monitor proposed is a Dupont Model 461 extractive NO_x analyzer located between the electrostatic precipitator and the flue gas desulfurization system.

Pursuant to 40 CFR 60.47 a(f), Tampa Electric Company requests that the above NO_x monitor be approved as a back-up system for purposes of satisfying minimum emissions data capture.

To ensure that the data collected by the monitor is accurate and representative, a monitor performance evaluation will be conducted in accordance with the applicable Performance Specification in Appendix B of 40 CFR 60. We have scheduled the performance evaluation to begin on July 8, 1985.

If you should have any questions, please feel free to call me.

Sincerely,

A. Spencer Autry
Manager
Environmental Planning

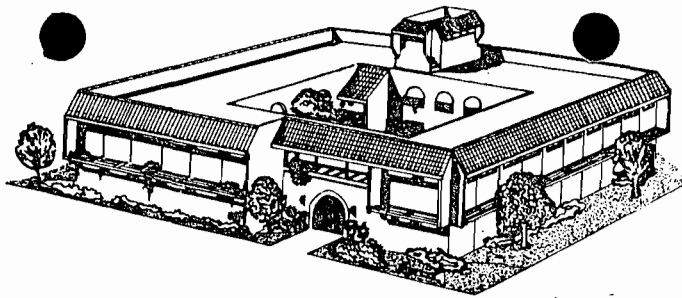
ASA/jst/002/6

cc: Hamilton S. Owen

HILLSBOROUGH COUNTY
ENVIRONMENTAL PROTECTION

COMMISSION

RODNEY COLSON
RON GLICKMAN
PAM IORIO
RUBIN E. PADGETT
JAN KAMINIS PLATT
JAMES D. SELVEY
PICKENS C. TALLEY II



ROGER P. STEWART
DIRECTOR

1900 - 9th AVE
TAMPA, FLORIDA 33605

TELEPHONE (813) 272-5960

D. E. R.

August 28, 1985

AUG 30 1985

Mr. A. Spence Autry, Manager
Environmental Planning
Tampa Electric Company
P. O. Box 111
Tampa, FL 33601

SOUTHWEST DISTRICT
TAMPA

Re: Ambient Sulfur Dioxide (SO₂) Exceedance Recorded at TECO Station
B4 on June 10, 1985

Dear Mr. Autry:

This is in response to your second quarter ambient report submitted on July 30, 1985. The exceedance recorded at station B4 for both the three and twenty-four standards is of great concern to this agency. As such, we intend to study this event very carefully in an attempt to understand what lead to it and how to prevent it from occurring in the future.

We request your cooperation in providing us with the following information:

1. Which of the continuous SO₂ monitors in TECO's network of eight stations meets the requirements of Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD), EPA 450/2-78-019, May, 1978, and 40 CFR 58 Appendix B?
2. List the hourly SO₂ values for each of the eight stations for June 10, 1985.
3. Provide any wind direction and wind speed data you have for the Big Bend area for June 10, 1985.
4. For any of the units at Big Bend which operated on June 10, 1985, list the amount and type of fuels used and copies of fuel analyses containing information on sulfur content, ash content and heating values. Include the hourly power generated by each unit.
5. Provide a copy of the strip charts for the SO₂ continuous emission monitors on the inlet and the outlet of the flue gas desulfurization system for Big Bend Unit #4.

Mr. A. Spence Autry
Tampa Electric Company
August 28, 1985
Page 2

6. List the second highest three hour and twenty-four hour SO₂ concentrations recorded at station B4 in June, 1985. Do not include any three hour averages from June tenth.
7. List the date of any other SO₂ exceedance recorded by any of your monitors since 1976. Provide any pertinent information dealing with that event. Our records indicate we recorded a number above the twenty-four hour standard on May 13, 1977, but the data could not be substantiated because of quality assurance limits. Jeff Rankin apparently sent some information to this agency, but we can not locate the enclosures (see attached letter of June 10, 1977). A copy of those enclosures would be appreciated.

Our request under item #6 highlights the need to consider a more thorough reporting format. We would like to amend the report, yet minimize the time and the effort expended putting it together. Naturally we are particularly interested in the higher numbers. At a minimum, we would like to be provided with: the highest, the second highest, and the third highest three hour and twenty-four hour averages for the month; the date and the time of each event; the wind speed and the wind direction at your nearest meteorological station if the concentrations are greater than fifty percent of the standard; and the information requested under items 2 through 5 if the concentration exceeds the standard. If you have any objections or recommendations to such an amended report, then we would be agreeable to discussing this further.

To the best of our knowledge, the monitoring conducted as a result of the SO₂ standards for the Big Bend Station set in 1978 does not have a specific reporting time table. Certainly receipt of the report thirty days following the calendar quarter is considered timely. The thirty days is a requirement though for the monitoring required by the Conditions of Certification for Big Bend Unit Four. That data must be inputted in a SAROAD format and is far more detailed than we need. Perhaps the summaries we receive could be prepared at the same time. In the future, all reports should be sent to my attention - not Dale Coe.

This proposed schedule is not appropriate if an exceedance is recorded. Any recorded exceedance of any ambient standard should be reported as soon as possible. TECO's decision not to report the exceedances of June 10, 1985, until July 30, 1985, is disturbing. I would certainly hope that it was merely coincidental that the exceedances were reported only days after the renewed operating permits were issued for Big Bend Units Two and Three. You recall that the one application was held in abeyance for over two years because of our concerns about the "old" compliance plan for SO₂.

Mr. A. Spence Autry
Tampa Electric Company
August 28, 1985
Page 3

Your prompt attention to this matter will be appreciated. If you have any questions or comments concerning the contents of this letter, please contact me.

Sincerely,



Jerry Campbell, P.E.
Chief, Air Engineering Section
Hillsborough County Environmental
Protection Commission

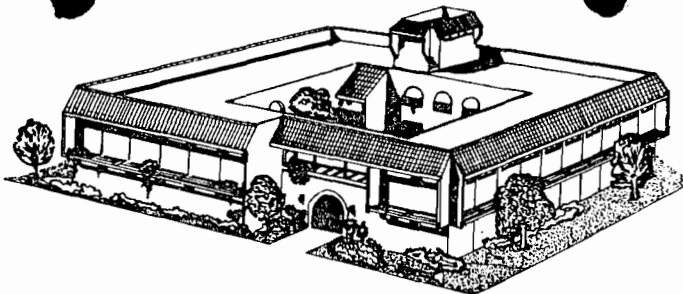
cc: Bill Thomas

JC/ch

HILLSBOROUGH COUNTY
ENVIRONMENTAL PROTECTION

COMMISSION

RODNEY COLSON
RON GLICKMAN
PAM IORIO
RUBIN E. PADGETT
JAN KAMINIS PLATT
JAMES D. SELVEY
PICKENS C. TALLEY II



*file
Teco Big Bend #4*

ROGER P. STEWART
DIRECTOR

1900 - 9th AVE
TAMPA, FLORIDA 33605

TELEPHONE (813) 272-5960

August 29, 1985

Mr. Spencer A. Autry, Manager
Environmental Planning
Tampa Electric Company
Post Office Box 111
Tampa, FL 33601

CERTIFIED MAIL #P 146 727 173

D. E. R.

AUG 30 1985

SOUTH WEST DISTRICT
TAMPA

Dear Mr. Autry:

This letter is in reference to compliance testing of all emission points and reporting requirements associated with the coal, limestone, and flyash handling facilities at the TECO Big Bend station.

Our Agency received a copy of a cover letter sent to Mr. Hamilton S. Oven, Jr. dated October 12, 1981. This letter indicates Attachments 1, 2, and 3 of the letter are submitted in accordance with the requirements of Section I.A.3.b. of the Conditions of Certification for TECO's Big Bend Unit 4. Neither the Florida Department of Environmental Regulation nor our Agency has copies of these attachments. Pursuant to Section 8 of Chapter 84-446 of the Laws of Florida, please provide our Agency with copies of Attachments 1, 2, and 3.

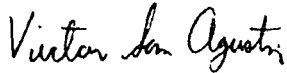
Our Agency also received visible emissions test results for a flyash silo baghouse designated as #3, a limestone day silo baghouse, and a limestone unloading facility. Section I.A.4. and 5. of Site Certification PA 79-12 indicates there are other flyash silos and limestone day silos. In addition, an inspection of the limestone handling facility shows we have reason to believe there are three other additional baghouses on top of the two limestone day silos. It was also observed there are two partially open belt to belt transfer points located outdoors, between the limestone silos and the truck unloading station. We also have reason to believe they are additional emission points. Please confirm whether or not the 3 "boxes" on top at the limestone silos are pollution control devices and whether or not the two belt to belt transfer points are additional emission points. If so, pursuant to Section I.A.6. of Site Certification PA 79-12 and Section 12 of Chapter 84-446 of the Laws of Florida, please submit visible emission tests for the additional emission points and identify each emission point in a plot plan which shows the sources in the limestone and flyash handling facilities.

Mr. Spencer A. Autry, Manager
Tampa Electric Company
August 29, 1985
Page 2

When you schedule the additional visible emissions testing, please provide our Agency at least 10 days advance notice so our compliance inspectors can arrange an inspection visit.

Your cooperation in this regard will be appreciated. Please submit all of the above documentation within 30 days of receipt of this letter.

Sincerely,



Victor San Agustin
Senior Air Permitting Engineer
Hillsborough County Environmental
Protection Commission

cc: Hamilton Owen, FDER
Bill Thomas, SWFDER

VSA/ch

STATE APIS
9-13
COUNTY
CO 9-25

HILLSBOROUGH COUNTY ENVIRONMENTAL
PROTECTION COMMISSION

TYPE III

INSPECTION REPORT
EXECUTIVE SUMMARY

103984

PLANT NAME TECO BIG BEND NEDS 039 DATE/TIME 9-4-85 8:30 AM

PLANT LOCATION RUSKIN FL. # OF NEDS POINTS 9

PROCESS DESCRIPTION UNIT #4 ELECTRIC POWER GENERATION
LIMESTONE HANDLING & FLY ASH HANDLING

COMPLIANCE VERIFICATION
ENFORCEMENT
ANNOUNCED
PERSONS CONTACTED-TITLE

PERMIT REVIEW
OTHER
UNANNOUNCED

KAREN SHEFFIELD / SENIOR PE BOB STAFFORD DAVID JELLYSON

NEDS POINTS
CHECKED 04

NEDS POINTS
IN COMPLIANCE 04

NEDS POINTS
IN VIOLATION 0

SUMMARY OF FINDINGS THIS INSPECTION WAS CONDUCTED TO DETERMINE
INITIAL COMPLIANCE TO VISIBLE EMISSIONS STANDARDS AND OVERALL
COMPLIANCE DURING START UP TESTING. LOCATION AND LABELING
OF SILOS AND BAGHOUSES IS INCLUDED LATER IN THIS REPORT.

LIMESTONE IS USED IN THE FGD SYSTEM AND IS STORED IN 2
SILOS LOCATED IN THE EAST END OF THE FACILITY WITH THE NORTH
SILO BEING SILO "B" AND THE SOUTH SILO BEING SILO "A". EACH SILO
IS CONTROLLED BY 2 BAGHOUSES, ONE BAGHOUSE ON EACH SILO
IS KEPT AS A STANDBY IN CASE OF BREAKDOWN, WITH THE WEST
BAGHOUSES LABELED "A-1" AND "B-1". DURING THIS INSPECTION ONLY
SILO A WAS BEING LOADED AND BAGHOUSE "A-1" WAS IN OPERATION.

TECO PERSONNEL HAD COMPLETED THEIR VE TESTING PRIOR TO MY
BEING GRANTED ENTRY ONTO PLANT GROUNDS BUT THE LOADING OF

INSPECTION COMMENTS FOR APIS (LIMIT 50 SPACES) THE SILO WAS STILL UNDERWAY
SO A VE WAS PERFORMED ON BAGHOUSE "A-1" AND IS ATTACHED.

ALTHOUGH IT WAS DIFFICULT TO ESTABLISH JUST WHERE THE

SPECTOR'S SIGNATURE Michael D. Silcott

OVER

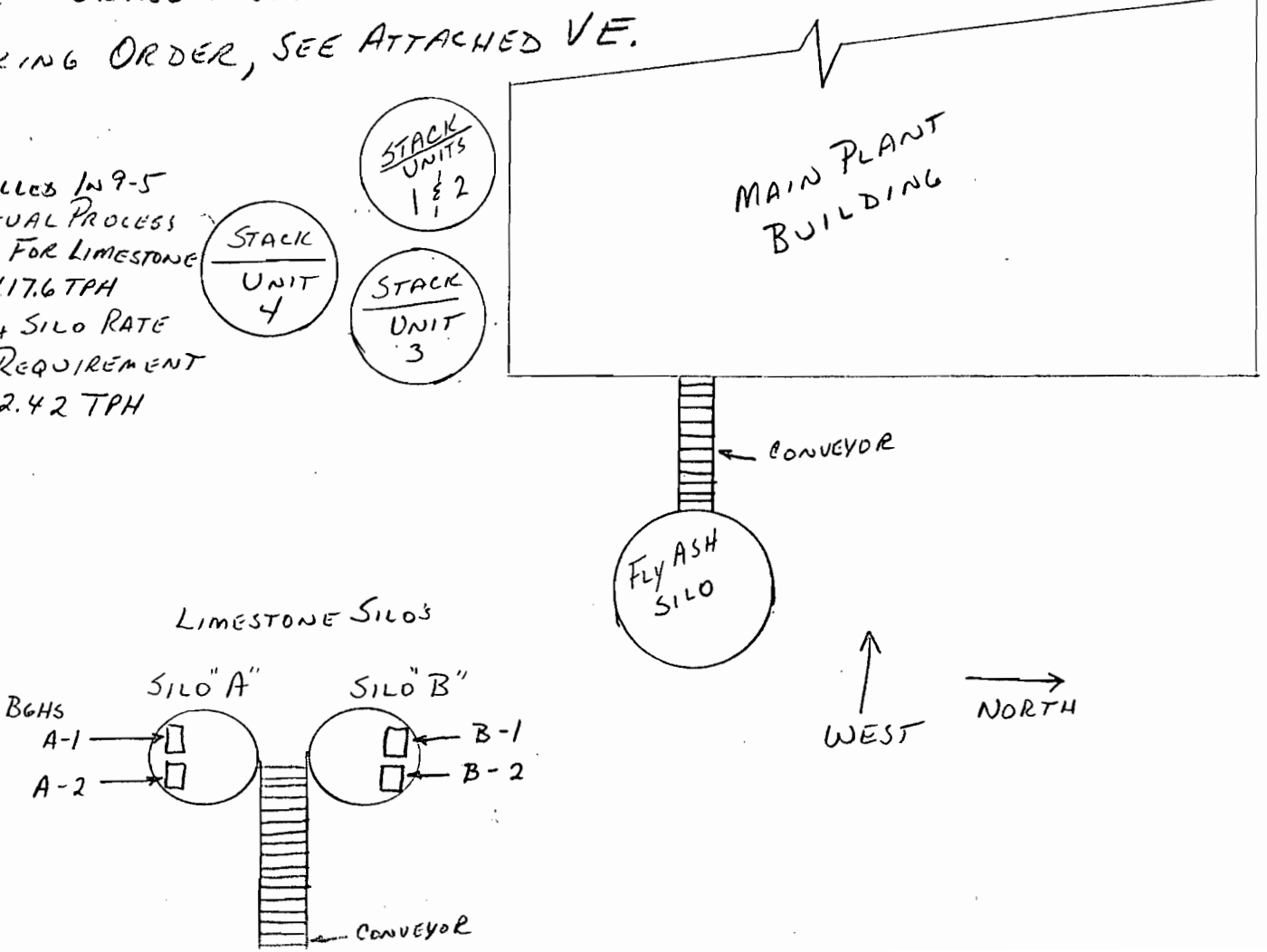
11

SOURCE MAP

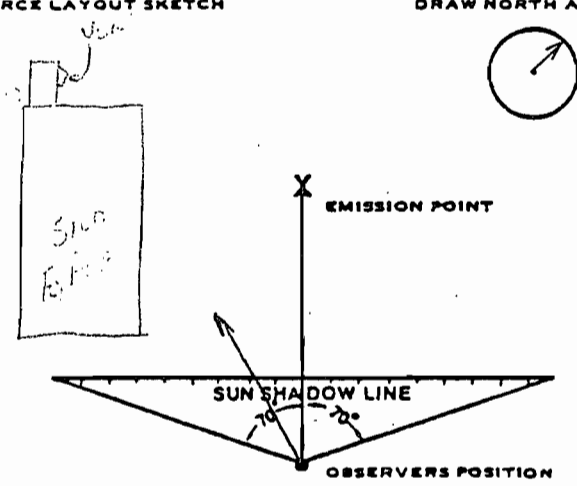
VENT. FROM THE BAGHOUSE IS LOCATED ABOVE WAS RECORDED
 TECO REPRESENTATIVES WERE INFORMED THAT A METHOD 9
 MUST BE PERFORMED ON ALL 4 BAGHOUSES ON THESE 2 SILOS
 INSTEAD OF JUST 1 BAGHOUSE PER SILO AS THEY HAD PREVIOUS
 THOUGHT TO BE THE REQUIREMENT. ANY QUESTIONS CONCERNING
 THIS TESTING WERE REFERRED TO VICTOR SAN AUGUSTIN FOR
 CONSIDERATION. THE SILO LOADING PROCESS RATE WAS
 ESTIMATED TO BE ABOUT THE DESIGN RATE OF 300TPH BUT
 THE EXACT AMOUNT, CALCULATED FROM TOTALIZER READINGS,
 WOULD BE CALLED IN BY KAREN SHEFFIELD.

THE FLY ASH SILO WAS BEING LOADED AT THE TIME OF THIS
 INSPECTION AT A RATE THAT CAN NOT BE VERIFIED DUE TO THE
 CONSTANTLY CHANGING FLY ASH REMOVAL RATE FROM THE BOILER.
 THE PERMITTED LOADING RATE WILL BE CONSIDERED AS THE PROCESS
 RATE DURING TESTING. SILO LOOKS TO BE NEW AND IN GOOD
 WORKING ORDER, SEE ATTACHED VE.

CALLS IN 9-5
 NOTE: ACTUAL PROCESS
 RATE FOR LIMESTONE
 SILO 417.6 TPH
 FLY ASH SILO RATE
 BY PSD REQUIREMENT
 22.42 TPH



VISIBLE EMISSION OBSERVATION FORM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|--|--|----|-----|---|--|----|---------------------------|----|----|-----|---|----|----|----|---|--|--|--|--|---|--|--|--|--|--|--|
| SOURCE NAME TECO BIG BEND #4 | | | OBSERVATION DATE 9-4-85 | | | | START TIME 10:41 | | STOP TIME 10:53 | | | | | | | | | | | | | | | | | | | |
| ADDRESS | | | <table border="1" style="width: 100%; text-align: center;"> <tr> <td>sec</td> <td>0</td> <td>15</td> <td>30</td> <td>45</td> <td>sec</td> <td>0</td> <td>15</td> <td>30</td> <td>45</td> </tr> <tr> <td>M</td> <td></td> <td></td> <td></td> <td></td> <td>M</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | | | | sec | 0 | 15 | 30 | 45 | sec | 0 | 15 | 30 | 45 | M | | | | | M | | | | | | |
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| CITY | | | STATE | | ZIP | | 1 | | | | | | | | | | | | | | | | | | | | | |
| PHONE | | | SOURCE ID NUMBER | | | | 2 | | | | | | | | | | | | | | | | | | | | | |
| PROCESS EQUIPMENT SILCO FLYASH | | | OPERATING MODE | | | | 3 | | | | | | | | | | | | | | | | | | | | | |
| CONTROL EQUIPMENT BALANCE | | | OPERATING MODE | | | | 4 | | | | | | | | | | | | | | | | | | | | | |
| DESCRIBE EMISSION POINT BAGHOUSE VENT | | | | | | | 5 | | | | | | | | | | | | | | | | | | | | | |
| HEIGHT ABOVE GROUND LEVEL 80 FT | | HEIGHT RELATIVE TO OBSERVER 80 FT | | | | | | 6 | | | | | | | | | | | | | | | | | | | | |
| DISTANCE FROM OBSERVER 150 FT | | DIRECTION FROM OBSERVER NW | | | | | | 7 | | | | | | | | | | | | | | | | | | | | |
| DESCRIBE EMISSIONS NONE | | | | | | | 8 | | | | | | | | | | | | | | | | | | | | | |
| EMISSION COLOR N/A | | PLUME TYPE: CONTINUOUS <input type="checkbox"/> | | | | | | 9 | | | | | | | | | | | | | | | | | | | | |
| WATER DROPLETS PRESENT NO YES <input type="checkbox"/> | | IS WATER DROPLET PLUME ATTACHED <input type="checkbox"/> | | | | | | 10 | | | | | | | | | | | | | | | | | | | | |
| AT WHAT POINT IN THE PLUME WAS OPACITY DETERMINED LIP OF VENT | | | | | | | 11 | | | | | | | | | | | | | | | | | | | | | |
| DESCRIBE BACKGROUND SKY | | | | | | | 12 | | | | | | | | | | | | | | | | | | | | | |
| BACKGROUND COLOR BLUE | | SKY CONDITIONS CLEAR | | | | | | 13 | | | | | | | | | | | | | | | | | | | | |
| WIND SPEED 10-15 MPH | | WIND DIRECTION EAST | | | | | | 14 | | | | | | | | | | | | | | | | | | | | |
| AMBIENT TEMPERATURE 88°F | | RELATIVE HUMIDITY 90% | | | | | | 15 | | | | | | | | | | | | | | | | | | | | |
| SOURCE LAYOUT SKETCH  | | | | | | | 16 | | | | | | | | | | | | | | | | | | | | | |
| COMMENTS | | | | | | | 17 | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | AVERAGE OPACITY FOR HIGHEST PERIOD 0% | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | NUMBER OF READINGS ABOVE 5% WERE 0 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | RANGE OF OPACITY READINGS 0 MINIMUM 0 MAXIMUM | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | OBSERVER'S NAME (PRINT) MICHAEL D. SILCOTT | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | OBSERVER'S SIGNATURE <i>Michael D. Silcott</i> | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | DATE 9-4-85 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | ORGANIZATION HC/ERC | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | CERTIFIED BY ETA | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | DATE 3-13-85 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | VERIFIED BY | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | DATE | | | | | | | | | | | | | | | | | | | | | |

VISIBLE EMISSION OBSERVATION FORM

BEST AVAILABLE COPY

| SOURCE NAME | | | OBSERVATION DATE | | | | START TIME | | STOP TIME | | | | |
|---|--|---|------------------------------------|----|---|----|---------------------------|-----|-------------------------|----|----|----|--|
| TECO B16 BEND #4 | | | 9-4-85 | | | | 9:28 | | 9:40 | | | | |
| ADDRESS | | | Sec | | | | | Sec | | | | | |
| | | | M | 0 | 15 | 30 | 45 | M | 0 | 15 | 30 | 45 | |
| CITY | | | STATE | | ZIP | | 1 | 0 | 0 | 0 | 0 | 31 | |
| PHONE | | | SOURCE ID NUMBER | | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | |
| PROCESS EQUIPMENT | | | OPERATING MODE | | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | |
| SILO LIMESTONE SILO A | | | | | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | |
| CONTROL EQUIPMENT | | | OPERATING MODE | | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | |
| BAGHOUSE A1 | | | | | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | |
| DESCRIBE EMISSION POINT | | | | | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | |
| BAGHOUSE VENT | | | | | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 38 | |
| HEIGHT ABOVE GROUND LEVEL | | HEIGHT RELATIVE TO OBSERVER | | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | |
| 75 FT | | 75 FT | | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | |
| DISTANCE FROM OBSERVER | | DIRECTION FROM OBSERVER | | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 | |
| 130 FT | | WEST | | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 | |
| DESCRIBE EMISSIONS | | | | | 13 | | | | | | | 43 | |
| NONE | | | | | 14 | | | | | | | 44 | |
| EMISSION COLOR | | PLUME TYPE: CONTINUOUS <input type="checkbox"/> | | 15 | | | | | | | | 45 | |
| N/A | | FUGITIVE <input type="checkbox"/> INTERMITTENT <input type="checkbox"/> | | 16 | | | | | | | | 46 | |
| WATER DROPLETS PRESENT | | IS WATER DROPLET PLUME | | 17 | | | | | | | | 47 | |
| NO <input checked="" type="checkbox"/> YES <input type="checkbox"/> | | ATTACHED <input type="checkbox"/> DETACHED <input type="checkbox"/> | | 18 | | | | | | | | 48 | |
| AT WHAT POINT IN THE PLUME WAS OPACITY DETERMINED | | | | | 19 | | | | | | | 49 | |
| LIP OF VENT | | | | | 20 | | | | | | | 50 | |
| DESCRIBE BACKGROUND | | | | | 21 | | | | | | | 51 | |
| 1 SKY | | | | | 22 | | | | | | | 52 | |
| BACKGROUND COLOR | | SKY CONDITIONS | | 23 | | | | | | | | 53 | |
| BLU E | | CLEAR | | 24 | | | | | | | | 54 | |
| WIND SPEED | | WIND DIRECTION | | 25 | | | | | | | | 55 | |
| 10-15 | | E-45 | | 26 | | | | | | | | 56 | |
| AMBIENT TEMPERATURE | | RELATIVE HUMIDITY | | 27 | | | | | | | | 57 | |
| 85 | | 90% | | 28 | | | | | | | | 58 | |
| SOURCE LAYOUT SKETCH | | | DRAW NORTH ARROW | | 29 | | | | | | | 59 | |
| | | | | | 30 | | | | | | | 60 | |
| COMMENTS | | | AVERAGE OPACITY FOR HIGHEST PERIOD | | NUMBER OF READINGS ABOVE HIGHEST PERIOD | | RANGE OF OPACITY READINGS | | OBSERVER'S NAME (PRINT) | | | | |
| LOADING SILO AT 300TPH DESIGN APPROX. BAGHOUSE A1 IN SERVICE | | | 0% | | 5% WERE 0 | | 0 MINIMUM 0 MAXIMUM | | MICHAEL D. SILCOTT | | | | |
| | | | OBSERVER'S SIGNATURE | | DATE | | ORGANIZATION | | | | | | |
| | | | Michael D. Silcott | | 9-4-85 | | HC/EPC | | | | | | |
| I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS | | | CERTIFIED BY | | DATE | | VERIFIED BY | | | | | | |
| | | | ETA | | 3-13-85 | | | | | | | | |
| SIGNATURE | | | DATE | | | | | | | | | | |
| TITLE | | | | | | | | | | | | | |

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

Roberts
MS

DISTRICT ROUTING SLIP

TO: Bill Thomas DATE: 4/22/85

C.C.
TO:

| | | | |
|---|-----------------|--------------------------------------|--|
| | PENSACOLA | NORTHWEST DISTRICT | |
| | PANAMA CITY | Northwest District Branch Office | |
| | TALLAHASSEE | Northwest District Branch Office | |
| X | TAMPA | SOUTHWEST DISTRICT | |
| | ORLANDO | ST. JOHNS RIVER DISTRICT | |
| | JACKSONVILLE | NORTHEAST DISTRICT | |
| | GAINESVILLE | Northeast District Branch Office | |
| | FORT MYERS | SOUTH FLORIDA DISTRICT | |
| | PUNTA GORDA | South Florida District Branch Office | |
| | MARATHON | South Florida District Branch Office | |
| | WEST PALM BEACH | SOUTHEAST FLORIDA DISTRICT | |
| | PORT ST. LUCIE | Southeast Florida Subdistrict | |

Reply Optional Reply Required Info. Only
Date Due: _____ Date Due: _____

COMMENTS:

FROM: Steve Smalwood TEL.:

File

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241



BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

April 19, 1985

D. E. R.

APR 23 1985

SOUTH WEST DISTRICT
TAMPA

CERTIFIED MAIL - RETURN RECEIPT REQUESTED


Mr. Jerry L. Williams
Environmental Director
Tampa Electric Company
P. O. Box 111
Tampa, Florida 33601

Dear Mr. Williams:

Re: Our letter to you, dated 4/11/85, concerning Big Bend Unit 4-
Requested Variation in Raw-Coal Sample Requirement -
DER File ASP-85-B01

Please note on the above referenced letter (copy attached),
two errors. On page one, approximately mid-page, 17-2.300(3)
should read 17-2.700(3). The same error will be found in the last
sentence of the same paragraph. A corrected copy of this letter
is also attached.

Sincerely,


Steve Smallwood, P.E.
Chief
Bureau of Air Quality
Management

SS/rw

cc: Bill Blommel
Buck Oven
Bill Thomas ✓
Jerry Campbell
Brian Beais

Incorrect

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241



BOB GRAHAM
GOVERNOR
VICTORIA J. TSCHINKEL
SECRETARY

April 11, 1985

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Jerry L. Williams
Environmental Director
Tampa Electric Company
P. O. Box 111
Tampa, Florida 33601

Dear Mr. Williams:

Re: Big Bend Unit 4 - Requested Variation in Raw-Coal
Sample Requirement - DER File ASP-85-B01

On February 5, 1985, we notified you that the Environmental Protection Agency (EPA) had forwarded your December 4, 1984, request for a change in the raw-coal sampling requirement for Big Bend Unit 4 to the department, and that we intended to process the request under the provisions of Rule 17-2.300(3), Exceptions and Approval of Alternate Procedures and Requirements. Recently, we learned that EPA considers your request a minor variation within the requirements of Method 19, and therefore, not subject to formal review and approval by the EPA Administrator or his designee. Consequently, we have determined that your request need not undergo the formal review process as contained in Rule 17-2.300(3).

By this letter, the department approves your request provided the following conditions are met:

1. Daily raw coal samples shall be collected from each mine's (Ziegler's and Peabody's) coal washing facility throughout the quarter.
2. The supplier shall sample the raw coal conveyor belt at least once per day when coal is being washed for Tampa Electric Company.
3. The daily sampling times shall be randomly selected.

Mr. Jerry L. Williams
Page Two
April 11, 1985

4. The sample shall consist of a block section of raw coal of 5 feet in length by the entire width of the belt, taken at locations as shown in Figures 1 and 2 (attached).
5. The ASTM coal analysis procedures required by Method 19 shall be utilized.
6. In computing the pretreatment credit, a weighted average for the two mines shall be used.

Pursuant to Section 120.57, Florida Statutes, you have a right to petition for an administrative determination on this approval and its conditions. The petition must conform to the requirements of Chapters 17-103 and 28-5, FAC, and must be filed (received) in the department's Office of General Counsel within fourteen (14) days of receipt of this letter. Failure to file a petition within fourteen (14) days constitutes a waiver of any right you have to an administrative determination pursuant to Section 120.57, Florida Statutes.

Sincerely,

Steve Smallwood, P.E.
Chief
Bureau of Air Quality
Management

SS/LG/rw

cc: Bill Blommel, DER - BAQM
Buck Oven, DER, PPS
Bill Thomas, DER - Tampa
Jerry Campbell, HCEPC
Brian Beals, EPA

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241



BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

April 19, 1985

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Jerry L. Williams
Environmental Director
Tampa Electric Company
P. O. Box 111
Tampa, Florida 33601

Dear Mr. Williams:

Re: Big Bend Unit 4 - Requested Variation in Raw-Coal
Sample Requirement - DER File ASP-85-B01

On February 5, 1985, we notified you that the Environmental Protection Agency (EPA) had forwarded your December 4, 1984, request for a change in the raw-coal sampling requirement for Big Bend Unit 4 to the department, and that we intended to process the request under the provisions of Rule 17-2.700(3), Exceptions and Approval of Alternate Procedures and Requirements. Recently, we learned that EPA considers your request a minor variation within the requirements of Method 19, and therefore, not subject to formal review and approval by the EPA Administrator or his designee. Consequently, we have determined that your request need not undergo the formal review process as contained in Rule 17-2.700(3).

By this letter, the department approves your request provided the following conditions are met:

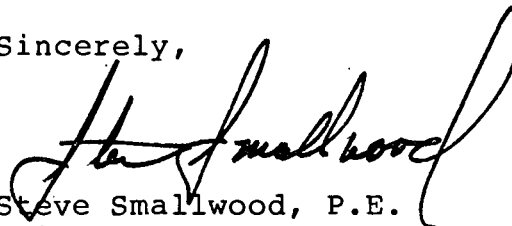
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3. The daily sampling times shall be randomly selected.

Mr. Jerry L. Williams
Page Two
April 19, 1985

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Pursuant to Section 120.57, Florida Statutes, you have a right to petition for an administrative determination on this approval and its conditions. The petition must conform to the requirements of Chapters 17-103 and 28-5, FAC, and must be filed (received) in the department's Office of General Counsel within fourteen (14) days of receipt of this letter. Failure to file a petition within fourteen (14) days constitutes a waiver of any right you have to an administrative determination pursuant to Section 120.57, Florida Statutes.

Sincerely,



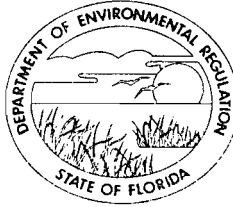
Steve Smallwood, P.E.
Chief
Bureau of Air Quality
Management

SS/LG/rw

cc: Bill Blommel, DER - BAQM
Buck Oven, DER, PPS
Bill Thomas, DER - Tampa
Jerry Campbell, HCEPC
Brian Beals, EPA

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241



BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

March 27, 1985

D. E. R.

APR 5 1985

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Jerry L. Williams, Environmental Director
Tampa Electric Company
P.O. Box 111
Tampa, Florida 33601

SOUTH WEST DISTRICT
TAMPA

RE: Request for permit modification to PSD-FL-040,
Big Bend Unit 4


Dear Mr. Williams:

On February 4, 1985, the Bureau of Air Quality Management received your request to modify the carbon monoxide limits for permit PSD-FL-040. Because this change concerns a federal PSD permit, your request was forwarded to the EPA in Atlanta for their review and comments.

Because this change will result in a theoretical significant increase in carbon monoxide emissions, a public notice will need to be published regarding this change. Please use the sample public notice attached to this letter and provide us with a proof of publication so that we can finish processing the requested change.

If you have any questions, please write to me at the above address, or call Edward Svec, Review Engineer, at (904)488-1344.

Sincerely,


C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management

CHF/ES/rw

Attachment

cc: Richard Garrity
Iwan Choronenko



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

MAR 12 1985

REF: APT-AM

DER
12/14/85
BADM

Mr. Clair H. Fancy, Deputy Chief
Bureau of Air Quality Management
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

RE: PSD-FL-040 TECO Big Bend Unit 4

Dear Mr. Fancy:

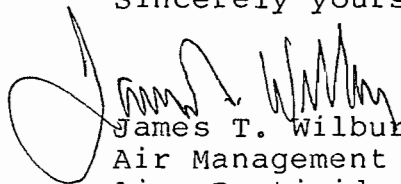
This is to acknowledge receipt of your February 8, 1985, letter requesting the modification of the federal Prevention of Significant Deterioration (PSD) permit (PSD-FL-040) issued for the construction of the coal-fired boiler, Unit 4, at the Tampa Electric Company's (TECO) Big Bend facility near Ruskin, Florida. The permit issued on October 15, 1981, contained carbon monoxide (CO) emission limits for the unit based on estimates provided by the company in which an incorrect emission factor was used.

The PSD preliminary and final determinations for Unit 4 at the TECO Big Bend facility reflected CO emission estimates which appeared in the TECO application. The company used the wrong emission factor from the EPA document "Compilation of Air Pollutant Emission Factors" (AP-42). As a result, there was an underestimation of CO emissions in the original review. The requested modification would theoretically increase CO emissions from 272 tons per year to 543 tons per year and will increase the ambient concentration (8-hour average) to approximately 16 ug/m³. The significant level for CO is 575 ug/m³, 8-hour average and therefore, no adverse impacts are expected due to the increase. The best available control technology has been determined to be proper combustion controls and has not been changed in this proposed revision. As the correction of this error will result in a theoretical significant increase in CO emissions (271 tons per year), a public notice will need to be published regarding this change. For your convenience, enclosed is a sample public notice which may be used. Please provide us a copy of the proof of publication so that we may proceed to revise the PSD permit to reflect the emission change for CO.

-2-

If you have any questions regarding this letter, you may contact me or Wayne J. Aronson, New Source Review Team Leader, at 404/881-4552.

Sincerely yours,

A handwritten signature in black ink, appearing to read "James T. Wilburn". The signature is written in a cursive style with a large initial "J" and "W".

James T. Wilburn, Chief
Air Management Branch
Air, Pesticides, and Toxics
Management Division

Enclosure

PUBLIC NOTICE

On January 30, 1985, the Tampa Electric Company requested that their Prevention of Significant Deterioration permit (PSD-FL-040) for the coal-fired boiler, Unit 4, at the Big Bend facility near Ruskin, Florida, be revised. The requested revision will result in a projected increase of 271 tons per year of carbon monoxide.

EPA has reviewed the proposal to increase emissions. The increase is due to an error in emissions calculations for this source and no process or structural modifications are involved. The projected increase in emissions from 272 tons per year to 543 tons per year of carbon monoxide will increase the ambient concentration (8-hour average) to approximately 16 ug/m^3 . The significant level for carbon monoxide is 575 ug/m^3 and therefore, no adverse impacts are expected due to the increase. The best available control technology has been determined to be proper combustion controls and is not changed in this proposed revision.

Any person may submit written comments regarding this proposed permit revision. All comments must be received not later than 30 days from the date of this notice in order to be considered. A public hearing may be held if sufficient justification is provided, as determined by the Administrator. Letters should be addressed to:

Mr. Clair Fancy, P.E.
State of Florida Department of
Environmental Regulation
Bureau of Air Quality Management
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241



BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

February 8, 1985

Mr. James T. Wilburn, Chief
Air Management Branch
USEPA - Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Re: Request from Tampa Electric Company
to Modify PSD-FL-040

Dear Mr. Wilburn:

The Bureau of Air Quality Management received a request from Tampa Electric Company on February 4, 1984, to modify their federal permit, PSD-FL-040, for their Big Bend Station Unit 4 in Ruskin, Florida. In their permit application, Tampa Electric used an incorrect emission estimate from AP-42 which underestimated the emissions of CO by a factor of two.

After reviewing this request, the bureau recommends that Table 1 of permit PSD-FL-040 be modified to reflect the proper AP-42 emission factor CO as follows:

From:

| <u>Facility</u> | <u>Pollutants</u> | |
|---|-------------------|--------------|
| | <u>lb/MMBtu</u> | <u>lb/hr</u> |
| 1. Unit 4 Boiler (4330 MMBtu/hr) Continuous Limit | 0.014 | 61 |

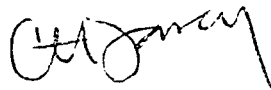
To:

| <u>Facility</u> | <u>Pollutants</u> | |
|---|-------------------|--------------|
| | <u>lb/MMBtu</u> | <u>lb/hr</u> |
| 1. Unit 4 Boiler (4330 MMBtu/hr) Continuous Limit | 0.029 | 124 |

Mr. James T. Wilburn
Page Two
February 8, 1985

Should you require any further information, please feel free to contact me.

Sincerely,

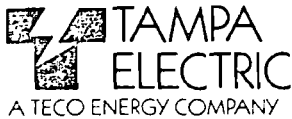


C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management

CHF/ES/s

cc: Richard Garrity
Iwan Choronenko
Jerry Williams

attachment



January 30, 1985

Mr. Steve Smallwood
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

RE: Request for Permit Modification
Big Bend Station Unit 4
Tampa Electric Company
PSD-FL-040

Dear Mr. Smallwood:

As you are probably aware, Tampa Electric Company is in the final stages of constructing a 417 MW (net) coal fired electric generating unit at the Big Bend Station in Ruskin, Florida. The commercial operation date for this new unit, Big Bend Unit 4, is expected to be in March of 1985.

In anticipation of our upcoming commercial operation of Unit 4, Tampa Electric Company has been reviewing all permitting associated with the new unit. On reviewing the above referenced Prevention of Significant Deterioration (PSD) permit and associated application documents, a calculation error was identified in the PSD application emissions estimate for carbon monoxide (CO). In the application, an incorrect emission factor from the EPA document Compilation of Air Pollutant Emission Factors, AP-42, was inadvertently used to estimate the CO emissions. The use of the incorrect emission factor lead to an underestimation of the CO emissions by a factor of two. Attachment I contains the calculations for the corrected estimate.

As seen in Attachment I, the CO emission rate is expected to be approximately 124 lb/hr and 0.029 lb/MMbtu.

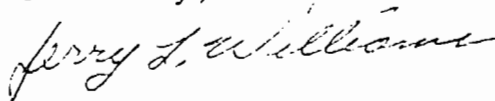
DER.
FEB 4 1985
BAOM

Mr. Steve Smallwood
January 30, 1985
Page Two

Tampa Electric Company requests a modification of the CO limits listed in Table 1 of permit number PSD-FL-040 to reflect the corrected estimate. Attachment II contains the corrected pages to our PSD application.

If you should have any questions please feel free to call me.

Sincerely,



Jerry L. Williams
Director
Environmental

JLW/jbj/047/1

Attachment

cc: Dr. Richard Garrity (DER)

CARBON MONOXIDE (CO) EMISSIONS ESTIMATE
BIG BEND STATION UNIT 4
PSD-FL-040

Fuel input rate at 100% load = 413,000 $\frac{\text{lbs coal}}{\text{hour}}$

Heat input rate at 100% load = 4330 $\frac{\text{MMbtu}}{\text{hour}}$

CO emission factor = 0.6 $\frac{\text{lbs CO}^*}{\text{ton coal}}$

$$(a) \quad 413,000 \frac{\text{lbs coal}}{\text{hour}} \times \frac{1}{2000} \frac{\text{tons coal}}{\text{lbs coal}} \times 0.6 \frac{\text{lbs CO}^{**}}{\text{ton coal}} \\ = 123.9 \frac{\text{lbs CO}}{\text{hour}}$$

$$(b) \quad 123.9 \frac{\text{lbs CO}}{\text{hour}} \times \frac{1}{4330} \frac{\text{hour}}{\text{MMBtu}} = 0.0286 \frac{\text{lbs CO}}{\text{MMBtu}}$$

* Compilation of Air Pollutant Emission Factors, AP-42. See Table 1.1-1. attached.

** In the previously submitted and approved PSD application an emission factor of 0.3 $\frac{\text{KgCO}}{\text{Mg Coal}}$ was mistakenly used as 0.3 $\frac{\text{lb CO}}{\text{Ton Coal}}$. See Table 1.1-1. attached.

TABLE 1.1-1. EMISSION FACTORS FOR EXTERNAL BITUMINOUS AND SUBBITUMINOUS COAL COMBUSTION^a

| Firing Configuration | Particulate ^b | | Sulfur Oxides ^c | | Nitrogen Oxides ^d | | Carbon Monoxide ^e | | Nonmethane VOC ^{e,f} | | Methane ^e | |
|---|--------------------------|-----------------|----------------------------|----------|------------------------------|---------------------|------------------------------|--------|-------------------------------|--------|----------------------|--------|
| | kg/Mg | lb/ton | kg/Mg | lb/ton | kg/Mg | lb/ton | kg/Mg | lb/ton | kg/Mg | lb/ton | kg/Mg | lb/ton |
| Pulverized coal fired | | | | | | | | | | | | |
| Dry bottom | 5A | 10A | 19.5S(17.5S) | 39S(35S) | 10.5(7.5) ^g | 21(15) ^g | 0.3 | 0.6 | 0.04 | 0.07 | 0.015 | 0.03 |
| Wet bottom | 3.5A ^h | 7A ^h | 19.5S(17.5S) | 39S(35S) | 17 | 34 | 0.3 | 0.6 | 0.04 | 0.07 | 0.015 | 0.03 |
| Cyclone furnace | 1A ^h | 2A ^h | 19.5S(17.5S) | 39S(35S) | 18.5 | 37 | 0.3 | 0.6 | 0.04 | 0.07 | 0.015 | 0.03 |
| Spreader stoker | | | | | | | | | | | | |
| Uncontrolled | 30 ⁱ | 60 ⁱ | 19.5S(17.5S) | 39S(35S) | 7 | 14 | 2.5 | 5 | 0.04 | 0.07 | 0.015 | 0.03 |
| After multiple cyclone | | | | | | | | | | | | |
| With flyash reinjection from multiple cyclone | 8.5 | 17 | 19.5S(17.5S) | 39S(35S) | 7 | 14 | 2.5 | 5 | 0.04 | 0.07 | 0.015 | 0.03 |
| No flyash reinjection from multiple cyclone | 6 | 12 | 19.5S(17.5S) | 39S(35S) | 7 | 14 | 2.5 | 5 | 0.04 | 0.07 | 0.015 | 0.03 |
| Overfeed stoker ^j | | | | | | | | | | | | |
| Uncontrolled | 8 ^k | 16 ^k | 19.5S(17.5S) | 39S(35S) | 3.25 | 7.5 | 3 | 6 | 0.04 | 0.07 | 0.015 | 0.03 |
| After multiple cyclone | 4.5 | 9 | 19.5S(17.5S) | 39S(35S) | 3.25 | 7.5 | 3 | 6 | 0.04 | 0.07 | 0.015 | 0.03 |
| Underfeed stoker | | | | | | | | | | | | |
| Uncontrolled | 7.5 ^l | 15 ^l | 15.5S | 31S | 4.75 | 9.5 | 5.5 | 11 | 0.65 | 1.3 | 0.4 | 0.8 |
| After multiple cyclone | 5.5 | 11 | 15.5S | 31S | 4.75 | 9.5 | 5.5 | 11 | 0.65 | 1.3 | 0.4 | 0.8 |
| Handfired units | 7.5 | 15 | 15.5S | 31S | 1.5 | 3 | 45 | 90 | 5 | 10 | 4 | 8 |

^a Factors represent uncontrolled emissions unless otherwise specified and should be applied to coal consumption as fired.

^b Based on EPA Method 5 (front half catch) as described in Reference 12. Where particulate is expressed in terms of the coal ash content (A), the factor is determined by multiplying the weight % ash content of the coal (as fired) by the numerical value preceding the "A". For example, if a coal having 8% ash is fired in a dry bottom unit, the particulate emission factor would be 5 x 6 or 40 kg/Mg (80 lb/ton). On average, the "condensable" material collected in the back half catch of EPA Method 5 is less than 5% of the front half, or "filterable", catch for pulverized coal and cyclone furnaces; about 10% for spreader stokers; about 15% for other stokers; and about 50% for handfired units (References 6, 19, and 49).

^c Expressed as SO₂, including SO₂, SO₃ and gaseous sulfates. The factors in parentheses should be used to estimate gaseous sulfur oxide emissions for subbituminous coal. In all cases, "S" is the weight % sulfur content of the coal as fired. See Footnote b for an example calculation. On average for bituminous coal, 97% of the fuel sulfur is emitted as SO₂, whereas only about 0.7% of the fuel sulfur is emitted as SO₃ and gaseous sulfate. An equally small percent of the fuel sulfur is emitted as particulate sulfate (References 9, 13). Small quantities of sulfur are also retained in the bottom ash. With subbituminous coal, generally about 10% more fuel sulfur is retained in the bottom ash and particulate, because of the more alkaline nature of the coal ash. Conversion to gaseous sulfate appears to be about the same as for bituminous coal.

^d Expressed as NO₂. Generally, 95 - 99 volume % of the nitrogen oxides present in combustion exhaust will be in the form of NO, the rest being NO₂ (Reference 11). To express these factors as NO, multiply by a factor of 0.66. All factors represent emissions at baseline operation (i.e., 60 - 100% load and no NO_x control measures, as discussed in the text).

^e Nominal values achievable under normal operating conditions. Values one or two orders of magnitude higher can occur when combustion is not complete.

^f Nonmethane volatile organic compounds (VOC), expressed as C₂ to C₁₆ n-alkane equivalents (Reference 58). Because limited data on NMVOC were available to distinguish the effects of firing configuration, all data were averaged collectively to develop a single average for pulverized coal units, cyclones, spreader and overfeed stokers.

^g Parenthetic value is for tangentially fired boilers.

^h Uncontrolled particulate emissions, when no flyash reinjection is employed. When a control device is installed, and collected flyash is reinjected to the boiler, particulate from the boiler reaching the control equipment can increase by up to a factor of two.

ⁱ Accounts for flyash settling in an economizer, air heater or breeching upstream of a control device or stack. (Particulate directly at the boiler outlet typically will be twice this level.) This factor should be applied even when flyash is reinjected to the boiler from boiler, air heater or economizer dust hoppers.

^j Includes traveling grate, vibrating grate and chain grate stokers.

^k Accounts for flyash settling in the breeching or stack base. Particulate loadings directly at the boiler outlet typically can be 50% higher.

^l Accounts for flyash settling in the breeching downstream of the boiler outlet.

Attachment II

Revised pages to:

VOLUME I

Prevention of Significant Deterioration (PSD)
Application - Tampa Electric Company

(PSD-FL-040)

system for measuring SO₂ emissions will be installed, calibrated, maintained, and operated at a point downstream of the FGD system.

4.3 Oxides of Nitrogen

The emission of NO_x from the combustion system will be minimized by the design of the burners and boiler to be provided by CE. The tangentially-fired boiler has been demonstrated to be capable of limiting NO_x formation to 0.6 lb/MMBtu, the NSPS, when firing bituminous coal. The EPA cites several CE boilers in operation that are able to meet the NSPS, although these boilers are neither designed nor guaranteed to have an NO_x emission at these levels.

The formation of thermally produced NO_x is inhibited in the CE boiler by the off-stoichiometric combustion, that is, operating the burners at a fuel-rich mixture. Off-stoichiometric combustion can be accomplished by two techniques: biased-firing and two-staged combustion. The former technique consists of operating selected burners at fuel-rich mixtures and others at lean mixtures. Initial combustion then occurs in a reducing atmosphere, followed by complete combustion after substantial heat loss. The resultant lower flame temperatures inhibit the formation of thermal NO_x. The latter technique, two-staged combustion, is accomplished by diverting a portion of the combustion air to over-fire air ports located above the burners. The same fuel-rich combustion occurs with the attendant heat loss, followed by complete mixing and combustion above the primary combustion zone. Although CE has incorporated over-fire air ports in the boiler design to maintain NO_x concentrations at the NSPS, operation of these ports has been found to be unnecessary below 90% MCR. Two-stage combustion will thus be used should monitoring indicate that the NO_x emissions may exceed standards. The NO_x emission limitation is equivalent to an emission rate of 2,598 lb/hr.

The EPA sponsored a test program, performed by CE, at the Alabama Power Company's Barry Station #2. This program assessed the effects of modifications in boiler operation and design on the emission of

NO_x. Included in the modifications were variations in excess air, biased-firing, over-fire air, burner tilt, and water-wall slagging. The results of this program that are applicable to Unit 4 boiler operation are summarized in Table 4-7. Note that all tests demonstrated boiler compliance with the NSPS for NO_x, with the exception of that test with no modifications and water-wall slagging.

Compliance with the NSPS for NO_x will be demonstrated in accordance with Section 60.48a, Subpart Da, and by procedures prescribed in Method 19, Appendix A, 40 CFR 60. A continuous monitoring system for measuring NO_x emissions will be installed, calibrated, maintained, and operated at a point downstream of the economizer outlet.

4.4 Carbon Monoxide

The only significant source of CO is the Unit 4 steam generator. CE does not include monitoring of combustibles in the design of their boilers because CO emissions are expected to be negligible. The recording of combustibles, however, may be included in the specification of the combustion air control system. Using the emission factor from the EPA document Compilation of Air Pollution Emission Factors, AP-42, the CO emission rate will be approximately ¹²⁴~~62~~ lb/hr based on Coal F-1A and boiler performance data. This factor represents a consensus mean emission from both boilers of older and more recent design. The EPA test on the Alabama Power Company's Barry Station #2 demonstrates that CO emissions typically range from 0.016 to 0.022 lb/MMBtu, which is equivalent to 70 to 95 lb/hr (see Table 4-7). These data then generally support the AP-42 emission factor, which is used to estimate the CO emission rate.

4.5 Summary

The emission of pollutants from the proposed Unit 4 steam generator is summarized in Table 4-8. The applicable NSPS for electric utility facilities are also presented for direct comparison.

TABLE 4-7

EPA TEST PROGRAM FOR NO_x REDUCTION

| <u>Test No.</u> | <u>Test Condition*</u> | <u>Excess Air</u> | <u>Emission (lb/MMBtu)</u> | |
|-----------------|---------------------------------|-------------------|----------------------------|-----------|
| | | | <u>NO_x**</u> | <u>CO</u> |
| 1 | No modification | 22.7 | 0.58 | 0.022 |
| 2 | No modification; WW slagging | 26.0 | 0.68 | 0.024 |
| 3 | BF | 24.2 | 0.33 | 0.019 |
| 4 | OFA | 25.4 | 0.55 | 0.016 |
| 5 | OFA; WW slagging | 25.9 | 0.50 | 0.016 |
| 6 | OFA; -5° burner tilt | 25.9 | 0.39 | 0.016 |
| 7 | OFA; +19° burner tilt | 25.1 | 0.43 | 0.023 |
| 8 | Optimum conditions | 27.4 | 0.39 | 0.018 |

*WW = water-wall; BF = biased-firing; OFA = over-fire air.

**As NO₂.

Source: EPA 1975.

TABLE 4-8

POLLUTANT EMISSIONS SUMMARY
BIG BEND STATION UNIT 4

| Pollutant | Pollutant Emission | | | Applicable NSPS/SIP Requirement |
|-------------------|----------------------|-------------------|-------------|---------------------------------------|
| | lb/hr | lb/MMBtu | % Reduction | |
| PM | 129.9 | 0.03 | 99.7 | 0.03 lb/MMBtu |
| NO _x | 2,598. | 0.60 | 65.0 | 0.60 lb/MMBtu |
| SO ₂ * | 2,592.-5,184. 124 | 0.60-1.2 0.029 | 90.0 | 90% reduction |
| CO | -62. | -0.014- | NA | NA |

*SO₂ emission represents range of sulfur content of raw coals of 3.0 and 6.0 lb/MMBtu.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241



BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

February 5, 1985

D. E. R.

FEB 7 1985

SOUTH WEST DISTRICT
TAMPA

Mr. Jerry L. Williams
Director, Environmental
Tampa Electric Company
P. O. Box 111
Tampa, FL 33601

Dear Mr. Williams:

File #ASP-85-B01

The Department acknowledges receipt of your December 4, 1984 letter to EPA on a request for a change in fuel sampling requirements for Big Bend Unit 4.

This office will process your request for Alternate Standards and Procedures in accordance with Florida Administrative Code 17-2.700(3).

If you have any questions regarding the above, please feel free to contact this office.

Sincerely,

William J. Blommel
William J. Blommel
Environmental Administrator
Air Monitoring Section
Bureau of Air Quality
Management

WJB/cmr

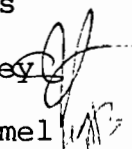
cc: Larry George
Clair Fancy
Bill Thomas - Tampa


State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION
INTEROFFICE MEMORANDUM

| For Routing To District Offices And/Or To Other Than The Addressee | | |
|---|--------------------|----------------|
| To: _____ | Loctn.: _____ | |
| To: _____ | Loctn.: _____ | |
| To: _____ | Loctn.: _____ | |
| From: _____ | Date: _____ | |
| Reply Optional [] | Reply Required [] | Info. Only [] |
| Date Due: _____ | Date Due: _____ | |

TO: District Managers
Local Program Directors

ATTENTION: Air Engineers

THRU: Bill Hennessey 

FROM: William Blommel 

DATE: February 5, 1985

SUBJECT: Alternate Standards and Procedures Requested by Tampa
Electric Company Big Bend Unit 4, File #ASP-85-B01

This memo is a request for response on a petition for exemption from sections of the stack sampling rule (submitted under FAC 17-2.700(3)). We will continue to circulate our proposals on these petitions so that any affected District or Local Program will have the opportunity to comment before an alternate sampling procedure is granted, and also, so that we can take advantage of your collective knowledge and experience.

Tampa Electric Company has submitted a request for approval of an alternate daily, full-cut method of sampling unwashed coal in order to obtain pre-treatment fuel credit under EPA Method 19.

Your comments and/or suggestions in granting or disapproving these alternative sampling procedures are requested. By April 1, 1985, please forward all correspondence to BAQM, attention, Larry George, the review engineer.

cmr

Attachment

cc: Larry George

D. E. R.
FEB 12 1985
SOUTH WEST DISTRICT
TAMPA



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

JAN 18 1985

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

4AW-AM

ASP 85-1301

DER

JAN 23 1985

BAQM

Mr. Steve Smallwood, P.E., Chief
Bureau of Air Quality Management
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Dear Mr. Smallwood:

We are enclosing a December 4, 1984, request from Tampa Electric Company (TECO) for a variance from the raw coal sampling requirements of Method 19. The Big Bend, Unit #4, to which the request applies, is an NSPS Source under 40 CFR 60, Subpart Da.

This request is quite similar to the one granted to Seminole Electric Cooperative, Inc., for their two 600 mw units in Palatka, Florida on September 6, 1983 (See enclosed letter of approval). We recommend approval of TECO's request provided the following important features are maintained:

1. Daily raw coal samples shall be collected from each mine's coal washing facility throughout the quarter.
2. Raw coal feed belts shall be stopped once per day and a five foot section of coal will be manually removed for analysis.
3. Sampling times shall be randomly selected.
4. The ASTM coal analysis procedures required by Method 19 shall be utilized.
5. Calculations of weighted averages shall be made for the two mines.

In accordance with the conditions of our letter dated June 3, 1983, delegating the authority of 40 CFR 60, Subpart Da we are forwarding TECO's submittal to you for your evaluation. If you concur with our recommendations, please advise the Company accordingly and copy our office (ATTN: Brian Beals).

DER

JAN 30 1985

BAQM

If you do not concur with our recommendations or if you have any comments concerning this matter, please contact Messrs. Joe Riley or Brian Beals at 404/881-3067.

Sincerely yours,

Richard A. Dubose acting for
James T. Wilburn, Chief
Air Management Branch
Air, Pesticides, and Toxics
Management Division

Enclosure

cc: Mr. Bill Thomas
Florida Department of
Environmental Regulation
Southwest District Office
7601 N. Highway 301
Tampa, Florida 33610-9544



December 4, 1984

FEDERAL EXPRESS

Mr. Charles R. Jeter
Regional Administrator
United States Environ-
mental Protection Agency
345 Courtland Street
Atlanta, Georgia 30365

RE: Proposed Method to Determine Raw Coal Analyses
Big Bend Unit 4
Tampa Electric Company

Dear Mr. Jeter:

As you recall from our notification letter to you dated November 9, 1984, Tampa Electric Company is at the final stage of constructing a 417 MW (net) coal fired electric generating unit. The Unit, Big Bend Unit 4, is located at the Big Bend Station location near Ruskin, Florida. As part of our projected operating procedures, Tampa Electric Company has been permitted to burn washed coal and to utilize a flue gas desulfurization system to meet the 90% overall potential SO₂ reduction specified in the New Source Performance Standards.

Based on the historical data and knowledge of the coal reserves and the consistent nature of our coal supplies, Tampa Electric Company believes that an alternative daily, full-cut sample will provide representative unwashed coal sampling for establishing a pretreatment fuel credit. We feel that the proposed alternative method is consistent with the EPA Region IV requirement. This alternative sampling method is described in the attachment to this letter.

Tampa Electric Company hereby respectfully requests your approval of this alternative increment collection procedure for the unwashed coal used in determining quarterly pretreatment washing efficiency.

Because of the improvement in the construction/operation schedule, I will be contacting you shortly to discuss this proposal and to determine when the appropriate members of our staff should meet.

Mr. Charles R. Jeter
December 4, 1984
Page 2

Thank you for your expeditious review of this proposal.

Sincerely,

A handwritten signature in cursive script that reads "Jerry L. Williams".

Jerry L. Williams
Director
Environmental

JLW/tb

PROPOSED METHOD TO DETERMINE RAW COAL ANALYSES
BIG BEND UNIT 4
TAMPA ELECTRIC COMPANY

INTRODUCTION

Tampa Electric Company is in the process of constructing a 417 MW (net) coal fired electric generating unit at the Big Bend Station location near Ruskin, Florida. The unit, known as Big Bend Unit 4, commenced construction in November, 1981 and as such is governed by the rules and regulations contained within 40CFR 60, Subpart Da (New Source Performance Standards for Electric Utility Steam Generating Units which commenced construction after December 18, 1978.) Within Subpart Da, an overall potential Sulfur Dioxide (SO₂) reduction of 90% is stipulated based on the projected raw coal to the plant. A formula for calculating the overall potential SO₂ removal for this unit is also stated; this formula is based on the removal associated with the pretreatment of the coal and reductions due to any SO₂ removal system.

The method of establishing the pretreatment credit for the washed coal used in the determination of the overall SO₂ removal efficiency is outlined in Section 2 of Method 19, 40CFR 60, Appendix A. Section 2 provides guidelines on numerous phases of the coal sampling process, including sample increment collection and lot size determination. This section also allows for use of alternative sampling procedures and definitions, based on prior approval from the Administrator.

Tampa Electric Company hereby requests approval of an alternative increment collection procedure for the raw coal used in determining quarterly pretreatment washing efficiency.

ALTERNATIVE METHOD

The proposed alternate sampling method described below would be used to sample the unwashed coal. In-place mechanical samplers will be used to sample washed coal.

1. The supplier will stop and sample the raw coal conveyor belt at least once per day when coal is being washed for Tampa Electric Company.
2. The daily stop times will be randomly selected, mitigating systematic error.
3. The sample will consist of a block section of raw coal of 5 feet in length by the entire width of the belt, taken at locations as shown in Figures 1 and 2.

4. The sample processing, analysis, and computation of washing efficiency will be performed as described in Method 19.

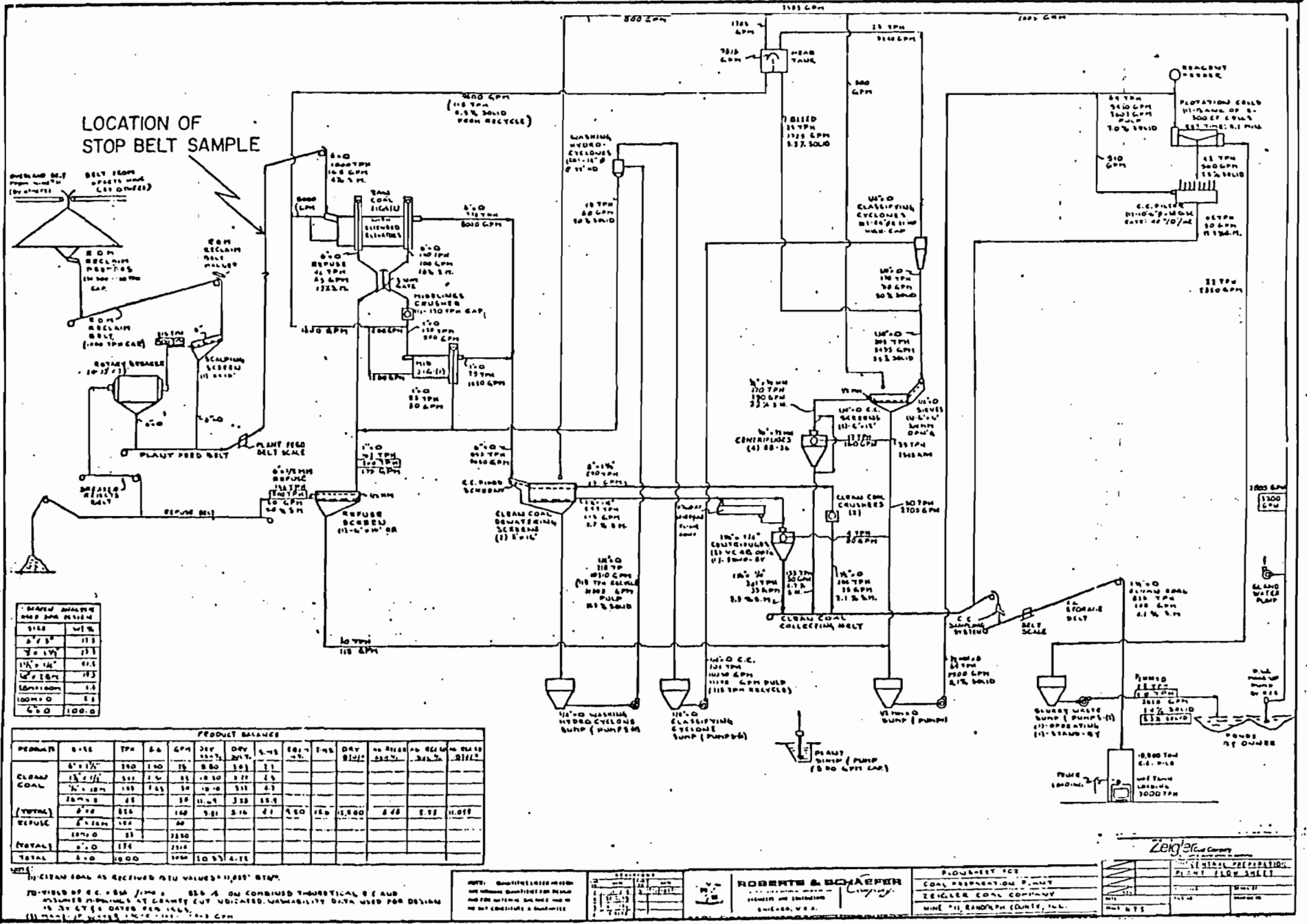
RATIONALE FOR ALTERNATIVE METHOD

1. Historical data supplied by Ziegler Coal Company, one of our two current suppliers, indicates that the Illinois No. 6 seam they will be supplying Big Bend Unit 4 is characterized by low variability with regard to pounds of sulfur dioxide per million BTU. The mean value for this parameter for raw coal samples taken between the years 1978 and 1984 is 7.81 with a standard deviation of 0.41. (See Figure 3).
2. Historical data supplied by Peabody Coal Company, also indicates low variability with regard to pounds of sulfur dioxide per million BTU from their West Kentucky No. 9 seam they will be supplying. The mean value for this parameter for raw coal samples taken between the years 1980 to 1983 is 6.86 with a standard deviation of 0.216. (See Figure 4)
3. The proposed alternate sampling method is a non-biasing type of sampling since a full belt cut will be obtained.
4. Most coal suppliers, including Tampa Electric's two current suppliers (Ziegler and Peabody Coal Companies), are not equipped with the mechanical samplers necessitated by Sections 2.1.1 and 2.1.2 of Method 19 for sampling unwashed coal. To retrofit both suppliers with the above mechanical samplers would cost an estimated \$696,000 in capital costs plus operational and maintenance costs. This cost will eventually be reflected in higher fuel costs to Tampa Electric Company.

As indicated above, the coal to be supplied to Big Bend Unit 4 is consistent in quality, thus the proposed non-biasing alternative sampling method taken at random times daily over a three (3) month period will provide representative data.

CONCLUSION

Based on the preceding historical data supplied by our present coal suppliers, and their knowledge of the coal reserves, it is firmly believed that the proposed alternative sampling method will provide representative sampling for establishing a pretreatment fuel credit. Tampa Electric therefore requests that the proposed sampling method for unwashed raw coal be approved for compliance with Subpart Da.



SCREEN ANALYSIS AND PERCENTAGE

| SIZE | WT% |
|------------|-------|
| 2" x 3" | 17.5 |
| 3" x 4" | 17.5 |
| 4" x 6" | 17.5 |
| 6" x 8" | 17.5 |
| 10" x 14" | 17.5 |
| 18" x 24" | 17.5 |
| 30" x 48" | 17.5 |
| 60" x 100" | 17.5 |
| 6" x 0" | 100.0 |

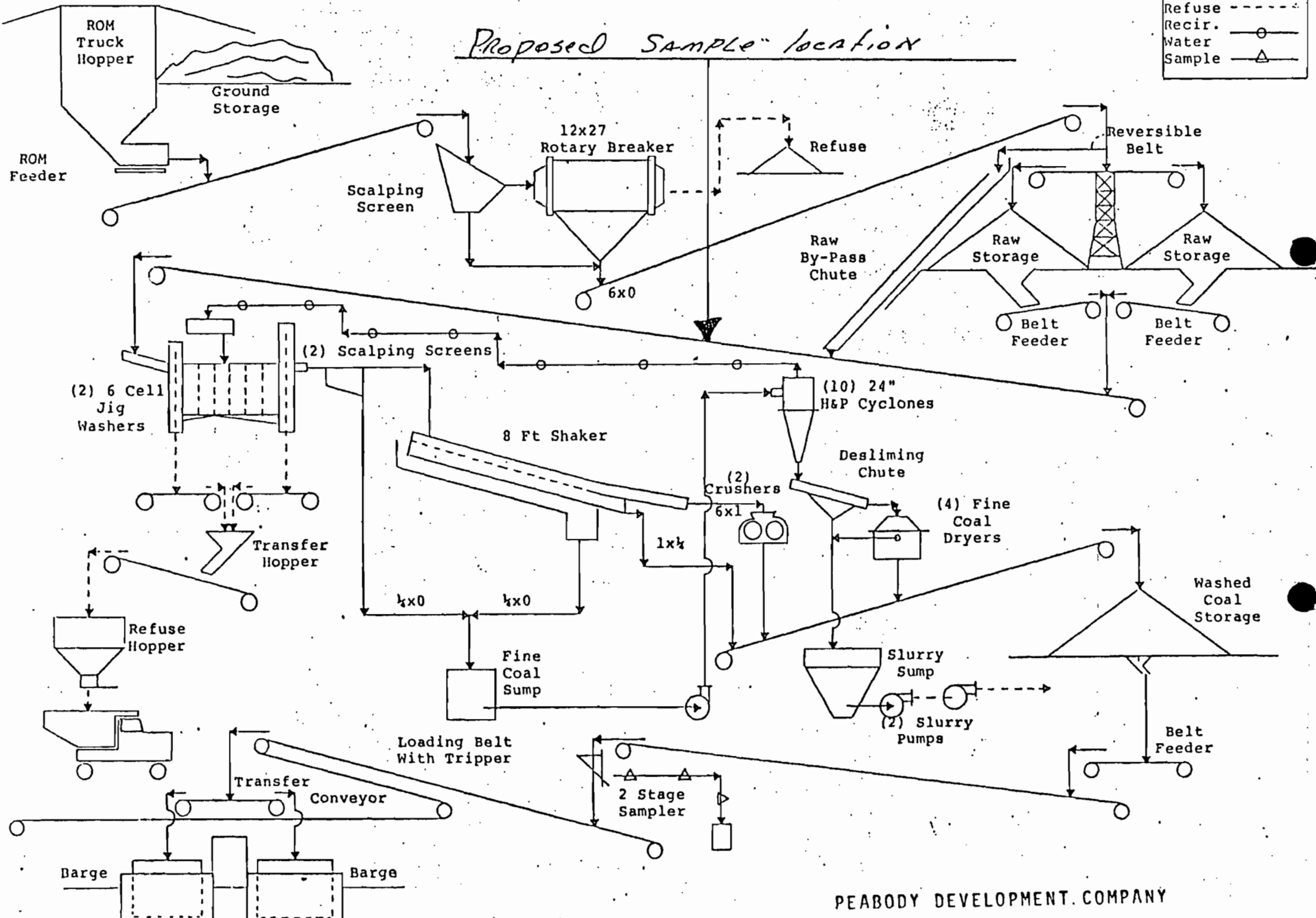
PRODUCT BALANCE

| PRODUCT | SIZE | TPH | Wt | GPM | Moist | Dry | Wt% | Moist | Wt% | Dry | Wt% | Moist | Wt% | Dry | Wt% | Moist | Wt% |
|------------|-----------|-----|-----|-----|-------|-----|-----|-------|-----|-----|-----|-------|-----|-----|-----|-------|-----|
| CLEAN COAL | 6" x 18" | 150 | 140 | 15 | 8.50 | 131 | 11 | | | | | | | | | | |
| | 18" x 24" | 111 | 104 | 7 | 4.50 | 117 | 10 | | | | | | | | | | |
| | 24" x 30" | 118 | 111 | 7 | 4.50 | 125 | 11 | | | | | | | | | | |
| | 30" x 48" | 22 | 21 | 1 | 0.50 | 23 | 2 | | | | | | | | | | |
| TOTAL | 6" x 0" | 301 | 276 | 25 | 13.50 | 316 | 24 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| REFUSE | 6" x 18" | 150 | 140 | 10 | 5.00 | 150 | 10 | | | | | | | | | | |
| | 18" x 24" | 111 | 104 | 7 | 4.50 | 117 | 10 | | | | | | | | | | |
| TOTAL | 6" x 0" | 261 | 244 | 17 | 9.50 | 267 | 20 | | | | | | | | | | |
| TOTAL | 6" x 0" | 562 | 520 | 42 | 23.00 | 583 | 44 | | | | | | | | | | |

NOTE: CLEAN COAL AS RECEIVED INTO VALVES 11, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, 71, 73, 75, 77, 79, 81, 83, 85, 87, 89, 91, 93, 95, 97, 99, 101, 103, 105, 107, 109, 111, 113, 115, 117, 119, 121, 123, 125, 127, 129, 131, 133, 135, 137, 139, 141, 143, 145, 147, 149, 151, 153, 155, 157, 159, 161, 163, 165, 167, 169, 171, 173, 175, 177, 179, 181, 183, 185, 187, 189, 191, 193, 195, 197, 199, 201, 203, 205, 207, 209, 211, 213, 215, 217, 219, 221, 223, 225, 227, 229, 231, 233, 235, 237, 239, 241, 243, 245, 247, 249, 251, 253, 255, 257, 259, 261, 263, 265, 267, 269, 271, 273, 275, 277, 279, 281, 283, 285, 287, 289, 291, 293, 295, 297, 299, 301, 303, 305, 307, 309, 311, 313, 315, 317, 319, 321, 323, 325, 327, 329, 331, 333, 335, 337, 339, 341, 343, 345, 347, 349, 351, 353, 355, 357, 359, 361, 363, 365, 367, 369, 371, 373, 375, 377, 379, 381, 383, 385, 387, 389, 391, 393, 395, 397, 399, 401, 403, 405, 407, 409, 411, 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2173, 2175, 2177, 2179, 2181, 2183, 2185, 2187, 2189, 2191, 2193, 2195, 2197, 2199, 2201, 2203, 2205, 2207, 2209, 2211, 2213, 2215, 2217, 2219, 2221, 2223, 2225, 2227, 2229, 2231, 2233, 2235, 2237, 2239, 2241, 2243, 2245, 2247, 2249, 2251, 2253, 2255, 2257, 2259, 2261, 2263, 2265, 2267, 2269, 2271, 2273, 2275, 2277, 2279, 2281, 2283, 2285, 2287, 2289, 2291, 2293, 2295, 2297, 2299, 2301, 2303, 2305, 2307, 2309, 2311, 2313, 2315, 2317, 2319, 2321, 2323, 2325, 2327, 2329, 2331, 2333, 2335, 2337, 2339, 2341, 2343, 2345, 2347, 2349, 2351, 2353, 2355, 2357, 2359, 2361, 2363, 2365, 2367, 2369, 2371, 2373, 2375, 2377, 2379, 2381, 2383, 2385, 2387, 2389, 2391, 2393, 2395, 2397, 2399, 2401, 2403, 2405, 2407, 2409, 2411, 2413, 2415, 2417, 2419, 2421, 2423, 2425, 2427, 2429, 2431, 2433, 2435, 2437, 2439, 2441, 2443, 2445, 2447, 2449, 2451, 2453, 2455, 2457, 2459, 2461, 2463, 2465, 2467, 2469, 2471, 2473, 2475, 2477, 2479, 2481, 2483, 2485, 2487, 2489, 2491, 2493, 2495, 2497, 2499, 2501, 2503, 2505, 2507, 2509, 2511, 2513, 2515, 2517, 2519, 2521, 2523, 2525, 2527, 2529, 2531, 2533, 2535, 2537, 2539, 2541, 2543, 2545, 2547, 2549, 2551, 2553, 2555, 2557, 2559, 2561, 2563, 2565, 2567, 2569, 2571, 2573, 2575, 2577, 2579, 2581, 2583, 2585, 2587, 2589, 2591, 2593, 2595, 2597, 2599, 2601, 2603, 2605, 2607, 2609, 2611, 2613, 2615, 2617, 2619, 2621, 2623, 2625, 2627, 2629, 2631, 2633, 2635, 2637, 2639, 2641, 2643, 2645, 2647, 2649, 2651, 2653, 2655, 2657, 2659, 2661, 2663, 2665, 2667, 2669, 2671, 2673, 2675, 2677, 2679, 2681, 2683, 2685, 2687, 2689, 2691, 2693, 2695, 2697, 2699, 2701, 2703, 2705, 2707, 2709, 2711, 2713, 2715, 2717, 2719, 2721, 2723, 2725, 2727, 2729, 2731, 2733, 2735, 2737, 2739, 2741, 2743, 2745, 2747, 2749, 2751, 2753, 2755, 2757, 2759, 2761, 2763, 2765, 2767, 2769, 2771, 2773, 2775, 2777, 2779, 2781, 2783, 2785, 2787, 2789, 2791, 2793, 2795, 2797, 2799, 2801, 2803, 2805, 2807, 2809, 2811, 2813, 2815, 2817, 2819, 2821, 2823, 2825, 2827, 2829, 2831, 2833, 2835, 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Figure 2

| GIBRALTAR | |
|-----------|---------|
| LEGEND | |
| Coal | — |
| Refuse | - - - - |
| Recir. | ○ |
| Water | ○ |
| Sample | △ |



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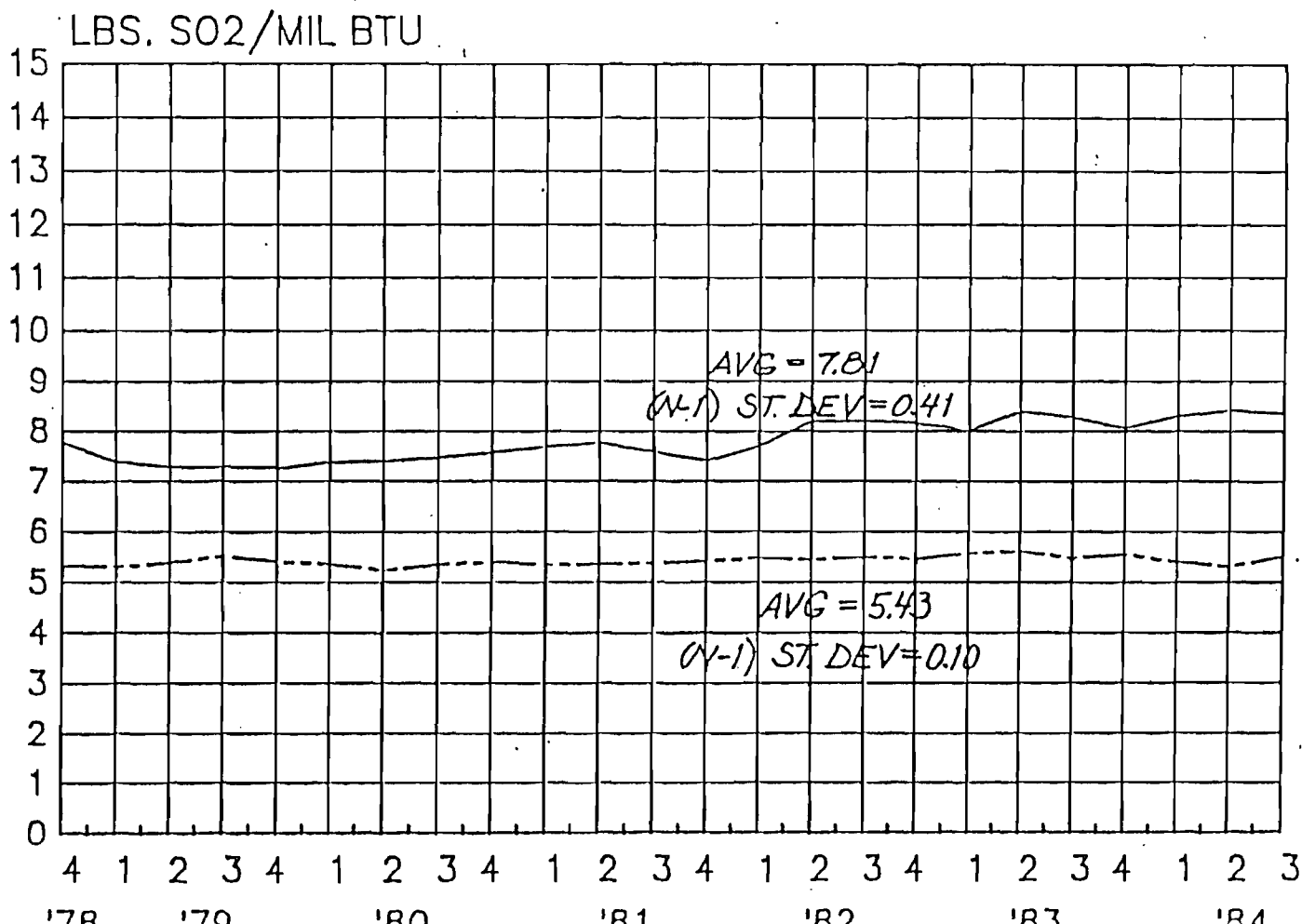
Figure 3

ZEIGLER COAL COMPANY

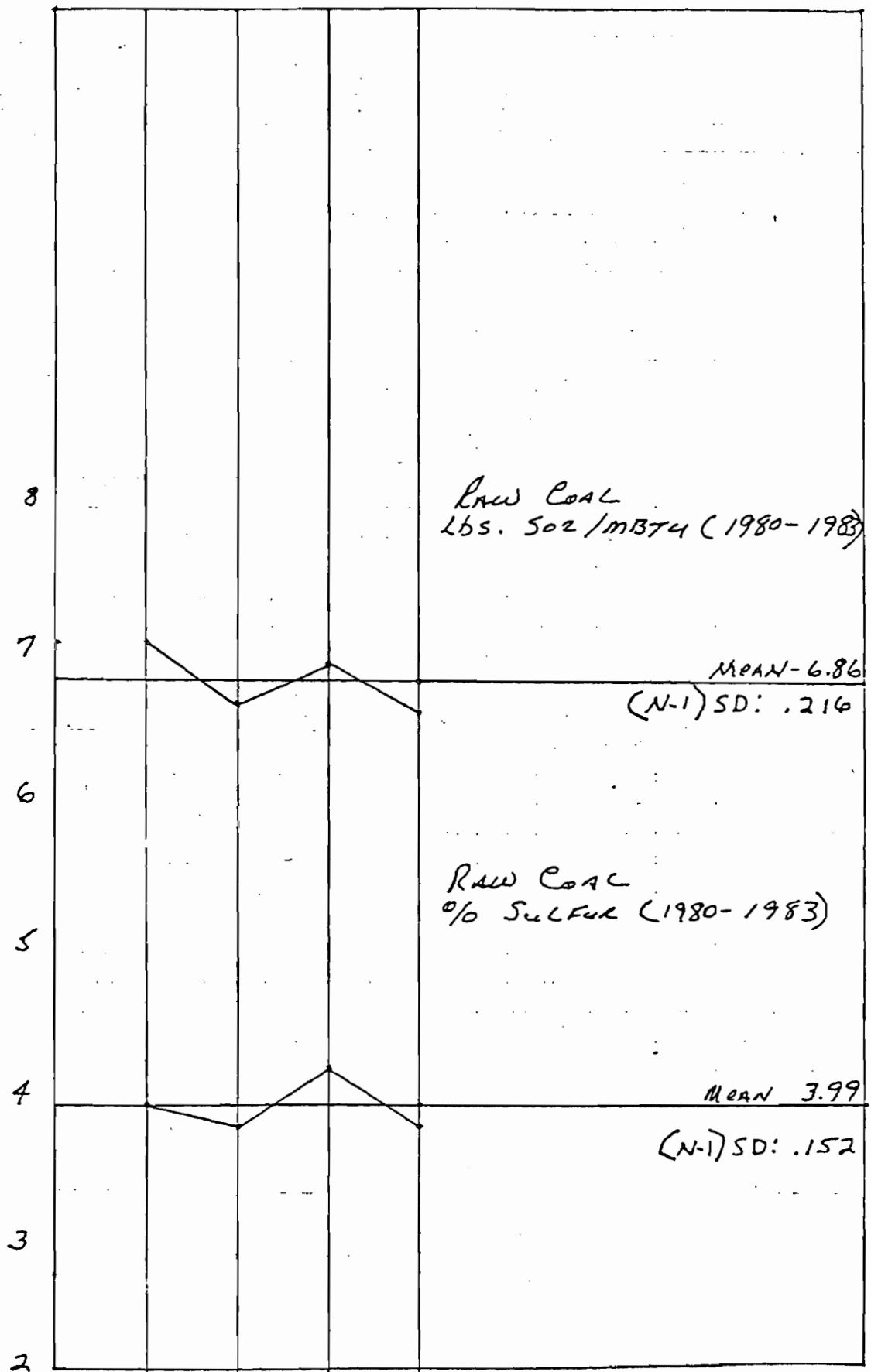
CCP-SO₂-ANALYSES

#SO₂/MIL-BTU (RF)

#SO₂/MIL-BTU (SH)



RAW COAL ANALYSIS DRY BASIS



SEP - 6 1983

REF: 4AW-AM

Mr. Mike Opalinski
Seminole Electric Cooperative, Incorporated
P. O. Box 272000
Tampa, Florida 33688-2000

Dear Mr. Opalinski:

This letter is a follow-up to my June 21, 1983, letter regarding Seminole's request of a variation to the coal sampling procedures contained in Method 19. This variation was specifically requested for Seminole Power Plant, units 1 and 2 which are subject to 40 CFR 60, Subpart Da.

We have completed our review of the supporting information which you submitted with your request and have conferred with the Florida Department of Environmental Regulation concerning your request. The requested procedure in lieu of ASTM D2234 appears to be adequate for the purposes of calculating a quarterly coal cleaning credit, and we hereby grant your request provided the following important features are maintained:

- 1) Daily raw coal samples shall be collected from each mine coal washing facility throughout the quarter.
- 2) Raw coal feed belts shall be stopped once per day and a five-foot section of coal (approximately 200 pounds) will be manually removed for analysis.
- 3) Sampling times shall be randomly selected.
- 4) ASTM coal analysis procedures required by Method 19 shall be utilized.
- 5) Calculations of weighted averages shall be made for the two mines.

-2-

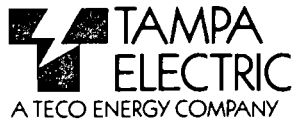
If you have further questions regarding this matter, please contact Messrs. Joe Riley or Brian Beals of the Air Engineering Section at 404/881-4901.

Sincerely yours,

/s/ John A. Little
Deputy Regional Administrator

Charles F. Jeter
Regional Administrator

cc: James Manning, FL DER, Tallahassee
Steve Smallwood, FL DER, Tallahassee
G. D. Dutton, FL DER, Jacksonville



December 4, 1984

FEDERAL EXPRESS

Mr. Charles R. Jeter
Regional Administrator
United States Environ-
mental Protection Agency
345 Courtland Street
Atlanta, Georgia 30365

RE: Proposed Method to Determine Raw Coal Analyses
Big Bend Unit 4
Tampa Electric Company

Dear Mr. Jeter:

As you recall from our notification letter to you dated November 9, 1984, Tampa Electric Company is at the final stage of constructing a 417 MW (net) coal fired electric generating unit. The Unit, Big Bend Unit 4, is located at the Big Bend Station location near Ruskin, Florida. As part of our projected operating procedures, Tampa Electric Company has been permitted to burn washed coal and to utilize a flue gas desulfurization system to meet the 90% overall potential SO₂ reduction specified in the New Source Performance Standards.

Based on the historical data and knowledge of the coal reserves and the consistent nature of our coal supplies, Tampa Electric Company believes that an alternative daily, full-cut sample will provide representative unwashed coal sampling for establishing a pretreatment fuel credit. We feel that the proposed alternative method is consistent with the EPA Region IV requirement. This alternative sampling method is described in the attachment to this letter.

Tampa Electric Company hereby respectfully requests your approval of this alternative increment collection procedure for the unwashed coal used in determining quarterly pretreatment washing efficiency.

Because of the improvement in the construction/operation schedule, I will be contacting you shortly to discuss this proposal and to determine when the appropriate members of our staff should meet.

Mr. Charles R. Jeter
December 4, 1984
Page 2

Thank you for your expeditious review of this proposal.

Sincerely,

A handwritten signature in cursive script that reads "Jerry L. Williams".

Jerry L. Williams
Director
Environmental

JLW/tb

PROPOSED METHOD TO DETERMINE RAW COAL ANALYSES
BIG BEND UNIT 4
TAMPA ELECTRIC COMPANY

INTRODUCTION

Tampa Electric Company is in the process of constructing a 417 MW (net) coal fired electric generating unit at the Big Bend Station location near Ruskin, Florida. The unit, known as Big Bend Unit 4, commenced construction in November, 1981 and as such is governed by the rules and regulations contained within 40CFR 60, Subpart Da (New Source Performance Standards for Electric Utility Steam Generating Units which commenced construction after December 18, 1978.) Within Subpart Da, an overall potential Sulfur Dioxide (SO₂) reduction of 90% is stipulated based on the projected raw coal to the plant. A formula for calculating the overall potential SO₂ removal for this unit is also stated; this formula is based on the removal associated with the pretreatment of the coal and reductions due to any SO₂ removal system. ★

The method of establishing the pretreatment credit for the washed coal used in the determination of the overall SO₂ removal efficiency is outlined in Section 2 of Method 19, 40CFR 60, Appendix A. Section 2 provides guidelines on numerous phases of the coal sampling process, including sample increment collection and lot size determination. This section also allows for use of alternative sampling procedures and definitions, based on prior approval from the Administrator.

Tampa Electric Company hereby requests approval of an alternative increment collection procedure for the raw coal used in determining quarterly pretreatment washing efficiency.

ALTERNATIVE METHOD

The proposed alternate sampling method described below would be used to sample the unwashed coal. In-place mechanical samplers will be used to sample washed coal.

1. The supplier will stop and sample the raw coal conveyor belt at least once per day when coal is being washed for Tampa Electric Company.
2. The daily stop times will be randomly selected, mitigating systematic error.
3. The sample will consist of a block section of raw coal of 5 feet in length by the entire width of the belt, taken at locations as shown in Figures 1 and 2.

4. The sample processing, analysis, and computation of washing efficiency will be performed as described in Method 19.

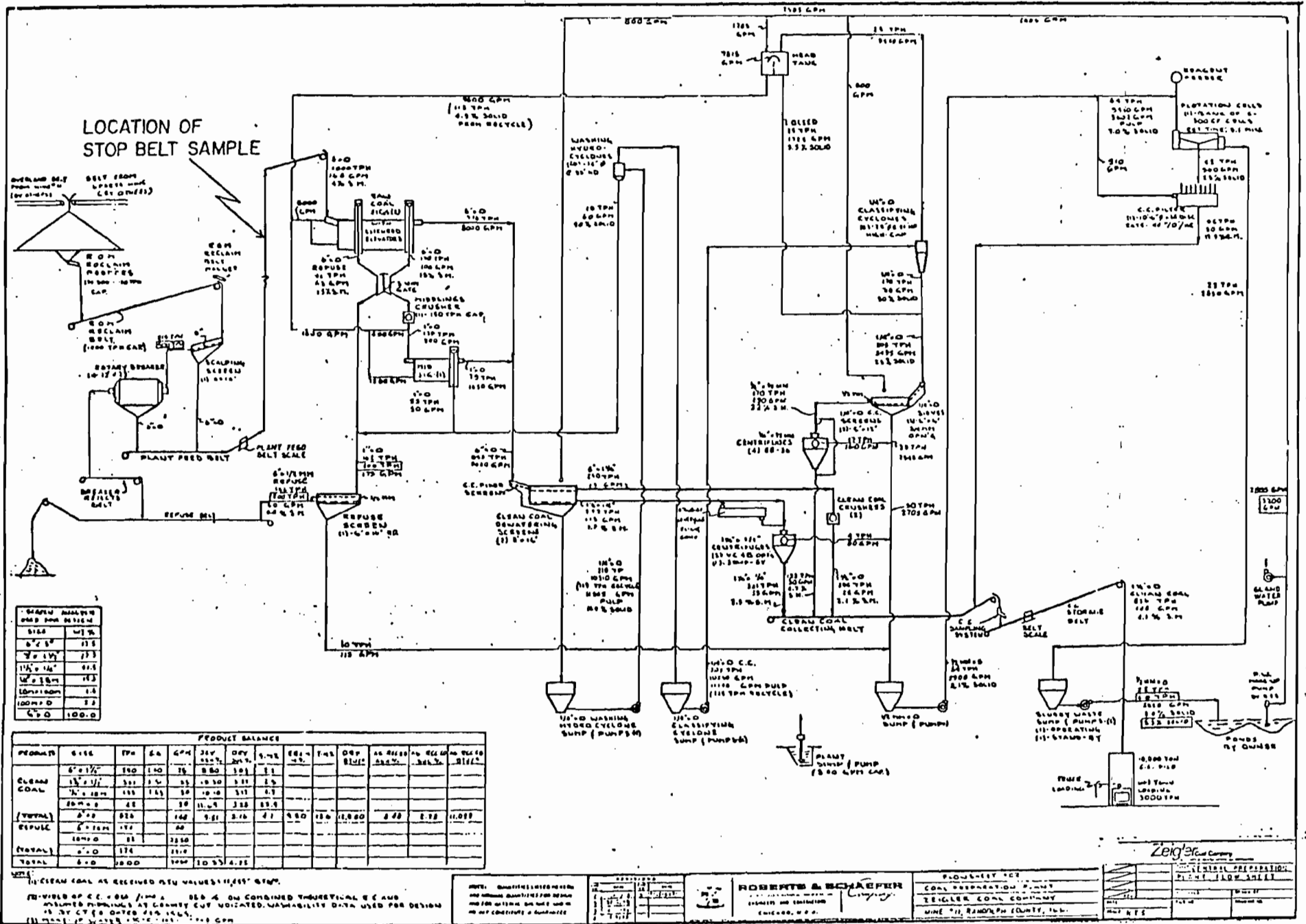
RATIONALE FOR ALTERNATIVE METHOD

1. Historical data supplied by Ziegler Coal Company, one of our two current suppliers, indicates that the Illinois No. 6 seam they will be supplying Big Bend Unit 4 is characterized by low variability with regard to pounds of sulfur dioxide per million BTU. The mean value for this parameter for raw coal samples taken between the years 1978 and 1984 is 7.81 with a standard deviation of 0.41. (See Figure 3).
2. Historical data supplied by Peabody Coal Company, also indicates low variability with regard to pounds of sulfur dioxide per million BTU from their West Kentucky No. 9 seam they will be supplying. The mean value for this parameter for raw coal samples taken between the years 1980 to 1983 is 6.86 with a standard deviation of 0.216. (See Figure 4)
3. The proposed alternate sampling method is a non-biasing type of sampling since a full belt cut will be obtained.
4. Most coal suppliers, including Tampa Electric's two current suppliers (Ziegler and Peabody Coal Companies), are not equipped with the mechanical samplers necessitated by Sections 2.1.1 and 2.1.2 of Method 19 for sampling unwashed coal. To retrofit both suppliers with the above mechanical samplers would cost an estimated \$696,000 in capital costs plus operational and maintenance costs. This cost will eventually be reflected in higher fuel costs to Tampa Electric Company.

As indicated above, the coal to be supplied to Big Bend Unit 4 is consistent in quality, thus the proposed non-biasing alternative sampling method taken at random times daily over a three (3) month period will provide representative data.

CONCLUSION

Based on the preceding historical data supplied by our present coal suppliers, and their knowledge of the coal reserves, it is firmly believed that the proposed alternative sampling method will provide representative sampling for establishing a pretreatment fuel credit. Tampa Electric therefore requests that the proposed sampling method for unwashed raw coal be approved for compliance with Subpart Da.



| SCREEN SIZE | Wt % |
|-----------------|-------|
| 6" x 6" | 11.1 |
| 3" x 3" | 17.3 |
| 1 1/2" x 1 1/2" | 61.5 |
| 1/2" x 1/2" | 12.3 |
| 100 mesh | 1.4 |
| 100 mesh | 1.2 |
| 6" x 0 | 100.0 |

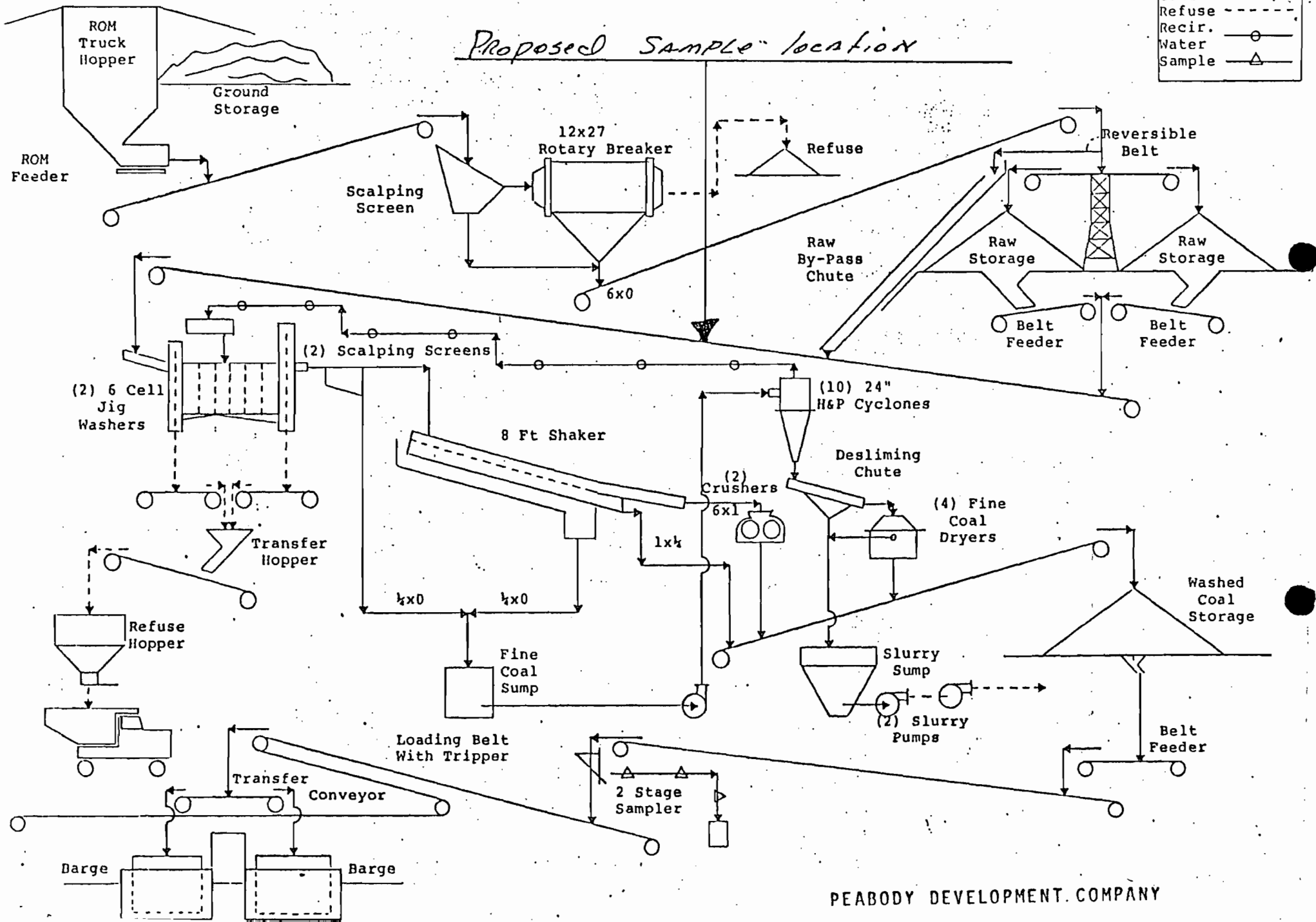
| PRODUCT BALANCE | | | | | | | | | | | |
|-----------------|-----------------|-----|-------|------|------|------|-----|------|-------|------|------|
| PRODUCT | SIZE | TPH | EA | GPM | WY | DRY | WY | EA | WY | DRY | WY |
| CLEAN COAL | 6" x 1 1/2" | 140 | 76 | 880 | 101 | 11 | | | | | |
| | 3" x 3" | 331 | 35 | 1830 | 331 | 15 | | | | | |
| | 1 1/2" x 1 1/2" | 133 | 143 | 50 | 10.8 | 311 | 6.7 | | | | |
| (TOTAL) | 6" x 0 | 48 | 10 | 11.2 | 332 | 27.8 | | | | | |
| REFUSE | 6" x 1 1/2" | 174 | 40 | 5.81 | 2.16 | 2.1 | 480 | 11.6 | 18.80 | 8.22 | 2.72 |
| | 100 mesh | 33 | | 3250 | | | | | | | |
| (TOTAL) | 6" x 0 | 174 | 11.9 | | | | | | | | |
| TOTAL | 6" x 0 | 200 | 10.33 | 4.22 | | | | | | | |

1. CLEAN COAL AS RECEIVED ATU VALUES 11.51% WY.
 2. WY OF 6" x 0 = 11.9% WY. 3. 6" x 0 ON COMBINED THEORETICAL 6" x 0 AND
 4. WY OF 6" x 0 = 11.9% WY. 5. WY OF 6" x 0 = 11.9% WY. 6. WY OF 6" x 0 = 11.9% WY.
 7. WY OF 6" x 0 = 11.9% WY. 8. WY OF 6" x 0 = 11.9% WY. 9. WY OF 6" x 0 = 11.9% WY.
 10. WY OF 6" x 0 = 11.9% WY. 11. WY OF 6" x 0 = 11.9% WY. 12. WY OF 6" x 0 = 11.9% WY.

| | | |
|---|--|---|
| <p>ROBERTS & SCHAEFER ENGINEERS AND CONSULTANTS CHICAGO, ILL.</p> | <p>PROJECT NO. 100 COAL PREPARATION PLANT ZIEGLER COAL COMPANY MINE #1, RANDOLPH COUNTY, ILL.</p> | <p>DATE: 11-15-54 DRAWN BY: J. H. H. S. CHECKED BY: J. H. H. S.</p> |
|---|--|---|

Figure 2

| GIBRALTAR | |
|-----------|-------|
| LEGEND | |
| Coal | — |
| Refuse | - - - |
| Recir. | ○ |
| Water | ○ |
| Sample | △ |

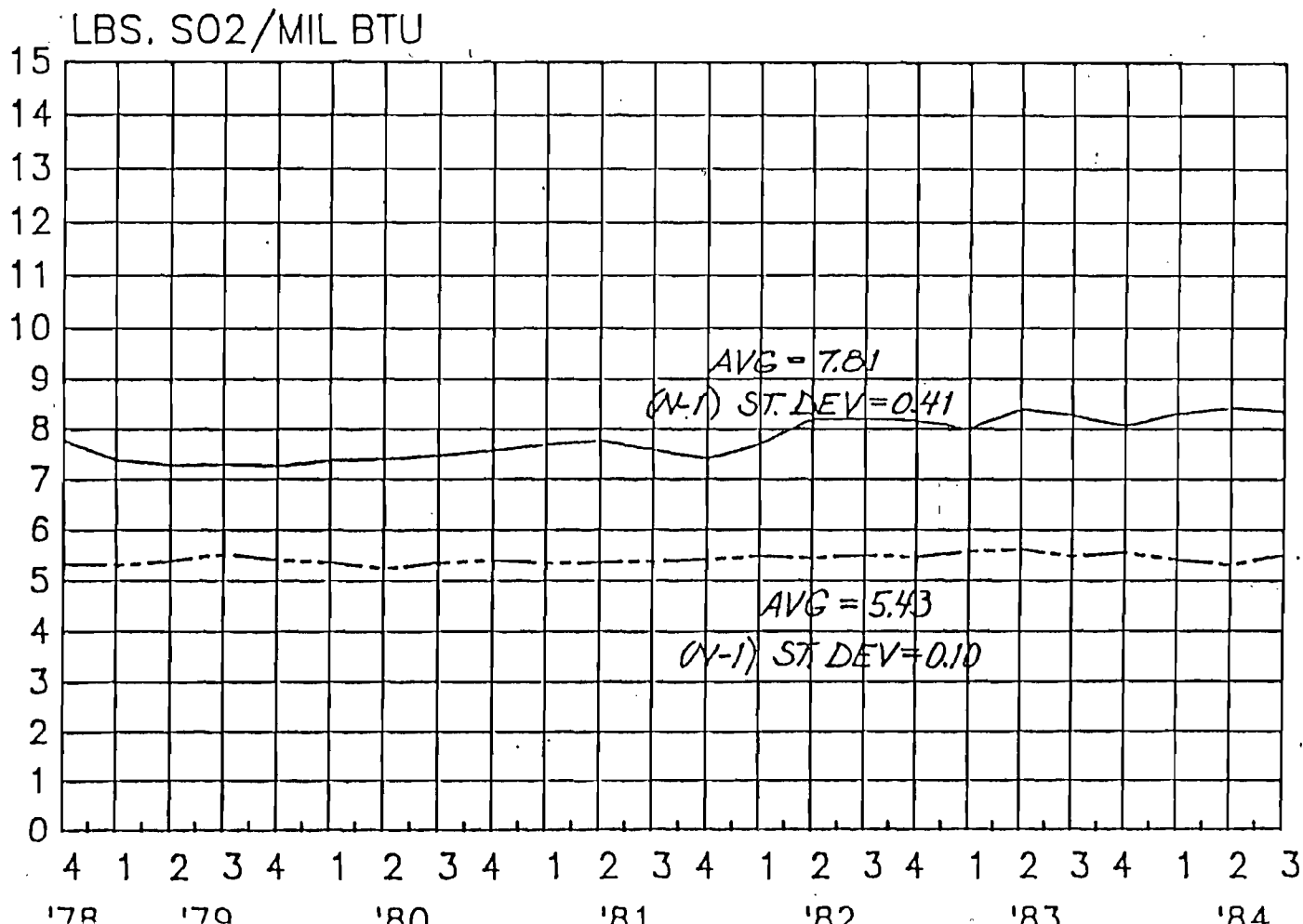


ZEIGLER COAL COMPANY

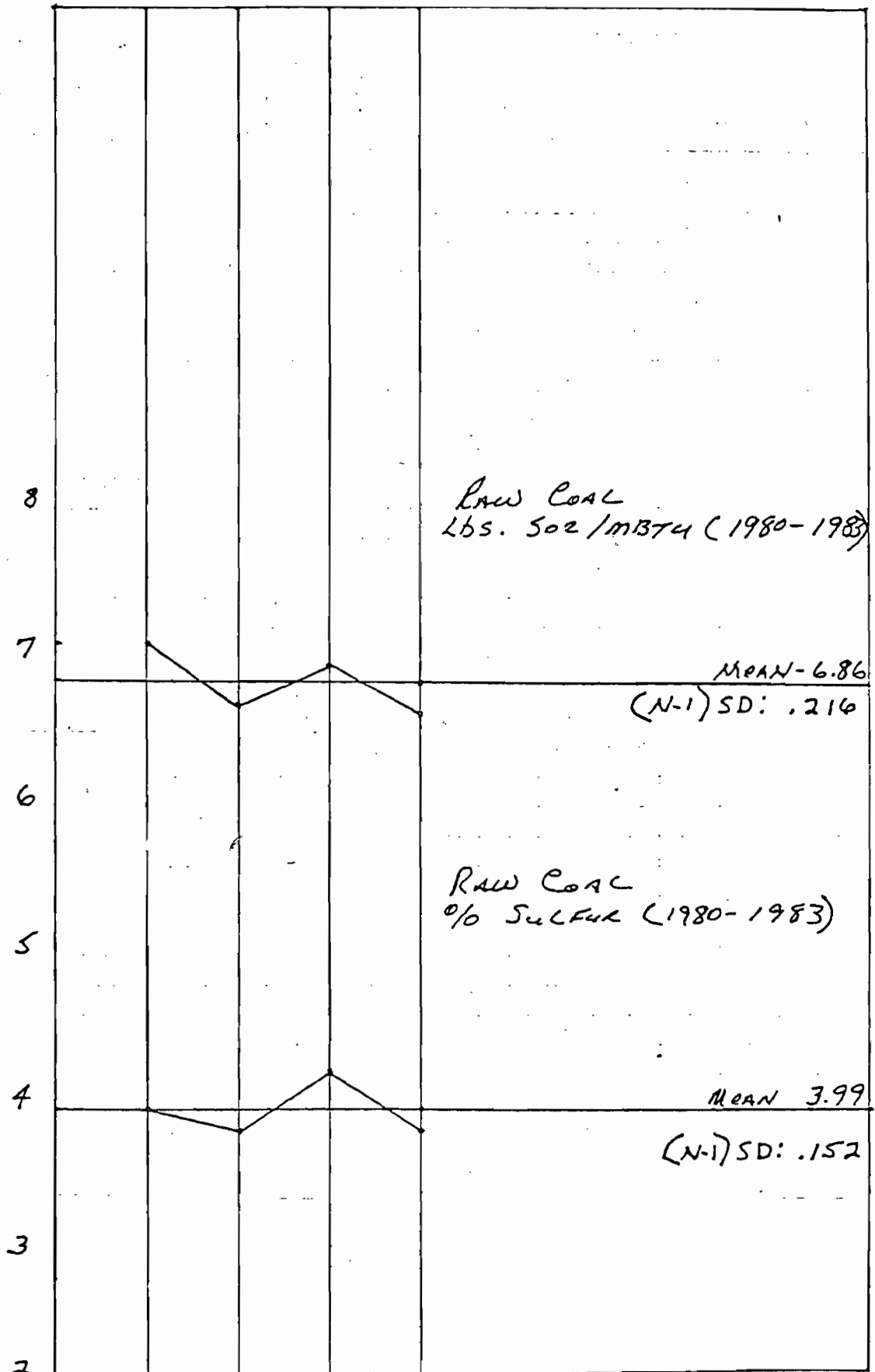
CCP-SO₂-ANALYSES

#SO₂/MIL-BTU (RF)

#SO₂/MIL-BTU (SH)



RAW COAL ANALYSIS DRY BASIS



SEP - 6 1983

REF: 4AW-AM

Mr. Mike Opalinski
Seminole Electric Cooperative, Incorporated
P. O. Box 272000
Tampa, Florida 33688-2000

Dear Mr. Opalinski:

This letter is a follow-up to my June 21, 1983, letter regarding Seminole's request of a variation to the coal sampling procedures contained in Method 19. This variation was specifically requested for Seminole Power Plant, units 1 and 2 which are subject to 40 CFR 60, Subpart Da.

We have completed our review of the supporting information which you submitted with your request and have conferred with the Florida Department of Environmental Regulation concerning your request. The requested procedure in lieu of ASTM D2234 appears to be adequate for the purposes of calculating a quarterly coal cleaning credit, and we hereby grant your request provided the following important features are maintained:

- 1) Daily raw coal samples shall be collected from each mine coal washing facility throughout the quarter.
- 2) Raw coal feed belts shall be stopped once per day and a five-foot section of coal (approximately 200 pounds) will be manually removed for analysis.
- 3) Sampling times shall be randomly selected.
- 4) ASTM coal analysis procedures required by Method 19 shall be utilized.
- 5) Calculations of weighted averages shall be made for the two mines.

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-2-

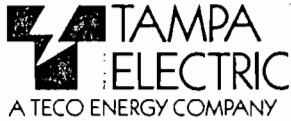
If you have further questions regarding this matter, please contact Messrs. Joe Riley or Brian Beals of the Air Engineering Section at 404/881-4901.

Sincerely yours,

/s/ John A. Little
Deputy Regional Administrator

Charles F. Jeter
Regional Administrator

cc: James Manning, FL DER, Tallahassee
Steve Smallwood, FL DER, Tallahassee
G. D. Dutton, FL DER, Jacksonville



Air
File

TECO
Big bend #4

December 11, 1984

Mr. Charles R. Jeter
Regional Administrator
United States Environmental
Protection Agency
345 Courtland Street
Atlanta, Georgia 30365

D. E. R.

Re: Notification of actual initial startup
Big Bend Station, Unit 4
Tampa Electric Company
PSD-FL-040

DEC 12 1984

SOUTH WEST DISTRICT
TAMPA

Dear Mr. Jeter:

Pursuant to Title 40 of the Code of Federal Regulations Part 60.7(a)(3), please be advised that the actual date of initial startup for Unit 4 at Big Bend Station was December 5, 1984.

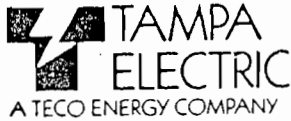
If you should have any questions, please feel free to call.

Sincerely,

A. Spencer Autry
Manager
Environmental Planning

ASA/tb

cc: H. S. Oven ✓
R. B. Garrity ✓



Garrity

D. E. R.

December 3, 1984

DEC 4 1984

SOUTH WEST DISTRICT
TAMPA

Mr. Hamilton S. Oven
Florida Department of
Environmental Regulation
Twin Towers Office Bldg.
2600 Blair Stone Road
Tallahassee, FL 32301-8241

D. E. R.

JAN 24 1985

SOUTH WEST DISTRICT
TAMPA

Re: Corrective Action Plan
Big Bend Station - Unit 4
Tampa Electric Company
PA 79-12

Dear Mr. Oven:

Please find attached a copy of the Corrective Action Plan for Pollution Control Equipment for the above-referenced source. This plan is submitted as required in the Florida Department of Environmental Regulation permit #PA 79-12, Conditions of Certification Section I.B.6.

If you should have any questions, please feel free to call.

Sincerely,

A. Spencer Autry
Manager
Environmental Planning

ASA/tb

cc: R. B. Garrity

BIG BEND UNIT 4

CORRECTIVE ACTION PLAN FOR
POLLUTION CONTROL EQUIPMENT

TAMPA ELECTRIC COMPANY

DECEMBER 1984

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I. Introduction

Tampa Electric Company (TEC) Big Bend Unit 4 is a 417 MW (net) coal-fired electric generating unit at the existing Big Bend power plant site (See Figure 1). It has been designed to meet all applicable air quality control laws, and regulations.

This report satisfies the State of Florida Department of Environmental Regulations (FDER) permit number PA 79-12, Conditions of Certification, Section I, B.6. which states:

Prior to operation of the source, the permittee shall submit to the Department a standardized plan or procedure that will allow the permittee to monitor emission control equipment efficiency and enable the permittee to return malfunctioning equipment to proper operation as expeditiously as possible.

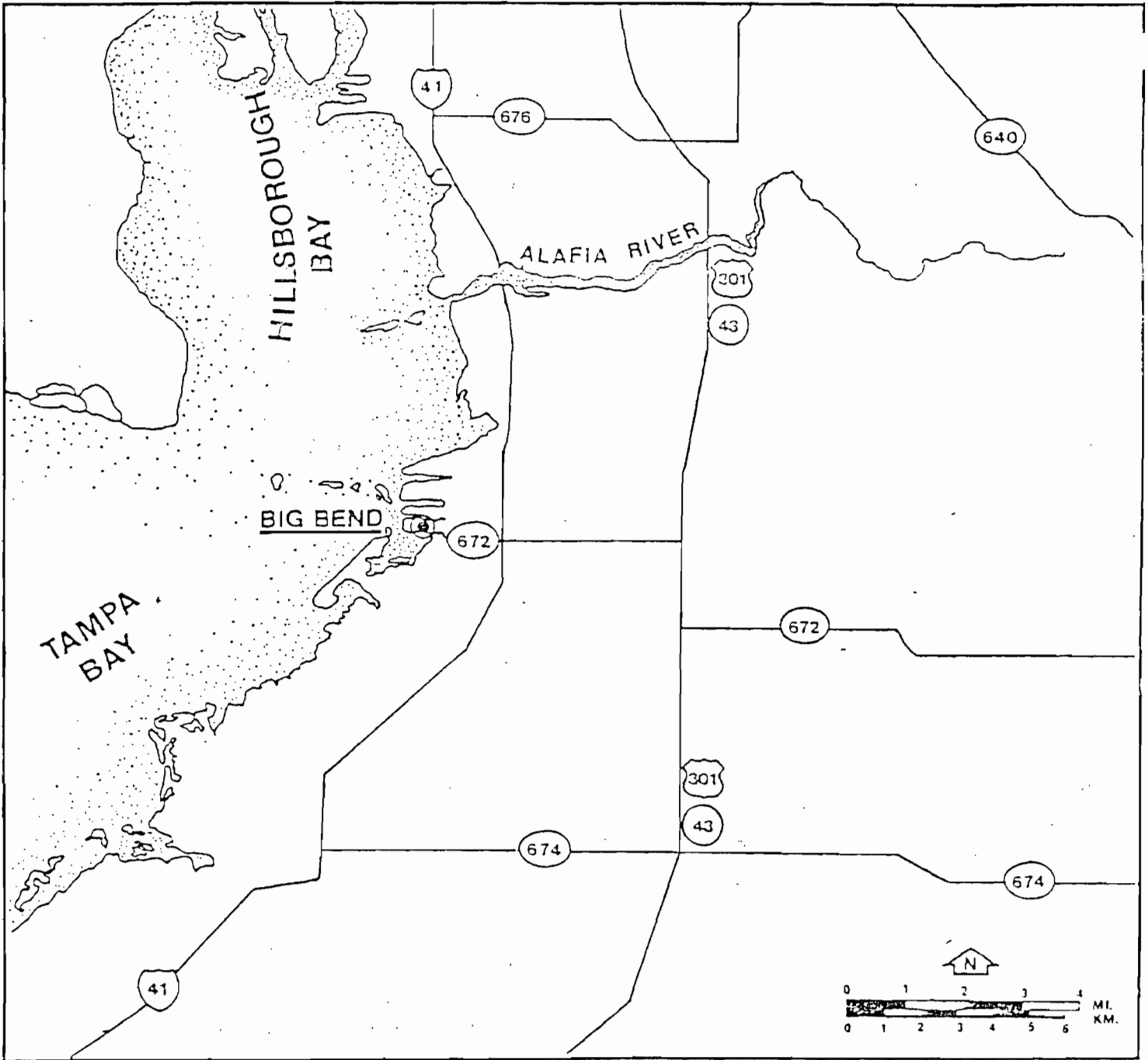


FIGURE 1 Location of Tampa Electric Company Big Bend Generating Units

II. Air Pollution Controls

As stated in Tampa Electric Company's PSD application, the principle air pollution control techniques and systems incorporated in the design of the facility are:

- Particulate Matter emissions from the boiler will be controlled by an electrostatic precipitator (ESP) installed at the exit of the air preheater (in compliance with the New Source Performance Standards (NSPS)).
- SO₂ emissions will be minimized by a combination of coal washing and boiler exhaust gas cleaning using a flue gas desulfurization (FGD) system (in compliance with the NSPS).
- NO_x formation during combustion will be inhibited by the proper operation and design of the boiler and combustion air control system (in compliance with NSPS).
- CO emissions will be minimized by optimum excess-air operation and design of the combustion air control system.
- Fugitive dust emissions resulting from the receiving, handling, and storage of coal and limestone will be minimized by the surface moisture content of coal in storage piles; particle size of received limestone; containment and control of transfer points, conveyors,

and crushing equipment; and proper maintenance of coal and limestone handling facilities.

A flow diagram of the combustion system and associated air pollution control techniques and equipment is presented in Figure 2.

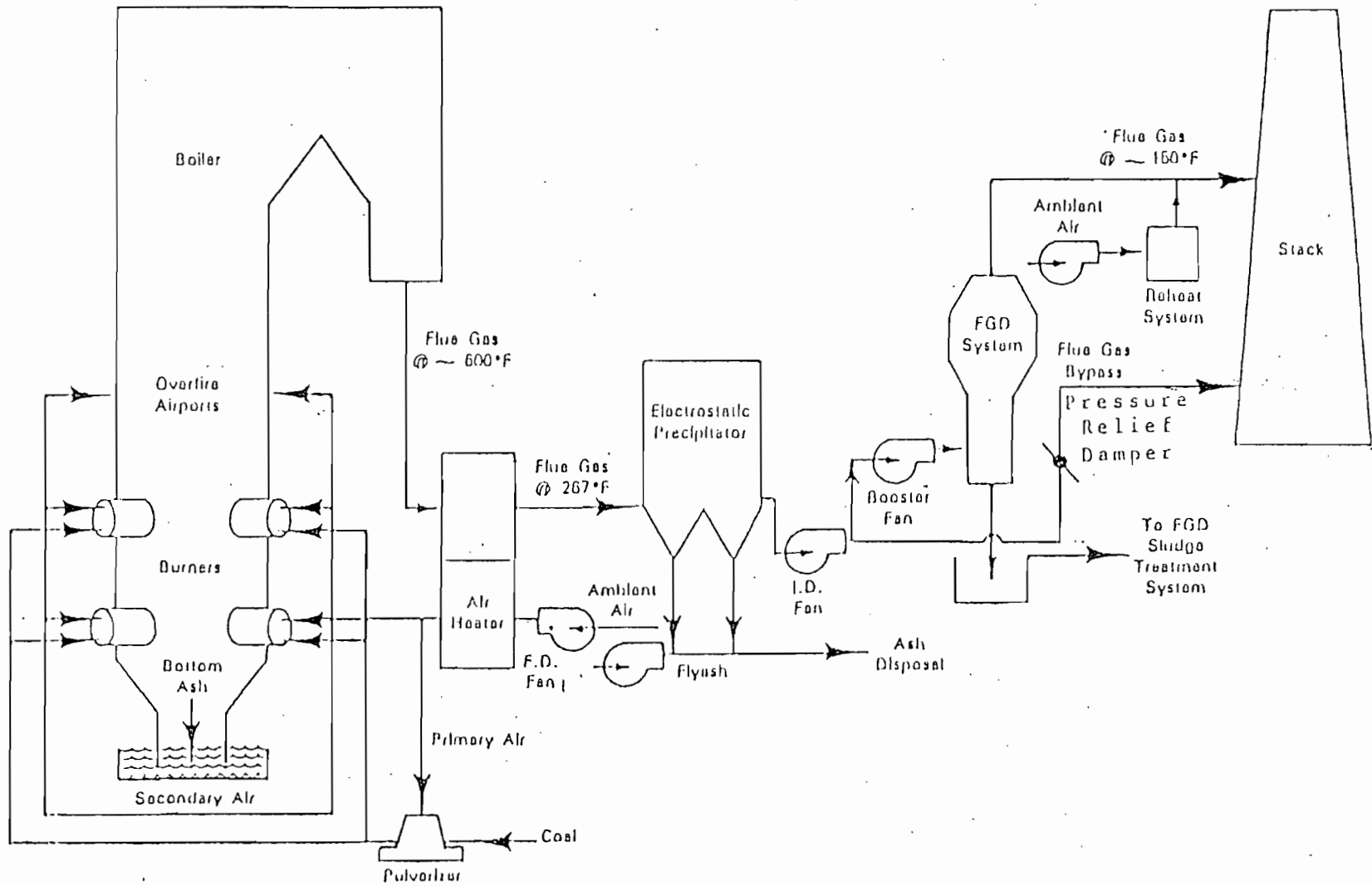


Figure 2

Air Pollution Control Systems for Big Bend Station Unit 4

III. Particulate Control System

1. General Description

Big Bend Unit 4 is equipped with two identical Belco rigid frame electro-static precipitators (upper and lower) for the control of particulate contained in the boiler exhaust gases. The precipitator is located downstream of the air preheater and upstream of the FGD system. The precipitator has been designed for a removal efficiency of 99.74%. Based on the design goals for Big Bend Unit 4, this removal efficiency ensures an emission limit of 0.03 pounds of particulate per million BTU. Compliance will be demonstrated annually by an in-stack emission compliance test. Figure 2 shows the Big Bend Unit 4 combustion system and associated pollution control equipment.

2. Principle of Operation

Boiler exhaust gases containing particulate pass between high voltage electrodes and grounded collecting plates. The electric fields established between the electrodes and the grounded plates polarizes the particulate which causes it to become attached to the grounded collecting plates. Periodic mechanical rapping of the collecting plates dislodges the attached particles from the plates and collect it in the flyash hoppers. The collected particulate will be conveyed from the hoppers and transported to the Big Bend Unit 4 flyash silo.

3. Operation

3.1 Operator Monitoring

Performance of the electrostatic precipitator is monitored by plant operators. Collective responsibilities of these operators include:

- A. Maintaining proper opacity.
- B. Reviewing the following precipitator parameters:
 - 1. Power availability to the annunciator panel
 - 2. Status of the alarms
 - 3. Primary voltage
 - 4. Primary current
 - 5. Proper functioning of the mechanical rapping system
 - 6. Spark rate
- C. Reviewing the following flyash handling system parameters:
 - 1. Power availability to the annunciator panels
 - 2. Status of the alarms
 - 3. Proper functioning of the flyash feeder valves
 - 4. Proper sequencing of each flyash feeder
 - 5. Adequacy of flow of flyash from hoppers through flyash feeders.
- D. Initiating a Maintenance Job Request (MJR) for any needed repairs. (An MJR is the means by which all maintenance work is initiated and documented by Tampa Electric Company.)

3.2 Annunciator System

Any monitored variable that deviates from the specified control limits will be alarmed in the main plant control room as well as the precipitator control room. The alarm in the main plant control room will indicate PRECIPITATOR TROUBLE and the alarm in the

precipitator control room will indicate the cause of the PRECIPITATOR TROUBLE alarm. Figures 3 and 4 show the main plant control room and the lower precipitator control room annunciator panels, respectively. The annunciator panel shown in Figure 4 is duplicated for the upper precipitator. Both the upper and lower annunciator precipitator panels are located in the precipitator control room.

4. Malfunction Response

An opacity monitor continuously monitors precipitator exit gases. The opacity monitor will indicate any exceedance of the applicable opacity limits, including exceedances that may be due to precipitator malfunctions.

In the event that stack opacity reaches an alert alarm point based on the applicable opacity limits, an annunciator will alarm in the main plant control room, SMOKE DENSITY HIGH (Figure 3). The main plant control room operator will alert the responsible operator within the plant. This operator will review both the precipitator and flyash system to identify and correct the cause of the SMOKE DENSITY HIGH alarm. If necessary, the operator will reduce generation in order to ensure environmental compliance.

Any problem identified by plant operators will be corrected by the operators. Those problems that cannot be corrected by the operator will be referred to the appropriate craft personnel by generating an MJR. Craft personnel will address the problem under an emergency

status. When repairs can be effected immediately, craft personnel will do so. Otherwise, repairs will be deferred until the next unit outage.

Another type of alarm that an operator will respond to is PRECIPITATOR TROUBLE which will be alarmed in the plant main control room and called out on the plant public address (PA) system so that a plant operator can respond to the condition.

Upon hearing the PRECIPITATOR TROUBLE alarm called out on the plant PA system, the plant operator will go to the precipitator control room where an annunciator panel will identify the specific cause of the PRECIPITATOR TROUBLE alarm. Afterwards, the operator will go to the affected equipment and correct the problem immediately. Those problems which cannot be corrected by the operator will be referred to appropriate craft personnel by the operator generating an MJR.

5. Repair Procedures

All maintenance work is initiated by an MJR. All operating, maintenance, and engineering personnel share the responsibility of originating MJRs.

In the event of an emergency (a situation which constitutes a hazard to equipment or personnel, loss of production, or noncompliance), immediate attention and repairs will be initiated. Work will continue until the problem has been corrected. An MJR is not needed to start emergency type work, but must be provided as soon as practical.

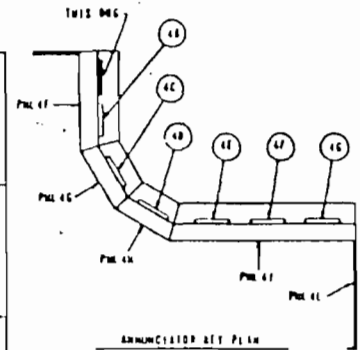
Copies of emergency MJRs are forwarded to plant management for their review and analysis.

BEST AVAILABLE COPY

Main Plant Control Room Annunciator Panel

Figure 3

| | | | | | | | | | |
|-----------------------------------|---|---|---------------------------------|--|-------------------------|--------------------------------|---------------------------------|----------------------------|---------------------|
| | FURNACE PRESSURE HIGH | B TO FAN TRIP | A TO FAN TRIP | | A PRECIPITATOR TROUBLE | B PRECIPITATOR TROUBLE | | | |
| 4411 | 4412 | 4413 | 4414 | 4415 | 4416 | 4417 | 4418 | 4419 | 4420 |
| COMBUSTION AIR FLOW LOW | FURNACE PRESSURE LOW | B TO FAN TROUBLE | A TO FAN TROUBLE | FO FAN FLOW AIR TROUBLE | AIR FUEL RATIO LOW | | | | |
| 4421 | 4422 | 4423 | 4424 | 4425 | 4426 | 4427 | 4428 | 4429 | 4430 |
| COMBUSTION AIR FLOW TRIP BYPASSED | FURNACE PRESSURE HIGH-LOW TRIP BYPASSED | AIR FLOW TRIP TROUBLE | ANALOG CONTROL PUMP TROUBLE | ANNUNCIATOR POWER SUPPLY TROUBLE | O ₂ HIGH LOW | | | PRESSURE RELIEF VALVE OPEN | BOOSTER FAN TRIP |
| 4431 | 4432 | 4433 | 4434 | 4435 | 4436 | 4437 | 4438 | 4439 | 4440 |
| FURNACE PRESSURE TRIP DEVIATION | FURNACE PRESS TRIP DEVIATION BYPASSED | AIR HEATER COND END AVERAGE TEMPERATURE LOW | ELECTROSTATIC RELIEF VALVE OPEN | LOSS OF BOILER DRUM ACTUATOR DRIVE POWER | SMOKE DENSITY HIGH | FGO INLET SO ₂ HIGH | FGO OUTLET SO ₂ HIGH | | BOOSTER FAN FAILURE |
| 4441 | 4442 | 4443 | 4444 | 4445 | 4446 | 4447 | 4448 | 4449 | 4450 |



ANNUNCIATOR KEY PLAN
ANNUNCIATOR DEVICE NUMBER
SHOWN IN CIRCLES

- NOTES:
1. SEE ANNUNCIATOR GENERAL NOTES - SEE ESK-10A, 10B & 10C
 2. FOR ELEMENTARY DIAGRAMS - SEE ESK-10A THROUGH 10C
 3. FOR WIRING DIAGRAMS - SEE 17400-01 ET AL

ANNUNCIATOR 4A-BIMOR ARRANGEMENT & EMPLOYING

CR 700
110 7544
FOR
CR 700

BIMOR ARRANGEMENT
ANNUNCIATOR 4A (PANEL 47) SB 1
UNIT NO 4 BIG B/O STATION
TAMPA ELECTRIC COMPANY

12408-ESK-10AA

| | | | |
|--|---|--|---|
| A PRECIPITATOR VOLTAGE HIGH 4LJ11 | A PRECIPITATOR ANNUNCIATOR GROUND 4LJ12 | OUTLET DISTRIBUTION PLATE RAPPER TROUBLE 4LJ13 | RAPPER DRIVE MOTOR TROUBLE 4LJ14 |
| INSULATOR COMPARTMENT FAN TROUBLE 4LJ21 | INSULATOR COMPARTMENT FILTER CLOGGED 4LJ22 | INSULATOR COMPARTMENT PRESSURE LOW 4LJ23 | INSULATOR COMPARTMENT TEMP LOW 4LJ24 |
| 4LJ31 | 4LJ32 | 4LJ33 | 4LJ34 |
| HOPPER 11A ASH LEVEL HIGH 4LJ41 | HOPPER 12A ASH LEVEL HIGH 4LJ42 | HOPPER 13A ASH LEVEL HIGH 4LJ43 | HOPPER 14A ASH LEVEL HIGH 4LJ44 |
| HOPPER 21A ASH LEVEL HIGH 4LJ51 | HOPPER 22A ASH LEVEL HIGH 4LJ52 | HOPPER 23A ASH LEVEL HIGH 4LJ53 | HOPPER 24A ASH LEVEL HIGH 4LJ54 |
| HOPPER 31A ASH LEVEL HIGH 4LJ61 | HOPPER 32A ASH LEVEL HIGH 4LJ62 | HOPPER 33A ASH LEVEL HIGH 4LJ63 | HOPPER 34A ASH LEVEL HIGH 4LJ64 |
| HOPPER 41A ASH LEVEL HIGH 4LJ71 | HOPPER 42A ASH LEVEL HIGH 4LJ72 | HOPPER 43A ASH LEVEL HIGH 4LJ73 | HOPPER 44A ASH LEVEL HIGH 4LJ74 |
| HOPPER 51A ASH LEVEL HIGH 4LJ81 | HOPPER 52A ASH LEVEL HIGH 4LJ82 | HOPPER 53A ASH LEVEL HIGH 4LJ83 | HOPPER 54A ASH LEVEL HIGH 4LJ84 |
| 4LJ91 | 4LJ92 | 4LJ93 | 4LJ94 |

A PRECIPITATOR LOCAL ANN 4LJ WINDOW ARRANGEMENT & ENGRAVING
PRECIP - ELEVATION 105'

IV. Sulfur Dioxide Removal System

1. General Description

Big Bend Unit 4 is equipped with a Research-Cottrell Double Loop (TM) FGD system for the control of sulfur dioxide (SO₂) emissions. At least 90% of the potential SO₂ emissions will be reduced utilizing washed coal and the above FGD system as required by the PSD permit.

The Big Bend Unit 4 FGD system has been designed to provide for reliable FGD system operation. Tampa Electric Company's specification required the vendors to provide the best available equipment for the application, to provide 100% equipment redundancy on rotating equipment and major systems, and to provide the proper organization for initial operation.

2. Principle of Operation

The FGD system receives flue gas from the boiler I.D. fans discharge and either removes the required amount of SO₂ utilizing limestone (calcium carbonate, CaCO₃), and reheats the gas for discharge to the stack or directs the flue gas through the pressure relief damper (PRD) under emergency conditions. (See Figure 2).

Limestone (CaCO₃) slurry contacts the SO₂ in the flue gas in the absorber towers. In the towers, the conditions necessary for the SO₂ and CaCO₃ chemical reactions are maintained. The Unit 4 FGD system

consists of four absorber towers each capable of treating one third of the total gas flow.

The flue gas is directed tangentially into the quencher section of each absorber tower by the tower booster fan. The cyclonic motion of the gas in the quencher reduces gas velocity. The gas is cooled to saturation by spraying it with a solids-slurry mix, of which 3-5% of the solids is unreacted limestone and the remainder reaction products. This liquid to gas contact removes a small amount of the incoming SO_2 .

The gas then passes around the slurry bowl to the absorber loop. The gas is brought into contact with a solids slurry mix, of which 20-40% of the solids is unreacted limestone and the remainder reaction products. It is in the absorber section that the $\text{SO}_2/\text{CaCO}_3$ reaction is maximized and the required SO_2 removal is completed. Water entrained in the scrubbed gas stream is then removed by the mist eliminators in the absorber tower. The gas enters a common duct where it mixes with the gas exiting the other towers in service. The combined gases are reheated through direct contact with hot ambient air before entering the stack.

The number of towers in service and the amount of limestone reagent needed in the towers is dependent on the amount of flue gas being scrubbed and the SO_2 mass flow entering the towers.

3. Operation

Plant personnel will monitor FGD system performance by operator surveillance, the plant computer, laboratory analysis, and control room instrumentation. This instrumentation, includes but is not limited to, the process continuous monitoring equipment and process stream instrumentation on the control panels.

3.1 Analytical Work

Fuel, limestone, make-up water, return water, and process slurry streams will be sampled and analyzed for verification of continuous monitoring equipment, for monitoring mechanical equipment performance, and for monitoring process performance. Additionally, laboratory analyses will assure by-product gypsum quality and an efficient and cost effective operation.

3.2 FGD System Monitoring

The FGD system is equipped with instrumentation that continuously monitor the various operational parameters associated with the "scrubbing" process. The instrumentation indication includes, but is not limited to: flowrate, temperature, pressure, SO₂ concentrations, pH and density. Plant operators rely on all instrumentation and controls to monitor and operate the FGD system.

In addition to the above, continuous emission monitors (CEM) located in the FGD inlet duct and in the FGD outlet duct, are used to document the FGD system emissions and the FGD system percent SO₂ removal. The output from the CEMS is tied into a Honeywell software package in

the main computer. The computer processes the data into a format which documents the following:

1. The SO₂ emission rate from the FGD system (lb/MM BTU) .
2. The inlet SO₂ concentration.
3. The hourly, daily, and 30-day rolling averages of the inlet SO₂ and outlet SO₂ emissions.
4. The percent reduction in SO₂.
5. The 2-hour averages of outlet SO₂.

The software package also identifies an instrument malfunction or the following:

1. 2-hour averages of SO₂ emissions in excess of permit limitations.
2. 30-day rolling averages of SO₂ emissions in excess of permit limitations.
3. Reduction of SO₂ levels for the 30 day rolling averages less than the 90 percent reduction required by permit conditions.

4. Malfunction Response

4.1 General FGD

Plant operators will respond to problems identified through routine operator surveillance. When an exceedance of an emission limit is imminent, immediate operator action will be taken to identify and correct the problem in order to stay in compliance or to minimize stack

emissions. If the problem cannot be corrected by operator action, an MJR will be generated.

4.2 Pressure Relief Damper (PRD)

Flue gas leaving the induced draft fans can enter the stack in two ways, through the absorber towers or through the PRD. The PRD is open during boiler start-up on warm-up oil. When the boiler is burning coal, the PRD is closed, and all flue gas is directed through the absorber towers. The flue gas is routed through an absorber tower by the tower booster fan.

The PRD has two important functions:

1. To protect the boiler from back pressure due to loss of gas path.
2. To protect the FGD system from a boiler upset.

Because these functions are critical, redundant inlet temperature and inlet pressure signals are provided to a programmable controller. Redundant output signals are also provided from the programmable controller to de-energize the solenoids and operate the dampers in a "fast-open" mode. The PRD will fail "safe" in the open position in the event of a mechanical or control malfunction. This further reinforces the importance of its proper operation.

The following are conditions that will "fast open" the PRD indicating a unit upset or malfunction:

- a. Master Fuel Trip
- b. High FGD System Inlet Pressure
- c. Booster Fan Trip
- d. High FGD System Inlet Temperature
- e. Loss of Quencher Flow (in a tower that is in service)
- f. Loss of PC (programmable controller)
- g. Loss of instrument air
- h. Loss of 120V AC power to the solenoids

The alarm PRESSURE RELIEF DUCT DAMPER OPEN will be annunciated whenever the PRD is opened. This alarm will annunciate in both the FGD control room and the main plant control room. The cause for it opening (e.g., quencher low flow, high inlet temperature, and high inlet pressure), will annunciate in the FGD control room. The master fuel trip, as well as the cause for the master fuel trip, will alarm in the main plant control room.

a. MASTER FUEL TRIP

A master fuel trip will be initiated when an emergency condition requiring an immediate unit trip occurs. All fuel supplies to the boiler will be immediately shut off when the trip occurs.

b. HIGH FGD SYSTEM INLET PRESSURE

Increasing pressure in the ductwork between the induced draft fan discharge and the booster fan inlet (FGD inlet duct) will cause the booster fan inlet vanes to open in an attempt to maintain setpoint

pressure. If the inlet vanes reach 100% rating and the pressure continues to increase, the control logic will open the PRD. The absorber towers will remain in service and the PRD will remain opened to relieve the excess pressure. Because the opening of the PRD will cause the inlet duct pressure to drop, the booster fan inlet vanes controls will respond in attempt to maintain inlet duct setpoint pressure.

Both the high FGD system inlet pressure and the PRD opening will be alarmed in both the FGD control room and the main plant control room. When the PRD is open, unit generation will be curtailed at a rate consistent with responsible operating practices to minimize SO₂ emissions. When the fault is cleared, the PRD will be closed and generation will be restored.

In the event that the high inlet pressure is caused by a large boiler upset, the main plant control center operator will use his best judgement in stabilizing the boiler to protect plant equipment and personnel. This may or may not involve immediate generation curtailment. If it does not, generation will be reduced as soon as the control center operator is able to do so. When the upset is cleared the PRD will be closed directing 100% of the flue gas through the FGD system.

c. BOOSTER FAN TRIP

In the event of a booster fan trip, an automatic unit load "runback" is initiated by the boiler controls. The unit load runback is to one of two(2) predetermined load set points based on the gas flow condition at the time of the trip. One setpoint is for a two (2) tower operation, when three (3) fans are operating (3 tower operation) and one fan trips; the second setpoint is a lower load setpoint for a one (1) tower operation, when two (2) fans are operating (2 towers in operation) and one fan trips. The automatic runback of unit load is an attempt to lower the gas flow to prevent the PRD from opening on high inlet duct pressure.

If the PRD does open on a booster fan trip while the runback is active, the runback stops and holds that load value even though the setpoint has not been achieved. The main plant control center operator will release the hold and manually lower unit load until the operating tower(s) can accomodate the gas flow; the PRD will then be closed.

d. HIGH FGD INLET GAS TEMPERATURE

In the event that the FGD inlet duct temperature reaches 450 degrees F, the PRD will open, the booster fan inlet vanes will close, and the deluge water valve for each tower in service will open. This control action is for tower thermal protection. When the PRD is verified open, the control logic will close the absorber tower inlet and outlet isolation dampers and trip the booster fans;

when the isolation dampers are verified fully closed, the deluge valve will close. Alarms will annunciate in both the main plant and FGD control rooms indicating that the FGD system inlet gas temperature is high and that the PRD is open. This is an emergency condition requiring an immediate reduction in generation or an initiation of a unit trip by the main plant control center operator.

e. LOSS OF QUENCHER FLOW IN A TOWER IN SERVICE

One quencher pump with adequate flow is required for a tower in service to quench the gas for SO₂ absorption and thermal protection of tower internals. In the event that low flow is indicated by low pump motor wattage, the standby pump will receive a start command. If adequate flow is not restored within 3 minutes, the PRD will open. Alarms will indicate the PRD opening in both the main plant and FGD control rooms. In addition, a quencher low flow alarm on the effected tower will annunciate in the FGD control room. Once the PRD is verified open, the control logic will isolate the tower with the low flow condition by closing the tower inlet and outlet isolation dampers and tripping the tower booster fan. The remaining tower(s) in service will stay in service. Because the opening of the PRD will cause the inlet duct pressure to drop, the booster fan inlet vanes controls will respond in attempt to maintain inlet duct set point pressure.

Generation will be reduced until the remaining towers in service can accommodate the gas flow at which time the PRD will be closed. When the fault is cleared or another tower is readied for service, generation will be restored.

f. LOSS OF PROGRAMMABLE CONTROLLER (PC)

Loss of the PC will cause all FGD mechanical components to fail "safe". The PRD will open and all towers inlet and outlet isolation dampers will close causing all boiler flue gas to bypass the FGD system. The main plant control center operator will reduce generation in order to minimize SO₂ emissions. When the back-up programmable controller has been made operational and the correct logic has been established, the FGD system will be returned to service, and the PRD closed. Generation will then be restored.

g. LOSS OF INSTRUMENT AIR

A loss of main plant instrument air will trip the unit and cause the PRD to fail "safe" in the open position.

A loss of instrument air to the PRD solenoids will also cause the PRD to fail "safe" in the open position. In the latter case, the FGD tower(s) are still operational. Because the opening of the PRD will cause the inlet duct pressure to drop, the booster fan inlet vanes controls will respond in attempt to maintain inlet duct set point pressure. The main plant control center operator will

reduce generation in order to minimize SO₂ emissions. When instrument air to the PRD solenoids is reestablished the PRD will be closed and generation will be restored.

h. LOSS OF 120V AC POWER

Loss of power to the solenoids will cause the PRD to fail "safe" in the open position. In this case, the FGD tower(s) are still operational. Because the opening of the PRD will cause the inlet duct pressure to drop, the booster fan inlet vanes controls will respond in attempt to maintain inlet duct set point pressure. The main plant control center operator will reduce generation in order to minimize SO₂ emissions. This will continue until power is restored to the PRD. When power is restored, the PRD will be closed and load will be restored.

4.3 PRD Testing

Because of the importance of the PRD responding under emergency conditions, it will be fully stroked once per day. Test control switches have been provided solely for this purpose. The FGD system will remain in service during this activity, which should require approximately forty seconds.

4.4 Emergency Communications

In the event of an emergency condition the person in charge (Supervisor of Plant Operations) will contact the plant general manager or his designated assistant.

Information containing the time of upset, the cause of upset, the corrective action taken, and the actions taken to minimize air emissions will be documented by plant operations. The log will be reviewed by the FGD engineer who will notify Tampa Electric Company's Environmental Planning Department. The Environmental Planning Department will implement notifications to the Environmental agencies, as necessary.

5. Repair Procedures

FGD Repair Procedures are similar to that for the Electrostatic Precipitator. See Section III.5.

V. Continuous Emission Monitors (CEM)

1. Equipment Application

Big Bend Unit 4 is equipped with continuous emission monitors to analyze flue gas for SO₂, NO_x, O₂, and opacity. These monitors supply data that is necessary to ensure environmental compliance when the unit is in operation. Each of these process variables is discussed below.

1.1 SO₂

SO₂ concentration is measured at both the inlet and outlet ducts of the FGD system. The two measurements are used jointly to determine overall percent SO₂ removal by the FGD system. The outlet duct concentration is used to determine SO₂ emissions.

SO₂ concentration at the outlet duct is measured by a Lear Siegler Model SM 810 in-situ SO₂/NO_x dual gas analyzer. SO₂ concentration at the inlet duct is measured by a Lear Siegler Model SM 810 in-situ SO₂ single gas analyzer. Both analyzers provide analog signals representing SO₂ concentration and flue gas temperature to the plant process computer and to a strip chart recorder located in the plant main control room. The plant process computer will convert the analog signal to pounds SO₂ per MM BTU and the strip chart recorder will indicate SO₂ concentration in ppm. In the event that SO₂ concentration exceeds a predetermined setpoint, an annunciator panel alarm in the plant main control room will alert operators to higher than normal SO₂ level.

Each analyzer also provides a digital signal to the plant process computer anytime it is in a malfunction condition or in a zero/span calibration mode. Additionally, the computer will also log any occurrence of the analyzer exceeding calibration span.

1.2 NO_x

NO_x concentration is measured at both the inlet and outlet ducts of the FGD system. Either the inlet or outlet duct signals can be used to determine NO_x emissions.

NO_x concentration in the outlet duct is measured by a Lear Siegler Model SM 810 in-situ SO₂/NO_x dual gas analyzer. This is the same analyzer used to measure SO₂ concentration in the outlet duct of the FGD system. NO_x concentration in the inlet duct is measured by a Dupont Model 461 extractive NO_x analyzer.

Either monitor can be used to provide an analog signal representing NO_x concentration to the plant process computer and to a strip chart recorder located in the plant main control room. The plant process computer will convert the analog signal to pounds NO_x per MM BTU and the strip chart recorder will indicate NO_x concentration in ppm. In the event that NO_x concentration exceeds a predetermined setpoint, an annunciator panel in the main plant control room will alert operators to higher than normal NO_x level.

Each analyzer also provides a digital signal to the plant process computer anytime it is in a malfunction condition or in zero/span calibration mode. Additionally, the computer will also alarm any occurrence of the analyzer exceeding calibration span.

1.3 O₂

O₂ concentration is measured at both the inlet and outlet ducts of the FGD system. These values are used by the plant process computer to calculate SO₂ and NO_x emissions using a dry basis F factor (Fd).

O₂ concentration in both the inlet and outlet ducts is measured by a Lear Siegler Model CM 50 in-situ dilutant O₂ analyzer.

Both analyzers provide analog signals representing dilutant O₂ concentration to the plant process computer and to a strip chart recorder located in the plant main control room.

Each analyzer also provides a digital signal to the plant process computer anytime the analyzer is in a malfunction condition or in a zero/span calibration mode.

1.4 Opacity

Opacity is measured at the inlet duct of the FGD system by a Contraves Goerz Model 400 Opacity monitor coupled with a Model 500 Remote display unit.

This analyzer provides an analog signal representing opacity to the plant process computer and to a strip chart recorder located in the plant main control room. In the event that opacity exceeds a predetermined setpoint, an alarm in the plant main control room will alert operators to a higher than normal opacity level.

This analyzer also provides a digital signal to the plant process computer anytime the analyzer is in a malfunction condition or zero/span calibration mode.

2. Monitor Maintenance

In order to ensure continuous, accurate and reliable monitor performance, the following preventative maintenance checks will be initiated:

2.1 Lear Siegler, Inc; SM810

Daily

- Check security of mounting bolts, especially at the probe/flange interface
- Check fault monitors
- Check effluent temperature
- Check reference light intensity
- Review data file since last visit

Weekly

- Manually zero/span

- Inspect/clean optics system
- Check air purge system

Quarterly

- Grease probe
- Performed dynamic calibration
- Check heat blanket temperature

Semi-annual

- Inspect, clean and align optics plate assemblies
- Inspect and lubricate moving parts
- Inspect probe tubing and measurement cavity
- Clean window
- Align probe and transceiver
- Inspect J-Box, check operation
- Check calibration drifts
- Calibrate total system

Annual

- Replace probe filter

2.2 Dupont Co. Model 461

Daily

- Check sensing line heaters
- Check oven temperature
- Check sample flow
- Check oxygen pressure gauge
- Check sample vacuum indication
- Verify computer and recorder indication
- Verify 24 hour span check

Weekly

- Compare Meter Function Switch indicated values to calibration data.

Quarterly

- Check for loose or corroded terminations and fittings
- Perform amplifier Balance Test

Semi-annual

- Perform linearity Test
- Perform lamp Voltage Test
- Perform leak Test
- Perform analog Signal Processor Calibration

2.3 Lear Siegler Inc.; CM50

Daily

- Check fault monitors
- Review data file since last visit

Weekly

- Insure all fault indicators are in working order
- Check for agreement between recording mediums
- Check flow values
- Check air pressure
- Check probe temperature
- Perform an operational calibration

Quarterly

- Grease probe

Semi-annual

- Inspect/clean probe
- Calibrate probe heater circuit
- Calibrate cold junction correction circuitry
- Perform leak test
- Test output loops
- Clean, and inspect all switches, relays and solenoids
- Check TV and RMI/EMI circuits
- Check drift rate

Annually

- Replace ceramic probe filter

2.4 Contraves Goerz Corp.; Model 400/500

Daily

- Check fault monitors
- Review automatic zero and span values for excessive drift rate trends

Weekly

- Check function of all fault monitors
- Manually calibrate

Quarterly

- Clean optics
- Clean chopper
- Replace air filters
- Replace optical head dessicant
- Replace retroreflector dessicant

Best Available Copy

Semi-annual

- Clean and inspect optics/electronics
- Perform 24-hour calibration drift test
- Perform calibration error test
- Clean and inspect air flow system assemblies

3. Malfunction Response

When a problem is identified with any of the continuous emission monitors that causes a loss of data, the immediate operator action will be taken to correct the problem in order to resume data collection. If the problem cannot be corrected by operator action, an MJR will be generated to correct the problem.

In the event the malfunctioning CEM cannot be repaired to obtain the minimum data capture required by the environmental regulations, alternative monitoring system will be available to the plant to provide back-up data capture.

4. Repair Procedures

All maintenance work is initiated by a Maintenance Job Request (MJR). All operating, maintenance and engineering personnel share the responsibility of originating MJR's.

In the event of a CEM malfunction, an emergency MJR will be initiated and immediate action will be taken to identify the malfunction and correct the problem. An MJR is not needed to start emergency type work.

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

Air
Enforcement

DISTRICT ROUTING SLIP

TO: *Dan Williams*

DATE: *9/20/83*

C.C.
TO:

| | | | |
|---|-----------------|--------------------------------------|--|
| | PENSACOLA | NORTHWEST DISTRICT | |
| | PANAMA CITY | Northwest District Branch Office | |
| | TALLAHASSEE | Northwest District Branch Office | |
| ✓ | TAMPA | SOUTHWEST DISTRICT | |
| | ORLANDO | ST. JOHNS RIVER DISTRICT | |
| | JACKSONVILLE | NORTHEAST DISTRICT | |
| | GAINESVILLE | Northeast District Branch Office | |
| | FORT MYERS | SOUTH FLORIDA DISTRICT | |
| | PUNTA GORDA | South Florida District Branch Office | |
| | MARATHON | South Florida District Branch Office | |
| | WEST PALM BEACH | SOUTHEAST FLORIDA DISTRICT | |
| | PORT ST. LUCIE | Southeast Florida Subdistrict | |

Reply Optional

Reply Required

Info. Only

Date Due: _____

Date Due: _____

COMMENTS:

D.E.R.
SEP 22 1983
SOUTHWEST DISTRICT
TAMPA

FROM: *Steve Smallwood*

TEL.: *278-1344*



PA
OK

September 9, 1983

Mr. Steve Smallwood
Florida Department of
Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32301

DER
SEP 12 1983
BAQM

Re: Tampa Electric Company
Big Bend Unit No. 4

Dear Mr. Smallwood:

As per Section I.D.2. of the Conditions of Certification for Big Bend Unit No. 4, quarterly reporting of ambient air monitoring data to the Bureau of Air Quality Management is required. Enclosed are copies of the sulfur dioxide and total suspended particulate data for the second quarter of 1983.

If you have any questions concerning this data, please call.

Sincerely,

John B. Ramil, P.E.
Manager
Environmental Planning

JBR:tb

Enclosure

D.E.R.

SEP 22 1983

TAMPA ELECTRIC COMPANY
TAMPA BAY AREA
SO₂ DATA SUMMARY
APRIL 1983 - JUNE 1983
CONTINUOUS MONITORING DATA

| MONTH, <u>YEAR</u> | STATION <u>NUMBER</u> | TOTAL AVERAGE <u>VALUE PPM</u> | MAXIMUM VALUE PPM <u>3 HOUR</u> | MAXIMUM VALUE PPM <u>24 HOUR</u> |
|-----------------------|--------------------------|-----------------------------------|------------------------------------|-------------------------------------|
| April 1983 | B1 | 0.003 | 0.093 | 0.018 |
| April 1983 | B2 | 0.005 | 0.048 | 0.013 |
| April 1983 | B3 | 0.004 | 0.059 | 0.018 |
| April 1983 | B4 | 0.005 | 0.193 | 0.030 |
| April 1983 | B5 | 0.004 | 0.114 | 0.021 |
| May 1983 | B1 | 0.005 | 0.207 | 0.034 |
| May 1983 | B2 | 0.006 | 0.106 | 0.028 |
| May 1983 | B3 | 0.001 | 0.005 | 0.002 |
| May 1983 | B4 | 0.006 | 0.236 | 0.037 |
| May 1983 | B5 | 0.005 | 0.156 | 0.030 |
| June 1983 | B1 | 0.004 | 0.072 | 0.014 |
| June 1983 | B2 | 0.006 | 0.113 | 0.020 |
| June 1983 | B3 | 0.003 | 0.081 | 0.024 |
| June 1983 | B4 | 0.004 | 0.242 | 0.035 |
| June 1983 | B5 | 0.004 | 0.075 | 0.012 |

TAMPA ELECTRIC COMPANY
TAMPA BAY AREA
24 HOUR TSP DATA SUMMARY
APRIL 1983 - JUNE 1983

| STATION NUMBER | NUMBER OF OBSERVATIONS | MINIMUM OBSERVED | MAXIMUM OBSERVED | 2ND MAX OBSERVED | ARITHMETIC MEAN | STANDARD DEVIATION | GEOMETRIC MEAN | GEOMETRIC STANDARD DEVIATION |
|-------------------|---------------------------|---------------------|---------------------|---------------------|--------------------|-----------------------|-------------------|------------------------------------|
| B1 | 15 | 24 | 67 | 64 | 42 | 14.82 | 39 | 1.44 |
| B3 | 15 | 20 | 55 | 46 | 34 | 9.60 | 33 | 1.32 |

TAMPA ELECTRIC COMPANY
TAMPA BAY AREA
24 HOUR TSP DATA SUMMARY
APRIL 1983 - JUNE 1983

| SAMPLE DATE | AMBIENT TEMPERATURE (°F) | STATION #B1 MICROGRAMS/M ³ | STATION #B3 MICROGRAMS/M ³ |
|----------------|-----------------------------|--|--|
| 4-6-83 | 74 | 44.81 | 29.65 |
| 4-12-83 | 74 | 46.92 | 39.31 |
| 4-18-83 | 74 | 64.10 | 30.71 |
| 4-24-83 | 74 | 66.55 | 54.77 |
| 4-30-83 | 74 | 42.85 | 40.83 |
| 5-6-83 | 74 | 41.05 | 38.57 |
| 5-12-83 | 74 | 50.85 | 42.36 |
| 5-18-83 | 74 | 60.67 | 46.37 |
| 5-24-83 | 74 | 51.15 | 26.95 |
| 5-30-83 | 74 | 25.65 | 27.20 |
| 6-5-83 | 74 | 24.24 | 19.80 |
| 6-11-83 | 74 | 23.82 | 24.68 |
| 6-17-83 | 74 | 28.90 | 36.02 |
| 6-23-83 | 74 | 29.82 | 31.25 |
| 6-29-83 | 74 | 27.66 | 23.32 |

file

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION
INTEROFFICE MEMORANDUM

| | | |
|---|--------------------|----------------|
| For Routing To District Offices And/Or To Other Than The Addressee | | |
| To: _____ | Loctn.: _____ | |
| To: _____ | Loctn.: _____ | |
| To: _____ | Loctn.: _____ | |
| From: _____ | Date: _____ | |
| Reply Optional [] | Reply Required [] | Info. Only [] |
| Date Due: _____ | Date Due: _____ | |

TO: Larry George

FROM: Bill Thomas *[Signature]*

DATE: June 27, 1983

SUBJECT: Hillsborough County - AP
Tampa Electric Company
Big Bend Facility

Attached is a February 11, 1983 letter from John B. Ramil to Dan Williams regarding the impact of the Big Bend Facility on the Hillsborough County TSP nonattainment area. They claim the facility does not have a significant impact on the area based on the modeling conducted in conjunction with the siting application Big Bend Unit #4.

We do not have the expertise to evaluate whether their statements are accurate or not. Our feeling is that our largest source of particulates in Hillsborough County located on 5.3 KM south of the boundary of the nonattainment area must have a significant impact at some location within the boundaries of the nonattainment.

BAQM should have or be able to attain from our Power Plant Siting people, a copy of the modeling conducted. When time permits, please take a look at their results and let us know your evaluation.

We appreciate your continued assistance.

JE/scm

cc: HCEPC



Air
check
Big Bend #4
Vol. 1 & 2 Applic.

February 11, 1983

D.E.R.
FEB 14 1983
SOUTHWEST DISTRICT
TAMPA

Mr. Dan A. Williams, P.E.
District Manager
Florida Department of Environmental
Regulation
7601 Highway 301 North
Tampa, FL 33610-9544

Re: Hillsborough County - AP
Tampa Electric Company
Big Bend Station

Dear Mr. Williams:

This letter is in regard to the question of whether Tampa Electric Company's Big Bend Station is subject to the Particulate RACT requirements of Section 17-2.650(2), Florida Administrative Code.

As part of the air permit applications for Big Bend Station Unit 4, an air quality impact analysis was conducted using three EPA-approved air quality models: the Air Quality Display Model (AQDM-Briggs) the Point Multiple Model with wind shear effects (PTMTPW), and the CRSTER Single Source Model.

The air quality impact analysis, which is contained in Volume I of the Big Bend Unit 4 Prevention of significant Deterioration (PSD) Application, demonstrated that the 24-hour TSP concentrations due to Big Bend are below the significance of impact level of $5\mu\text{g}/\text{m}^3$, 24-hour average and $1\mu\text{g}/\text{m}^3$, annual average. This analysis indicated that at the Hillsborough County TSP nonattainment area, the maximum 24-hour average TSP concentration due to Big Bend Units 1-4 is $3.7\mu\text{g}/\text{m}^3$ while the maximum annual average was determined to be $0.2\mu\text{g}/\text{m}^3$.

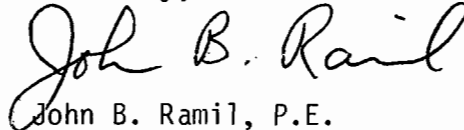
The air quality impact analysis for Big Bend Unit 4 limestone handling system and fly ash silo (Big Bend 4 PSD Application, Volume II) shows a maximum predicted 24-hour concentration of $4.11\mu\text{g}/\text{m}^3$, and a maximum predicted annual concentration of $0.33\mu\text{g}/\text{m}^3$. These maximum predicted concentrations occurred at a distance of 0.3km and more than 5km from the Hillsborough County TSP non-attainment area. These results indicate that emissions from the baghouse-equipped fly ash silos of Units 1-3 have impacts only in the immediate vicinity of Big Bend Station.

Mr. Dan Williams
Page 2
February 11, 1983

These air quality impact analysis results indicate that Big Bend does not significantly impact TSP levels at the TSP non-attainment area, which is 5.3 kilometers north of the plant and, therefore, is not subject to RACT requirements.

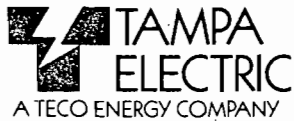
Should you have any further questions concerning this matter, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "John B. Ramil". The signature is written in dark ink and is positioned above the typed name and title.

John B. Ramil, P.E.
Manager
Environmental Planning

cc: Jim Estler



February 11, 1983

Mr. Dan A. Williams, P.E.
District Manager
Florida Department of Environmental
Regulation
7601 Highway 301 North
Tampa, FL 33610-9544

Re: Hillsborough County - AP
Tampa Electric Company
Big Bend Station



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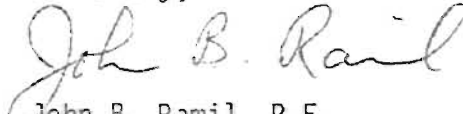
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Mr. Dan Williams
Page 2
February 11, 1983

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Should you have any further questions concerning this matter, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "John B. Ramil".

John B. Ramil, P.E.
Manager
Environmental Planning

cc: Jim Estler

APPLICATION PSD-FL-040
PRELIMINARY DETERMINATIONI. Applicant

Tampa Electric Company (TECO)
Post Office Box 111
Tampa, Florida 33601

II. Location

The proposed modification is located 5 miles north of Ruskin, Hillsborough County, 10 miles south of the city of Tampa and 14 miles east of St. Petersburg at Big Bend between Tampa and Hillsborough Bays, Florida. The northern and southern property boundaries are Big Bend Road and U. S. Highway 41, respectively. The UTM coordinates are 3075.0 km north and 361.6 km east.

III. Project Description

The applicant proposes to modify their Big Bend power generating facility by construction of a fourth coal-fired steam electric generating station (Big Bend Unit 4) with a 425 megawatt capacity. The new unit is to utilize the existing stack servicing Big Bend Unit 3. The boiler will fire a maximum of 4330 million Btu's per hour or approximately 206.5 tons per hour of a medium sulfur bituminous coal having a maximum higher heating value of 12,628 Btu/lb. Of the coals under consideration, the maximum sulfur content coal has 4.0 percent sulfur by weight.

Coal and limestone materials handling, storage and preparation facilities also will be constructed. The scheduled starting date for commercial operation of Big Bend Unit 4 steam electric generating station is the first quarter of 1985 calendar year.

Specific emitting facilities to be constructed are as follows:

1. Steam generator (425 MW; 4330 MMBtu/hr);
2. Coal receiving facilities (barge);
3. Coal transfer facilities;
4. Coal storage pile;
5. Coal preparation (crushing and washing) facilities;
6. Limestone receiving facilities (rail);

7. Limestone storage pile;
8. Limestone transfer facilities;
9. Limestone day storage silos;
10. Flyash handling system and storage silos.

IV. Source Impact Analysis

Prevention of significant deterioration (PSD) of air quality review is required for a modification to a major stationary source which significantly increases emissions of any pollutant regulated under the Clean Air Act, consistent with the provisions of 40 CFR 52.21 promulgated August 7, 1980. The source is a fossil fuel fired steam electric plant (>250 MMBtu/hr). The three existing coal fired units clearly emit greater than 100 tons per year and therefore constitute an existing major stationary source. Table 1 shows the emissions increases from the proposed modification. It is clear that PSD review applies for emissions of particulate matter (PM), nitrogen oxides (NO_x), sulfur dioxide (SO_2), and carbon monoxide (CO).

Full PSD review involves evaluation of the following:

1. Best Available Control Technology (BACT);
2. National Ambient Air Quality Standards (NAAQS) impacts;
3. Increment impact;
4. Impacts on soils, vegetation, and visibility;
5. Growth impacts; and
6. Class I area impacts.

A. Best Available Control Technology Analysis (BACT)

A BACT analysis is required consistent with 40 CFR 52.21(j) for each pollutant with a significant emissions increase, which for the proposed modification includes SO_2 , PM, NO_x and CO.

1. Sulfur Dioxide Emissions Control

BACT for SO_2 is required on the steam generator (boiler) which is the only SO_2 emitting facility affected by the modification. The applicant proposes to use a nonregenerable limestone scrubber system with

removal efficiencies of greater than or equal to 86 percent. The coal will be pretreated by washing to yield about a 25 percent potential SO₂ emissions reduction. An additional 5 percent is expected to remain in the recovered flyash. The applicant proposes an overall sulfur removal efficiency of 90 percent for this system.

The New Source Performance Standard (NSPS) for electric utility steam generation was promulgated June 11, 1979. This limits SO₂ emissions to 10 percent of potential SO₂ emissions and a maximum of 1.2 lb/MMBtu heat input except when the emissions are less than 0.6 lb/MMBtu. At these rates a minimum of 70 percent reduction (30 percent of potential emitted) in potential SO₂ emissions is required. For SO₂ emissions rate below 0.2 lb/MMBtu, no percent reduction is required. The percentage reduction in potential SO₂ emissions depends on the sulfur content of the coal.

The BACT analysis considered three alternative coals with properties as follows:

| | Coal <u>F-1A</u> | Coal <u>F-2A</u> | Coal <u>F-2B</u> |
|---|---------------------|---------------------|---------------------|
| Heating Value (Btu/lb Dry Basis) | 12,275 | 12,626 | 12,628 |
| Sulfur Content (Dry Basis; Percent By Weight) | 3.42 | 3.91 | 4.00 |

Coals F-2A and F-2B were the specific coals considered in developing design specifications for the flue gas desulfurization (FGD) system. Firing of these coals in the boiler controlled with the proposed control system (25% sulfur removal from washing, 5% sulfur removal in flyash and 86% sulfur removal in the FGD; totaling 90% sulfur removal), yields SO₂ emission rates as follows for the 4330 MMBtu/hr boiler.

| <u>Emissions Rate</u> | Coal <u>F-1A</u> | Coal <u>F-2A</u> | Coal <u>F-2B</u> |
|-----------------------|---------------------|---------------------|---------------------|
| lb/MMBtu | 0.56 | 0.62 | 0.63 |
| lb/hour | 2413 | 2682 | 2743 |

The applicant proposed an allowable SO₂ emissions limit range of 0.77 to 0.82 lbs/MMBtu to be determined on a 30-day rolling average. The coal analyses considered by the applicant in estimating these values have slightly higher sulfur contents (3.88% and 4.02%) and significantly lower heating values (10,111 Btu/lb and 9,936 Btu/lb) from those considered in the FGD system BACT analysis. For this reason, EPA rejects the proposed emissions limits, and on the basis of the BACT analysis presented in the application, requires an SO₂ emissions limit of 0.63 lb/MMBtu (2728 lb/hour) on a 30-day rolling average.

The emissions limit was set on the worst case of those cases considered in the BACT analysis to provide maximum flexibility for the applicant in the choice of coals and operation of the system. The sulfur dioxide content of the flue gas will be continuously monitored and recorded to determine compliance with the allowable emissions limit. In addition, NSPS percent reduction requirements will be met through coal sulfur content monitoring and other procedures established in 40 CFR 60 Subpart Da.

2. Particulate Matter (PM)

BACT is required for all PM emitting facilities including the boiler and coal, limestone and flyash handling and storage facilities. The applicant proposes to install an electrostatic precipitator (ESP) with a removal efficiency greater than 99 percent to control emissions of TSP from the boiler.

The New Source Performance Standard for electric generating stations promulgated June 11, 1979, stipulates particulate emissions be no greater than 0.03 lb/MMBtu. The applicant proposes that PM allowable emissions rates be 0.03 lb/MMBtu (130 lb/hr) and 20 percent opacity to comply with the New Source Performance Standard (NSPS) and to meet BACT. EPA agrees that this limit meets BACT for PM for this boiler. The collection efficiency will be required to be greater than 99 percent. Two performance tests will be required; one test will be initiated 90 days after commercial operation and the second will be within 12 months of the first successful performance test, consistent with NSPS requirements. In addition, opacity will be continuously monitored.

Fugitive emissions from coal handling will be controlled by 1) proper maintenance of the coal piles, 2) enclosure of all conveyors and transfer points and 3) water spraying. In addition, mean precipitation, 49.4 inches per year and more than 0.1 inches on 107 days per year, act to minimize dust generation from erosion and mechanical disturbance. During dry periods and high winds, water spraying of the coal pile and all drop points is required. Moreover, the coal pile will be oriented and shaped to minimize wind erosion. Due to the moisture content maintained by rainfall and water spraying, the use of chemical stabilizers and dust suppressants are not warranted, and EPA agrees that the proposed practices and equipment represent BACT for PM from coal handling equipment.

Fugitive emissions from limestone handling will be controlled in a similar fashion through enclosure and water spraying. Transfer points and conveyors will be enclosed. Moreover, the receiving hopper, transfer conveyors and day silos will be maintained at a negative pressure with an exhaust system venting to a bag filter or wet scrubber. The two separate systems, silos and hopper/transfer conveyors will emit a maximum of 0.05 and 0.65 lb/hr, respectively.

The flyash handling system including transfer and storage silo will exhaust through a bag filter. The emission rate will not exceed 0.2 lb/hr. The technologies and emission rates proposed by the applicant are accepted as BACT for PM for the limestone and flyash handling systems.

3. Nitrogen Oxides (NO_x) and Carbon Monoxide (CO)

The applicant proposes to use combustion controls to guarantee a maximum NO_x emission rate of 0.6 lb/MMBtu (2598 lb/hr) and CO of 0.014 lb/MMBtu (61 lb/hr). This is equivalent to the NO_x limit required in the NSPS for steam generating stations firing bituminous coal and the CO emission rate proposed by the applicant. The CO emission limit is considerably less than that predicted by the appropriate AP-42 factor of about 200 lb/hr (see Table 1.1-2). An attachment to this preliminary determination summary specifies combustion control requirements to balance the tradeoffs between NO_x and CO emissions through the use of a flue gas oxygen monitor. BACT for NO_x is low excess air firing and the use of

staged combustion to maintain minimum NO_x emissions with a maximum as stated above. BACT for CO is proper combustion controls with a maximum emission rate as discussed above. The CO technology is maintained by the oxygen monitor. In addition, emissions of NO_x will be continuously monitored and recorded. EPA accepted the proposed emissions limits and technologies discussed as BACT for CO and NO_x for the proposed boiler.

B. Air Quality Analysis

The applicant has evaluated the modification's air quality impacts and their effects on NAAQS and maximum allowable increment. The maximum air quality impacts (highest, second highest concentrations) were estimated using EPA UNIMAP models and 5 years of meteorological data from Tampa International Airport. Annual average concentrations were estimated with AQDM-Briggs. Short-term modeling (24- and 3-hour averages) were estimated by first screening 5 years of meteorological data to identify the 24-hour (TSP and SO_2) and 3-hour periods (SO_2) which caused maximum impacts from the proposed modification. Second, CRSTER was used to locate general areas of maximum impacts (1.0 kilometer grid). Finally, maximum short-term concentrations were refined to 0.1 kilometer grid spacing using the PTMTPW model.

Review of the maximum predicted impacts from Unit 4 (see Table 2) shows the modification to have insignificant impacts for PM, NO_x and CO. Further, the maximum impacts of PM and SO_2 on nearby non-attainment areas (SO_2 - Pinellas County at about 55 km and PM - Tampa area at 5.3 km) are below the significance values defined in the Preamble to 40 CFR 52.21. Because non-attainment air quality is not significantly impacted, the modification is not subject to LAER or offset requirements. In addition, detailed analysis of PM, NO_x and CO is not required on the basis that impacts do not pose a threat to the NAAQS or available increment and no Class I area is impacted, as discussed below. Only emissions of SO_2 must be analyzed in detail to evaluate NAAQS and increment impacts.

It should be noted that the modeling did not consider PM emissions from the coal and limestone storage and handling facilities or other fugitive emissions sources, consistent with EPA Region IV policy. EPA Region IV

does not require modeling of fugitive sources of this type for applications determined to be complete prior to August 7, 1980. Also, the applicant demonstrated that the stack height does not exceed good engineering practice or require consideration of downwash effects in the air quality analysis.

1. Increment Analysis

The applicant evaluated the impact on available SO₂ increment consistent with the requirements of 40 CFR 52.21 (k). The analysis considered all increment consuming sources located within a 50 km radius of the proposed construction site. Minor sources (<100 T/Y) within a 15 km radius and major sources within 50 km were modeled in determining maximum impacts.

In identifying sources for use in the increment and NAAQS analysis (discussed later) the applicant utilized the NEDS emissions data storage system and FDER air permit file system. Increment consuming sources were identified according to the definition of baseline in 40 CFR 52.21(b). Non-baseline emissions consume increment. An update to the original source list to account for sources permitted between the original search date and the PSD application complete date (about 1 year) identified several additional sources, none of which, however, affected the conclusions of the analysis.

It should be noted that previous emissions reductions at TECO Big Bend (units 1 - 3), at Gardinier, and at a number of other Tampa area sources has occurred which has expanded available increment. Most notable of these are the TECO Big Bend SO₂ reductions made to comply with revised SIP limits. The allowable emissions history of units 1 - 3 are as follows:

| | Allowable Emissions Cap for Units 1-3 Collectively | | Total Cumulative Increment Expanding Emissions Reduction |
|-------------------|---|----------------------------|--|
| | (Tons per Hour) | | (Tons per Hour) |
| | <u>3-Hour Average</u> | <u>24-Hour Average</u> | |
| Original Limits | 39.5 | 39.5 | - |
| April 7, 1977 | 35 | 32 | - |
| October 1, 1977 | 35 | 25 | 7 |
| September 7, 1980 | 31.5 | 25 | 7 |

The reduction in 24-hour average emissions on October 1, 1977 constitutes a post January 6, 1975 emissions reduction due to construction at a major stationary source which expands increment. Baseline emission rates for Big Bend units 1-4 used as input to the increment analysis were based on actual operating data. Short-term emission rates (3-hour and 24-hour) were consistent with the allowable rates at full load. Annual emissions, however, were based on about two-thirds capacity operation which was experienced by units 1-3 in 1977. In addition, short-term impacts, under 50 and 75 percent load conditions, were evaluated to ensure identification of maximum impacts, which for power plants can occur at reduced loads due to buoyancy and momentum effects on plume rise.

The analysis involved two model runs for each averaging time and wind direction/meteorological data scenario investigated. In one run all new and modified sources were modeled at allowable emission rates. The source list included all new major sources commencing construction after January 6, 1975 and all new or modified minor sources (<100 T/Yr) commencing construction after August 7, 1977. The second run predicted impacts from all modified sources at their estimated premodification actual emission rates. The results of subtracting the impacts from the runs on a receptor by receptor basis were assumed by the applicant to approximate increment consumption.

The modeling results for the SO₂ annual averaging period show no positive values. The premodification concentration exceeded the projected impact from all new and modified sources at all receptors. Moreover, the projected maximum annual SO₂ impact from new and modified sources alone, without subtracting the premodification model run results, does not exceed the annual SO₂ increment (9.0 ug/m³ impact vs 19 ug/m³ increment). The analysis clearly demonstrates that the annual SO₂ increment will not be violated.

Results for the short term (3-hour and 24-hour) increment analysis were developed in a similar fashion. However, the premodification emission rates for Big Bend Units 1-3 were modeled at allowable emission rates (full capacity) which was indicative of worst case, short-term operation. The 24-hour results obtained from subtracting model runs again showed no positive values. The 3-hour results however show a net positive SO₂ impact of 67.7 ug/m³.

The meteorological periods (3-hour and 24-hour) which caused maximum impact for TECO, as identified by the CRSTER model, had wind directions such that no significant interaction with other sources occurred (winds from the west and east). For this reason, several meteorological periods for which source interaction could occur were modeled. This modeling showed very little contribution to ground level concentrations in the vicinity of Big Bend relative to the contribution from Big Bend from interacting sources. The results of this modeling were incorporated into the overall estimated net impacts on 3-hour and 24-hour SO₂ increment, discussed previously.

The results of the increment analysis are listed in Table 3. The analysis is accepted by EPA as adequate demonstration that the available SO₂ increment will not be violated by the proposed modification.

2. NAAQS Impact

In evaluating maximum SO₂ ambient air quality impacts the applicant modeled all existing sources in conjunction with the proposed Unit 4. As indicated in the increment analysis, maximum short-term

impacts due to interactions with other existing sources were evaluated but found to be less than maximum impact from TECO Big Bend sources alone. The NAAQS modeling results are listed in Table 4. Assuming a background value of 20 ug/m^3 to account for natural sulfur dioxide sources (swamps, etc.) and long range SO_2 transport, the maximum predicted impacts in conjunction with background remain below the NAAQS levels (See Table 4). Since this application was determined to be complete prior to August 7, 1980, therefore subjecting the modification to the 1978 monitoring requirements (40 CFR 52.21(m); June 19, 1978) and the location is rural with only a small number of large sources, the approach described above is acceptable.

On the basis of the results of the air quality analysis the applicant proposes and EPA agrees that adequate demonstration has been made that NAAQS levels will not be violated. However, to verify these results the applicant will be required to perform continuous SO_2 ambient air quality monitoring for a period of at least 1 year following start-up of Unit 4.

C. Class I Area Impacts

The proposed construction site for Unit 4 is about 90 km from the Chassahowitzka National Wildlife Refuge. Impacts on this Class I area have been evaluated to ensure that the proposed modification does not degrade the Class I area air quality beyond allowable increments. As discussed previously, allowable emissions reductions since August 7, 1977 at Big Bend Units 1-3 more than offset the increased emissions from the proposed Unit 4 for short-term averages (3-hour and 24-hour). Moreover, a number of sources in the vicinity of Big Bend have similarly reduced emissions of SO_2 . For this reason, the proposed construction is not expected to endanger the available SO_2 Class I increment.

Emissions of PM have been modeled and shown not to cause impacts in excess of the significance levels (Preamble 40 CFR 52.21). Although these significance levels do not apply to Class I areas, the additional dilution incurred over the 90 km distance between Big Bend and the Class I area, considered in conjunction with the small impacts predicted to occur in the vicinity of the plant ($<1 \text{ ug/m}^3$ annual average), show the proposed modification to be no threat to available Class I increment. Similarly, emissions of

NO_x and CO do not pose a threat to Class I air quality. The results of this analysis will be transmitted to the Federal Land Manager responsible for this Class I area for comments on the significance of the impacts.

D. Growth Impacts

It is anticipated that an average of 510 construction workers (craft and nonmanual) will be required per year during the 3-year Unit 4 construction period. A peak of approximately 1,100 personnel is expected during a 4-month period in 1984, the third year of construction. Based on TECO observations and labor availability surveys from construction of the previous three Big Bend units, approximately 90 percent of the construction work force will be hired from labor organizations in the Tampa area. It is, therefore, reasonable to assume that no special provisions for housing, education, or community facilities will be necessary.

Unit 4 will provide electricity for general private, commercial and industrial consumption in central Florida. In this way, it will facilitate commercial and industrial growth. However, no acute air pollution effects are expected from this growth due to the gradual widespread nature of the anticipated development.

E. Additional Impacts on Soils, Vegetation and Visibility

The applicant has evaluated effects on soils, vegetation and visibility consistent with the provisions of 40 CFR 52.21(o). Tomatoes are the primary commercial crop in the vicinity of Big Bend. No unusually valuable or sensitive ecosystems have been identified. Supported by the analysis showing that ambient air quality will not exceed NAAQS levels which are set with a margin of safety to ensure protection of public health and welfare, no significant adverse effects to soils, vegetation and visibility are expected. In addition, the State of Florida has adopted ambient air quality standards (which the proposed modification is not expected to violate) which provide an additional margin of safety over the Federal standards. Moreover, opacity from Unit 4 will be limited to 20 percent). On this basis, the applicant feels that the proposed modification poses no threat to the area's soils, vegetation or visibility. These same factors coupled with a 90 km distance apply to the Chassahowitzka Class I area which is not expected to be adversely affected.

V. Conclusion

EPA proposes a preliminary determination of approval with conditions for construction of the proposed steam electric generating station, PSD-FL-040, based upon the application dated September 21, 1979 and the additional information dated November 8, 1979, January 18, 1980, February 29, 1980 and July 8, 1980. The preliminary determination of approval is contingent upon the following conditions:

1. The proposed steam generating station shall be constructed and operated in accordance with the capacities and specifications of the application including the 425 megawatt generating capacity and the 4330 MMBtu/hr heat input rate.
2. Emissions shall not exceed the allowable emission limits listed in Table 5 for SO₂, NO_x, PM, and CO.
3. Compliance with the boiler allowable emission limits required in Condition 2 will be demonstrated with performance tests conducted in accordance with the provisions of 40 CFR 60.46a, 48a and 49a, including applicable test methods, sampling procedures, sample volumes, sampling periods, etc. Compliance with opacity limits on the limestone and flyash handling system baghouse, the limestone day silos and the flyash silos will be determined with EPA reference method 9 (Appendix A, 40 CFR 60). These facilities are exempted from mass emission rate compliance tests unless opacity limits are exceeded or the Administrator (or his representative) otherwise determines that such performance testing is required. All facilities will operate within 10 percent of maximum operating opacity during performance tests.
4. The applicant will install and maintain continuous monitoring and recording opacity meter, sulfur dioxide and nitrogen oxide analyzers and oxygen analyzer in accordance with the provisions of 40 CFR 60.47a.

5. To maintain compliance with the boiler CO allowable emissions limits required in Condition 2. The applicant will comply with the provisions of the attached condition "Use of Flue Gas Oxygen Meter as BACT for Combustion Controls."
6. The following requirements will be met to minimize fugitive emissions of particulate from the coal storage and handling facilities, the limestone storage and handling facilities, haul roads and general plant operations:
 - a. All conveyors and conveyor transfer points will be enclosed to preclude PM emissions excepting the coal handling stacker reclaimer, the tail end conveyor feeding the tripper and the barge unloading belt which are exempted for feasibility considerations;
 - b. Coal storage piles will be shaped, compacted and oriented to minimize wind erosion;
 - c. Water sprays for storage piles, handling equipment etc., including the handling equipment exempted from the conveyor enclosure requirement, will be applied during dry periods and as necessary to all facilities to maintain opacity (determined with reference Method 9) below 20 percent;
 - d. The limestone handling receiving hopper, transfer conveyors and day silos will be maintained at negative pressures with the exhaust vented to a control system; and
 - e. The flyash handling system (including transfer and silo storage) will be maintained at negative pressures and vented to the control system.
7. Within 90 days of commencement of operations, the applicant will determine and submit to EPA the pH level in the scrubber effluent that will ensure 86% removal of the SO₂ in the flue gas. Moreover, the applicant is required to operate a continuous pH meter equipped with an upset alarm, to ensure that the pH level of the scrubber

effluent does not fall below this level. The minimum value pH may be revised at a later date provided notification to EPA is made demonstrating the minimum percent removal will be achieved on a continuous basis. Further, if compliance data show that higher FGD performance is necessary to maintain an overall system reduction of greater than or equal to 90% considering sulfur removal from coal washing and in flyash, a higher minimum pH value will be determined and maintained consistent with the required more stringent removal efficiency.

8. The applicant will perform post-construction continuous ambient monitoring of sulfur dioxide emissions in accordance with EPA Region IV policies and procedures and the guidance offered in "Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD)", EPA-450/2-78-019, May 1978 and the quality assurance procedures of 40 CFR 58 Appendix B. Such monitoring will be continued for a period of at least 1 year and until determined by the Administrator (or his representative) that the effects of the modification on ambient air quality have been quantified.
9. The applicant will comply with all requirements and provisions of the New Source Performance Standard for electric utility steam generating units (40 CFR 60 Part Da). In addition, the applicant must comply with the provisions and the requirements of the attached General Conditions.
10. While Tampa Electric Company has complied with the regulations entitling them to this PSD permit (40 CFR 52.21), this does not constitute an environmental endorsement of this permit nor does it in any way prejudice or predetermine the ongoing EIS review.
11. If it is determined through the NPDES permitting process or related EIS review, that cooling towers would be required for the construction and operation of the facility at this location, this permit would be revoked and a complete new application would be required addressing all new emissions and subsequent requirements for this new plant configuration.

12. The applicant must submit to EPA Region IV's Air Facility Branch within five (5) working days after it becomes available, copies of all technical data pertaining to the selected control devices, including formal bids from vendors, guaranteed efficiencies or emission rates. Although the type of control equipment described in the application has been determined by EPA to be adequate, EPA may, upon review of the data, disapprove the application if EPA determines the selected devices to be inadequate to meet the emission limits specified in this conditional approval.

GENERAL CONDITIONS

1. The permittee shall notify the permitting authority in writing of the beginning of construction of the permitted source within 30 days of such action and the estimated date of start-up of operation.
2. The permittee shall notify the permitting authority in writing of the actual start-up of the permitted source within 30 days of such action and the estimated date of demonstration of compliance as required in the specific conditions.
3. Each emission point for which an emission test method is established in this permit shall be tested in order to determine compliance with the emission limitations contained herein within sixty (60) days of achieving the maximum production rate, but in no event later than 180 days after initial start-up of the permitted source. The permittee shall notify the permitting authority of the scheduled date of compliance testing at least thirty (30) days in advance of such test. Compliance test results shall be submitted to the permitting authority within forty-five (45) days after the complete testing. The permittee shall provide (1) sampling ports adequate for test methods applicable to such facility, (2) safe sampling platforms, (3) safe access to sampling platforms, and (4) utilities for sampling and testing equipment.
4. The permittee shall retain records of all information resulting from monitoring activities and information indicating operating parameters as specified in the specific conditions of this permit for a minimum of two (2) years from the date of recording.
5. If, for any reason, the permittee does not comply with or will not be able to comply with the emission limitations specified in this permit, the permittee shall provide the permitting authority with the following information in writing within five (5) days of such conditions:
 - (a) description of noncomplying emission(s),
 - (b) cause of noncompliance,
 - (c) anticipated time the noncompliance is expected to continue or, if corrected, the duration of the period of noncompliance,
 - (d) steps taken by the permittee to reduce and eliminate the noncomplying emission,and
 - (e) steps taken by the permittee to prevent recurrence of the noncomplying emission.

Failure to provide the above information when appropriate shall constitute a violation of the terms and conditions of this permit. Submittal of this report does not constitute a waiver of the emission limitations contained within this permit.

6. Any change in the information submitted in the application regarding facility emissions or changes in the quantity or quality of materials processed that will result in new or increased emissions must be reported to the permitting authority. If appropriate, modifications to the permit may then be made by the permitting authority to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause violation of the emission limitations specified herein.
7. In the event of any change in control or ownership of the source described in the permit, the permittee shall notify the succeeding owner of the existence of this permit by letter and forward a copy of such letter to the permitting authority.
8. The permittee shall allow representatives of the State environmental control agency and/or representatives of the Environmental Protection Agency, upon the presentation of credentials:
 - (a) to enter upon the permittee's premises, or other premises under the control of the permittee, where an air pollutant source is located or in which any records are required to be kept under the terms and conditions of the permit;
 - (b) to have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit, or the Act;
 - (c) to inspect at reasonable times any monitoring equipment or monitoring method required in this permit;
 - (d) to sample at reasonable times any emission of pollutants;and
 - (e) to perform at reasonable times an operation and maintenance inspection of the permitted source.
9. All correspondence required to be submitted by this permit to the permitting agency shall be mailed to the:

Chief, Air Facilities Branch
Air and Hazardous Materials Division
U.S. Environmental Protection Agency
Region IV
345 Courtland Street
Atlanta, Georgia 30308
10. The conditions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

The emission of any pollutant more frequently or at a level in excess of that authorized by this permit shall constitute a violation of the terms and conditions of this permit.

USE OF FLUE GAS OXYGEN METER AS BACT FOR
COMBUSTION CONTROLS

Within the time-limits specified in General Condition 3 of this permit, the permittee shall determine the emissions of nitrogen oxides and carbon monoxide from the permitted combustion device in accordance with test methods and procedures set out in 40 CFR Part 60, Appendix A, Methods 7 and 10 respectively. These emission determinations shall be made at:

- 1) Maximum design capacity; and
- 2) Normal operational load.

The permittee shall install a continuous oxygen monitor in the flue of the permitted combustion device which meets the requirements of 40 CFR Part 60, Appendix B, Performance Specification 3. Results of emission determinations shall be correlated to the flue gas oxygen content to define:

- 1) The point at which Nitrogen Oxides (NO_x) emissions (lb/MMBtu) equal the allowable NO_x emission rate contained in the permit or the appropriate emission factor found in the latest edition of AP-42, "Compilation of Air Pollution Emission Factors", whichever is lower; and
- 2) The point at which carbon monoxide (CO) emissions exceed either the allowable CO emission rate contained in the permit or the applicable CO emission factor found in AP-42 "Compilation of Air Pollution Emission Factors", whichever is lower.

The flue gas oxygen content shall be maintained between these points and alarms shall be set to sound when flue gas oxygen levels exceed either side of this range. Any operation outside of this range will constitute noncompliance with this specific condition, shall be recorded in accordance with General Condition 4 of this permit, and will be reported quarterly along with excess emissions in accordance with 40 CFR 60.7 (c).

Should any combustion equipment modifications be made, such as different type burners, combustion air relocation, fuel conversion, tube removal or addition, etc., emission determinations as described above shall be conducted within 90 days of attaining full operation after such modification. Results of all emission determinations shall be sent to the permitting authority within 90 days after completion of the tests.

TABLE 1
Emissions Summary

| <u>Pollutant</u> | <u>Significant Emissions Rate (tons/yr)</u> | <u>Potential Emissions^a (tons/yr)</u> |
|------------------|---|--|
| SO ₂ | 40 | 11,949 |
| PM | 25 | 573 ^b |
| NO _x | 40 | 11,379 |
| CO | 100 | 6,267 |
| VOC | 40 | 9 |
| Lead | 0.6 | c |
| Asbestos | 0.007 | c |
| Beryllium | 0.0004 | c |
| Mercury | 0.1 | c |
| Fluorides | 3.0 | c |
| Other | - | c |

^a Based on continuous maximum capacity operations and equal to the allowable emission rates specified in the conclusions section.

^b Includes emissions from the boiler, the flyash system, and the coal and limestone handling systems.

^c Emissions of lead and non-criteria regulated pollutants do not exceed 50 tons per year and are not subject to regulations under the State Implementation Plan or 40 CFR Part 60 and 61 for this source. For this reason, no PSD review requirements apply to these pollutants and detailed emissions estimates were not required.

Table 2

MAXIMUM AIR QUALITY IMPACTS (ug/m3)

| | PM | Annual | | Averaging Time | | | 3-Hour SO ₂ | 1-Hour CO |
|---|-------|-----------------|-----------------|----------------|----------------------------|-----------------|---------------------------|--------------------|
| | | SO ₂ | NO _x | 24-Hour PM | 24-Hour SO ₂ | 8-Hour CO | | |
| Boiler (Big Bend Unit 4) | <<1 | 1.0 | 0.5 | 0.9 | 34.2 | <8 ^a | 163 | <2000 ^a |
| A. Limestone and Flyash Handling Systems (max. at distance of 0.3 km) ^b | 0.33 | | | 4.11 | | | | |
| B. Boiler Maximum Impact at 0.5 km | negl. | | | 0.001 | | | | |
| Combined maximum (A & B) | 0.33 | | | 4.111 | | | | |
| Maximum Impact on Nonattainment Areas ^c | <<1 | <<1 | | 0.4 | 4.0 | | 17.0 | |
| Significance Levels | 1 | 1 | 1 | 5 | 5 | 500 | 25 | 2000 |

^a A 3-hour CO concentration of 8 ug/m³ was estimated based on SO₂ short-term modeling results and a ratio of emission rates (CO/SO₂). Although the 1-hour concentration will exceed 8 ug/m³, it will not exceed the significance level of 2000 ug/m³.

^b The limestone and flyash systems emissions were not modeled together with the boiler; however, maximum boiler contributions at 0.5 km (the shortest distance modeled) are combined as a conservative estimate to demonstrate that the modification as a whole is insignificant for PM. At 5km the handling system impact falls to below 0.13 (annual) and 0.9 (24-hour), thus insuring no significant interaction with the boiler.

^c SO₂ non-attainment area - Pinellas County; PM non-attainment area - Hillsborough County (Tampa). This concentration was estimated based on a 1.2 lb/MMBtu emission rate for Unit 4.

Table 3
SO₂ INCREMENT IMPACTS ^a

| | <u>Averaging Time</u> | | |
|---|-----------------------|-------------------|---------------|
| | <u>Annual</u> | <u>24-Hour</u> | <u>8-Hour</u> |
| Proposed Unit 4 (ug/m ³) | 1.0 | 34.2 | 163 |
| Proposed Unit 4 with Existing Units 1-3 ^b (ug/m ³) | zero ^b | zero ^b | 67.7 |
| Unit 4 with All Interacting Sources (ug/m ³) | zero ^b | zero ^b | 67.7 |
| Allowable Increment (ug/m ³) | 20 | 91 | 512 |

^a Note that the proposed modification had an insignificant TSP impact, and therefore, a TSP increment analysis was not required.

^b A reduction in actual emissions from Units 1-3 and other sources in the area occurred in 1977, thus expanding available increment.

TABLE 4

SULFUR DIOXIDE NAAQS IMPACTS^a

| | Annual ($\mu\text{g}/\text{m}^3$) | 24-Hour ($\mu\text{g}/\text{m}^3$) | 3-Hour ($\mu\text{g}/\text{m}^3$) |
|--|--|---|--|
| Proposed Unit 4 | 1.0 | 34.2 | 163 |
| All Interacting Sources (Including Unit 4) | 18.5 | 185 ^b | 1,087 ^b |
| Background | 20 | 20 | 20 |
| Total | 38.5 | 205 | 1,107 |
| NAAQS Ceiling | 80 | 365 | 1,300 |

^a Unit 4 impacts of PM, NO_x and CO are insignificant and no detailed NAAQS analysis is required.

^b Maximum impact occurs due to Units 1-4 only with a west to east wind. No other sources interact under these conditions.

TABLE 5
ALLOWABLE EMISSION LIMITS

| <u>Facility</u> | <u>POLLUTANTS</u> | | | | | | | | |
|---|-----------------------|----------------|-----------------------|--------------|-----------------|-------------------|-----------------|--------------|------------------|
| | <u>SO₂</u> | | <u>NO_x</u> | | <u>PM</u> | | <u>CO</u> | | <u>Opacity</u> |
| | <u>1b/MMBtu</u> | <u>1b/hour</u> | <u>1b/MMBtu</u> | <u>1b/hr</u> | <u>1b/MMBtu</u> | <u>1b/hr</u> | <u>1b/MMBtu</u> | <u>1b/hr</u> | |
| 1. Unit 4 Boiler (4330 MMBtu/hr) Continuous Limit | | | | | 0.03 | 130 | 0.014 | 61 | 20% ^a |
| 30 Day Rolling Average | 0.63 | 2728 | 0.6 | 2598 | | | | | |
| 2. Limestone and Flyash Handling System Baghouse | | | | | | 0.65 ^b | | | 5% |
| 3. Limestone Day Silo | | | | | | 0.05 ^b | | | 5% |
| 4. Flyash Silos | | | | | | 0.2 ^b | | | 5% |

^a Not to be exceeded for more than one six minute period per hour and never to exceed 27 percent opacity.

^b Exempt from compliance testing provided opacity limit is maintained.

File: Hill 6- AP cc Clair Fancy Dan Williams



POST OFFICE BOX 111 TAMPA, FLORIDA 33601 TELEPHONE (813) 878-4111

OCT 15 1981
ENVIRONMENTAL PERMITTING DIV.
TAMPA

October 12, 1981

Mr. Hamilton S. Oven, Jr.
Administrator, Power Plant
Siting Section
Florida Department of
Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32301

RE: Tampa Electric Company
Big Bend Unit 4

Dear Mr. Oven,

As per the Conditions of Certification for Tampa Electric Company's Big Bend Unit 4, Section I.A.3.b. requires submittal of data pertaining to the particulate control for coal handling facilities. Attached are three documents which provide the desired data.

Attachment 1 (two pages) is taken from the specification for the dust collection system for the additional coal bunkers for Unit 4. This shows the design criteria and dust removal efficiency for the system. Attachment 2 lists data on the actual equipment, purchased from American Air Filter Company, Inc., described as a Type "D" Roto Clone. Attachment 3 is a flow diagram of the entire coal bunker ventilation system, including the cyclone separator described above.

If you have any questions, please call me.

Sincerely,

Jerry L. Williams
Manager
Environmental Planning

attachments

cc: H.A. Turner
A. Kaiser
K.J. Ongemach
T.L. Jones
S.D. Jenkins

D.E.R.

OCT 21 1981

SOUTHWEST DISTRICT
TAMPA

| | |
|---|------------------------------|
| <u>Design Requirements</u> | 2.11 |
| The dust collector shall be designed to collect generated dry type dust through an exhaust system of ductwork, separate the dust from the air carrier, discharge the dust into a hopper, and return the cleaned air to the atmosphere. | 2.14 2.15 2.17 |
| <u>Collector</u> | 2.20 |
| The collector shall be of the dry centrifugal type consisting of a radially split, cast iron scroll housing, equipped with a suitable rotary steel impeller mounted directly on the motor shaft. | 2.23 2.24 2.26 |
| The position of the air discharge portion of the unit shall be bottom horizontal. | 2.28 |
| The rotating impeller shall be designed to perform the functions of: | 2.30 |
| 1. Moving air at high velocity | 2.32 |
| 2. Streamlining the air flow | 2.34 |
| 3. Concentrating the incoming dust particles so that they may be discharged into the hopper. | 2.36 2.37 |
| The collector shall have a capacity of not less than 9400 cu ft of air per minute at 120°F and 30 inches barometric pressure against not less than 4 inches water gage total external pressure when operating at approximately 865 RPM. The total power required shall not exceed 15 BHP. | 2.39 2.40 2.41 2.42 |
| The minimum inlet and outlet area for duct connections shall be 2.18 sq. ft. (20 inch diameter). | 2.44 |
| The collector shall be mounted on a welded steel hopper and shall discharge directly into the hopper through a dust-tight connection. | 2.46 2.47 |
| <u>Dust Collection Hopper</u> | 2.50 |
| The dust collection hopper shall consist of 10 gauge, all welded, hot rolled steel construction with a tapered bottom and 1/4-inch reinforced top plate. All access and dust removal doors shall be dust-tight. | 2.53 2.54 2.56 |
| The hopper shall be fitted to a heavy angle iron frame that will support a fully loaded hopper and the centrifugal dust collector and motor. The frame shall be designed to withstand a wind pressure of 49 psf. | 2.58 3.1 3.2 |

| | |
|---|--------------------------------------|
| It shall be constructed so that it will stand firm and stable on the roof with no additional supports. | 3.4 3.5 |
| The entire assembly shall be furnished shop assembled and shipped in major subassemblies ready for mounting, and requiring only connections to ductwork and electrical service. | 3.7 3.8 |
| The entire assembly, including centrifugal dust collector, motor, supports, and hopper, shall fit into a maximum space of approximately 6'-0" x 4'-6" by 13'-0" high. | 3.10 3.11 |
| <u>Dust Removal Efficiency</u> | 3.13 |
| <u>Dust removal efficiency shall be as follows:</u> | 3.15 |
| <u>Particle size (Microns)</u> <u>Efficiency</u> | 3.18 |
| 1 | 10% 3.20 |
| 2 | 20% 3.21 |
| 4 | 40% 3.22 |
| 6 | 56% 3.23 |
| 8 | 70% 3.24 |
| 10 | 82% 3.25 |
| 15 & above | 95% 3.26 |
| Dust removal efficiency curves shall be included in proposal. | 3.29 |
| <u>Shop Painting</u> | 3.31 |
| Steel surfaces shall be cleaned according to SSPC-SP6, "Commercial Blast Cleaning", and shall receive a prime coat of Mobilzinc 4 - Epoxy Zinc Rich 13-F-4, as manufactured by the Mobil Chemical Company, or equal as approved by the Engineers. The topcoat shall be Mobil 28 Series chlorinated rubber enamel, or equal as approved by the Engineers. The color of the topcoat will be specified later by the Engineers. | 3.33 3.34 3.35 3.37 3.38 |
| <u>Motors</u> | 3.41 |
| All motors shall conform to NEMA MG1 requirements for integral horsepower motors with respect to materials, workmanship, design, and routine tests except as specified herein. | 3.44 3.45 |
| Specific requirements for the motor are shown in the motor data sheets. | 3.48 |
| Motor shall be manufactured by General Electric Company, or equal if approved by the Engineers. | 3.50 3.51 |



May 13, 1981

POST OFFICE BOX 111 TAMPA, FLORIDA 33601 TELEPHONE (813) 879-4111

Mr. Robert Carpenter
Hillsborough County Environmental Protection
Commission
1900 9th Avenue
Tampa, Florida 33605

DER
MAY 15 1981
SOUTHWEST DISTRICT
TAMPA

RE: Tampa Electric Company
Site Certification Application
Big Bend Unit No. 4

Dear Mr. Carpenter:

We have received your letter of May 11, 1981, concerning the request for variance filed by Tampa Electric Company in the Site Certification proceedings for proposed Big Bend Unit No. 4. On May 12, 1981, we filed an amended variance request with the Hearing Officer in the referenced proceedings, the purpose of which was to respond to the concerns raised by the Department of Environmental Regulation in their letter dated May 1, 1981. A copy of this amended variance request was sent to Mr. Roger Stewart. We believe the amended variance request responds to the Department's concerns and, consequently, to some of the concerns that are raised in your letter.

While we recognize that the Hillsborough County Environmental Protection Commission's rules do not provide for relief from situations such as that outlined in the variance request through a variance procedure, the Florida Electrical Power Plant Siting Act pursuant to which Big Bend Unit No. 4 is being reviewed does provide for variances to be granted by the Governor and Cabinet.

We hope that the amended variance request adequately responds to the concerns you have raised. We will continue to keep you advised of developments in this area and to forward copies of any additional information that we may submit to the Hearing Officer to your office. If you have any additional questions or require further information, please do not hesitate to contact us at your convenience.

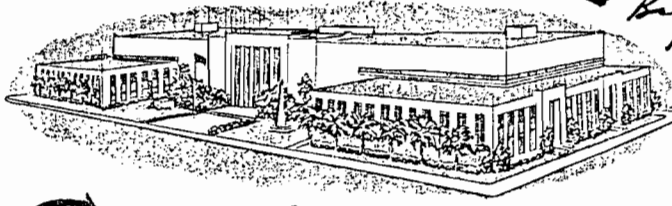
Sincerely,

Jerry L. Williams
Manager
Environmental Planning

cc: Mr. H.S. Oven
Mr. Roger Stewart
Mr. Rick Wilson
Mr. Bill Hennessey

COMMISSION

JAN PLATT, CHAIRMAN
JERRY BOWMER, VICE CHAIRMAN
CHARLES F. BEAN III, SECRETARY
ROBERT E. CURRY
FRANCES M. DAVIN



File: Hills G-AP Dam
Big Bend #4

ROGER P. STEWART
DIRECTOR
1900 - 9th AVE.
TAMPA, FLORIDA 33605
TELEPHONE (813) 272-5960



COUNTY of HILLSBOROUGH
Tampa, Florida 33601



D.E.R.
MAY 13 1981
SOUTHWEST DISTRICT
TAMPA

May 11, 1981

Hillsborough County - IW

Mr. Jerry L. Williams, Manager
Environmental Planning
Tampa Electric Company
P.O. Box 111
Tampa, Florida 33601

Re: Notification and Variance Request - TECO Power Plant
Siting Application Big Bend Station Unit 4

Dear Mr. Williams:

The staff of Hillsborough County Environmental Protection Commission has reviewed the referenced Variance request and offer the following comments for your consideration:

1. There is no provision within Chapter 1-5 of the rules of the Hillsborough County Environmental Protection Commission which provide relief of water quality standards through a variance mechanism. Chapter 1-5.04 (3) allows the board to authorize exceptions to limitations upon presentation of good and sufficient evidence for waters of the state not falling within prescribed or desired limitations;
2. Data has not been presented to indicate an exception to Chapter 1-5.04(2) is required;
3. There is no provision within Chapter 1-10 of the rules of Hillsborough County Environmental Protection Commission to provide relief of sound level violations through a variance mechanism;
4. No data has been presented concerning the necessity of high noise levels, the range of the noise levels nor the expected time-frame involved.
5. Alternatives for reducing effluent concentrations and

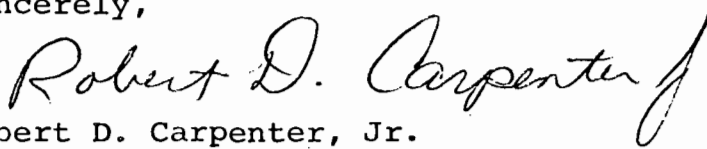
Mr. Jerry L. Williams
May 11, 1981
Page 2

sound levels should be investigated.

6. Please provide this office a copy of your response to the May 1, 1981 request for information from Hamilton S. Oven, Jr. This correspondence contains questions that reflect similar concerns of our staff.

If you have any questions or comments, please contact this office.

Sincerely,



Robert D. Carpenter, Jr.
Environmental Engineer
Hillsborough County Environmental
Protection Commission

RDCjr/lw

cc: Hamilton S. Oven, Jr. P.E., F.D.E.R.
Roger Stewart, H.C.E.P.C.
Rick Wilkins, H.C.E.P.C.
Bill Hennessey, F.D.E.R.

DEPARTMENT OF ENVIRONMENTAL REGULATION

OFFICE MEMORANDUM

For Filing To District Offices
And/Or Other Than The Addressee

To: Bill Brown Locn.: TAMPA

To: _____ Locn.: _____

To: _____ Locn.: _____

From: _____ Date: _____

TO: Power Plant Siting Review Committee

FROM: Hamilton S. Oven, Jr. *KWA for*

DATE: March 12, 1981

SUBJECT: TECo Big Bend #4

DER.

MAR 16 1981

SOUTHWEST DISTRICT
TAMPA

The Power Plant Siting Section needs your input on the Big Bend Unit #4 site certification application by March 19, 1981. Your input should address recommendations for approval or disapproval of the application and the reasons why. Suggested conditions of certification should be included. Special concerns and descriptions of adverse impacts caused by construction and by operation should each be included in your assessments.

Attached is a copy of my Memo of January 28, 1981, which most of you have not complied with. If you need more time to complete your review, please let me know and why.

HSOjr:my

- cc: Steve Fox
- Bill Townsend
- Lou Hubener
- PPSRC

3/18/81
Pres. ass.
EPA facs from unknown
new one due

TO: Power Plant Siting Review Committee
FROM: Hamilton S. Oven, Jr.
DATE: January 28, 1981
SUBJECT: TECO Big Bend #4

By law DER must complete its report on TECO Big Bend #4 by April 19, 1981. In order to allow time for review by Steve Fox and Secretary Varn, a final draft should be complete by the end of March. Please submit any comments, analyses, opinions, recommendations or suggested conditions of certification as soon as practical but no later than March 1, 1981. If you need additional information, please contact me ASAP.
NOTE: Water quality variances may be requested.

We are also expecting an application from JEA on February 18, 1981.

HSOjr:my

cc: Suzanne Walker
Lou Hubener
Bill Brown
Bill Kutash
Steve Palmer
Larry Olsen
Bob King
Bill Hinkley
Al Bishop
Bob McVety
Don Kell
Rodney Dehan
Mickey Bryant
Jay ThabaraJ

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

DISTRICT ROUTING SLIP

TO: Bill Brown DATE: 1/28/81

| | C.C. TO: |
|---|-------------|
| <input type="checkbox"/> PENSACOLA – NORTHWEST DISTRICT. | |
| <input type="checkbox"/> PANAMA CITY – Northwest District Branch Office. | |
| <input type="checkbox"/> TALLAHASSEE – Northwest District Branch Office | |
| <input type="checkbox"/> TAMPA – SOUTHWEST DISTRICT | |
| <input type="checkbox"/> ORLANDO – ST. JOHNS RIVER DISTRICT. | |
| <input type="checkbox"/> JACKSONVILLE – St. Johns River Subdistrict | |
| <input type="checkbox"/> GAINESVILLE – St. Johns River Subdistrict Branch Office | |
| <input type="checkbox"/> FORT MYERS – SOUTH FLORIDA DISTRICT | |
| <input type="checkbox"/> PUNTA GORDA – South Florida Branch Office | |
| <input type="checkbox"/> MARATHON – South Florida Branch Office | |
| <input type="checkbox"/> WEST PALM BEACH – South Florida Subdistrict. | |
| <input type="checkbox"/> PORT ST. LUCIE – South Florida Subdistrict Branch Office | |

COMMENTS: Reply Optional Reply Required Info. Only

Date Due: _____ Date Due: _____

FROM: Buck Oven, Jr. TEL.: 904/488-0130

INTEROFFICE MEMORANDUM

| | |
|---|--------------|
| For Forwarding To District Offices And/Or Other Than The Addressee | |
| To: _____ | Locn.: _____ |
| To: _____ | Locn.: _____ |
| To: _____ | Locn.: _____ |
| From: _____ | Date: _____ |

D.E.R.

FEB 2 1981

SOUTHWEST DISTRICT
TAMPA

TO: Power Plant Siting Review Committee

FROM: Hamilton S. Oven, Jr. *HSO*

DATE: January 28, 1981

SUBJECT: TECO Big Bend #4

By law DER must complete its report on TECO Big Bend #4 by April 19, 1981. In order to allow time for review by Steve Fox and Secretary Varn, a final draft should be complete by the end of March. Please submit any comments, analyses, opinions, recommendations or suggested conditions of certification as soon as practical but no later than March 1, 1981. If you need additional information, please contact me ASAP.

NOTE: Water quality variances may be requested.

We are also expecting an application from JEA on February 18, 1981.

HSOjr:my

cc: Suzanne Walker
 Lou Hubener
 Bill Brown
 Bill Kutash
 Steve Palmer
 Larry Olsen
 Bob King
 Bill Hinkley
 Al Bishop
 Bob McVety
 Don Kell
 Rodney Dehan
 Mickey Bryant
 Jay Thabaraj

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

*Effect D & F app
not work*

DISTRICT ROUTING SLIP

8/19/86

TO: Bill Brown

DATE: 8/13

C.C.
TO:

- PENSACOLA-NORTHWEST DISTRICT.....
- PANAMA CITY-Northwest District Branch Office
- TALLAHASSEE-Northwest District Branch Office.....
- TAMPA-SOUTHWEST DISTRICT
- ORLANDO-ST. JOHNS RIVER DISTRICT
- JACKSONVILLE-St. Johns River Subdistrict
- GAINESVILLE-St. Johns River Subdistrict-Branch Office
- FORT MYERS-SOUTH FLORIDA DISTRICT
- PUNTA GORDA-South Florida Branch Office
- MARATHON-South Florida Branch Office
- WEST PALM BEACH-South Florida Subdistrict
- FORT PIERCE-South Florida Subdistrict Branch Office.

DER
AUG 18 1986
SOUTHWEST DISTRICT
TAMPA

COMMENTS: *FYI; also, since the TECO application involves Dredge/Fill, could you get your D/F people to look over the application - we may need to get a field report for the D/F work once application is found complete*

FROM: *Karen Anthony* TEL: *SC 278-0130*
Power Plant Siting

August 13, 1980

Chris H. Bentley
Division of Administrative
Hearings
Room 530 Carlton Building
Tallahassee, Florida 32301

DER.

AUG 18 1980

SOUTHWEST DISTRICT
TAMPA

Dear Mr. Bentley:

Re: Tampa Electric Company, Big Bend Station Unit 4
Power Plant Site Certification Application PA 79-12

The Florida Department of Environmental Regulation has reviewed Tampa Electric Company's (TECO) application for site certification of Big Bend Station Unit 4 for completeness pursuant to Subsection 403.5065(2), Florida Statutes. The Department hereby finds the application incomplete in the following areas:

1. Section 4.1.9 fails to discuss the impacts on water bodies of the relocation of Jackson Branch or the filling in of canals or wetlands discharging to Newman Branch for FGD disposal.
2. The Joint Application, Department of Army/Florida Department of Environmental Regulation for Activities in Waters of the State of Florida, SAJ Form 983 (July 21, 1977) forms have not been submitted for the relocation of Jackson Branch or the filling of the canals tributary to Newman Branch as required by Section 4.1.2(e) of DER Form 17-1.122(72).
3. No water quality information has been provided on Jackson Branch or Newman Branch as required by Section 2.5.4 of the application form. nor has any assessment been made as to the water quality impacts of discharging Bottom Ash Blowdown into Jackson Branch.
4. The application does not indicate where dredged spoil will be disposed of, how the spoil will be contained, where the overflow will be discharged, or the water quality of the discharge.

The Department noted the following discrepancies and insufficiencies in the application:

Mr. Chris H. Bentley
Page Two
August 13, 1980

1. The size of the coal pile run-off trench is not given.
2. The location of the coal pile runoff overflow discharge is not shown clearly.
3. The limestone storage area stormwater control system has not been designed.
4. Page 3.7-13 indicates FGD sludge will be dewatered to 90% solids. Page 3.9-4 indicates dried FGD sludge will have 20% moisture. Which is correct?
5. It appears that the discharge of the FGD bleed stream may require a mixing zone for chloride and possibly fluoride if effluent from the Sun Dity system is used. Has TECO assessed the size of mixing zones required?
6. Whate units are appropriate to Tables 5.2-5 and 5.2-7?
7. What is the projected water quality of effluent from construction dewatering? Where will it be discharged?
8. TECO has indicated that property was to be acquired so that TECO would own all the waste disposal areas. The maps in the application are inconsistent. Figures 3.1-4 and 2.1-3 do not agree. Which is correct?
9. The zoning for the area containing "Spoil Disposal Area 5" is not indicated on Figure 2.1-4. If this spoil area is to be used for Unit #4 related construction or maintenance, the existing zoning should be provided prior to the land use/zoning hearing.
10. TECO has indicated that the portion of the site is classified as "Urban Residential" in the Horizon 2000 Plan, and that the Horizon 2000 Plan allows for industrial development in such a category. Appropriate documentation describing acceptable uses of land use categories should be provided prior to the land use/zoning hearing.
11. The generalizations of groundwater quality impacts and potentiometric surface on page 2.5-15 do not correspond to the analyses of groundwater impacts in sections 5.2.2.3 and 5.2.2.6. The former indicates no recharge of the Floridan Aquifer due to the potentiometric surface exceeding normal groundwater. The latter sections indicates recharge and possible contamination of the Floridan Aquifer.
12. Section 3.5.2.2 indicates that all freshwater in plant waste streams will eventually be discharge to the wastewater treatment ponds and that

Mr. Chris H. Bentley
Page Three
August 13, 1980

there are no salt water waste streams (3.5.2.1) associated with Unit 4. This does not appear to be consistent with discharge of boiler blowdown, the FGD bleed stream or bottom ash blowdown.

13. 3.9.1.3 states that the FGD waste disposal area run-off will be collected and treated prior to discharge to Jackson Branch. How? Where will the discharge to Jackson Branch occur?

14. A range of FGD leachate quality should be assessed and compared to Class I-B groundwater quality standards.

15. Examination of Wastewater Pond and Spray Irrigation effluent quality indicates potential violations of water quality standards for Class I-B. "Zones of Discharge" and monitoring provisions should be assessed.

16. Are fly ash and bottom ash settling ponds to be lined? Will bottom ash disposal cells be lined? Please provide scaled drawings of pond and cell sizes liner thicknesses and describe type of liner to be used.

17. In Chapter 7, what sort of savings or revenue is expected from sale of gypsum?

18. If a cooling tower were to be used, where would it be located?

Answers to the foregoing comments and questions should provide a complete and sufficient application.

Sincerely,

Hamilton S. Oven, Jr., P.E.
Administrator
Power Plant Siting

HSOjr:jb

cc: Lou Hubener
Dan Stephens
Dario Dal Santo
Jerry L. Williams

State of Florida

DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

| For Routing To District Offices And/Or To Other Than The Addressee | |
|---|--------|
| To: | Loctn: |
| To: | Loctn: |
| To: | Loctn: |
| From: | Date: |

DER

AUG 5 1980

**SOUTHWEST DISTRICT
TAMPA**

TO: Power Plant Siting Review Committee

FROM: Hamilton S. Oven, Jr. *HSO*

DATE: August 4, 1980

SUBJECT: TECO Big Bend 4
Power Plant Siting Application

Enclosed is a copy of the TECO amendments to their application and 316 Demonstration. Please review this material with the original application and comment on the completeness thereof. There will be a meeting on August 12, 1980, at 1:30 p.m. in the Dredge & Fill Conference Room to discuss the completeness of the application.

HSOjb/jb

Enclosures

October 12, 1979

Chris H. Bentley, Director
Division of Administrative Hearings
Room 101, Collins Building
Tallahassee, Florida 32301

Dear Mr. Bentley:

Re: Tampa Electric Company, Power Plant Siting
Application Big Bend Station Unit 4

Pursuant to Subsection 403.0565(2), F.S., the Florida Department of Environmental Regulation has reviewed the application for site certification for Tampa Electric Company's (TECO) Big Bend Station Unit 4. The Department finds the application incomplete and insufficient in the following areas:

1. Chapter 2 appears to be complete, but insufficient in several aspects. In Section 2.3, the Department wishes to know whether there are any nationally significant historical, scenic, cultural or national landmarks affected, regardless of their radius from the Big Bend site. More data should be included in the application in support of the conclusions set forth in pages 2.5-4, 2.5-5, and 2.5-6.
2. Page 2.2-2 states that 20 acres of the site are improperly zoned at the present time. It appears that the applicant does not intend to rectify this situation prior to certification. Accordingly, the area must also be deleted from the application by the applicant or the Department must consider it not available and review the flue gas desulfurization disposal site as if the 20 acres were not included. The improper zoning will undoubtedly pose problems at the land use hearing.
3. Figures 2.1-1 and 2.1-2 while generally indicating the site, do not satisfy the application form requirement of submission of a map which indicates "Plant perimeter and the site, including abutting and adjacent properties". Figure 3.1-4 gives some of this information, but the detail and scale is so small as to make interpretation of the Big Bend property boundaries difficult. If the interpretation is correct, TECO does not own some of the land proposed to be utilized as future expansion of the ash disposal pond area, nor part of the FGD byproduct storage

Chris H. Bentley
Page two
October 12, 1979

area. Licensing and zoning/land use assurances for non-utility owned lands may be difficult. Also, from the somewhat unclear and tiny Horizon 2000 plan included in the application, it appears that part of the area designated as the FGD byproduct storage area has been designated on the land-use plan as urban residential. This will bear further review and better maps will be necessary. Also, although Section 2.2.2 of the application discusses zoning, it also mentions a potential zoning problem. A map indicating delineation of the zoning areas is thus considered necessary for the immediate site vicinity. The application form specifies indication of zoning restrictions for the area within 5 miles of the stack - while a minor incompleteness, we still need this information as well. Again, a map would be preferable.

4. Section 2.5.2 "Water Withdrawals"; Fails to discuss the fresh water withdrawals necessary for plant operation. Also there is no discussion of "...consumptive use (rates) in relation to other existing and proposed consumptive uses...", with regard to fresh water withdrawals.

5. Chapter 3, in general, reflects the lack of substance apparent throughout this application. More detail is required in Subsection 3.2-2 so as to specify how coals will be transported to the stacker-reclaimer, and how the existing coal pile runoff system will be modified. More specifics should be provided as to the facilities for handling coal delivered by railroad and existing coal handling and storage facilities should be identified and discussed.

6. Page 3.3-1 fails to discuss the availability in any quantitative terms of water from the Hillsborough County - Riverview - Gibsonton water system. Data should be provided on the Hillsborough County - Riverview - Gibsonton system capacity and its ability to meet additional demands.

7. Page 3.3-3 notes that a study is currently under way to determine the feasibility of utilizing alternative water sources. These studies should be completed and plans finalized before the application is considered sufficient.

8. Page 3.4-1 reflects that the application is incomplete and insufficient until the 316 demonstration is provided.

9. The Department would like to see the study referred to on Page 3.7-1, paragraph 2.

10. Page 3.7-5 indicates that coal selection is yet to be finalized. The application should be considered insufficient until this is done.

11. Table 3.7-8, Page 2, cautions "FGD system specification has yet to be prepared. The performance requirements and guarantees are tentative." In light of this, the application should be considered insufficient until such time as final plans are arranged.
12. The Department would like to see the geo-technical study by Stone and Webster noted on Page 3.9-2.
13. The Department would like to know as to the rate of groundwater flow and the hydraulic gradient noted on Page 3.9-3.
14. What are the proposed means for controlling fugitive particulate from gypsum during transportation as noted on Page 3.9-4.
15. The application should be considered insufficient as to Page 3.10-1 until the water collection trench system can be finalized.
16. Section 4.1.9(sic) "Impact on Water Bodies and Uses"; Fails to discuss the impact on nearby ground water users, etc., of the temporary dewatering during construction.
17. Section 4.1.9 describes dredging that will be necessary for installation of an additional dilution pump and discharge structure. However, no joint application to the DER/Corps of Engineers was submitted or required by Section 4.1.2(e) of DER Form 17-1.122(72). The application is incomplete with respect to dredge and fill permitting due to the omission of the Joint Application, Department of Army/Florida Department of Environmental Regulation for Activities in Waters of the State, SAJ Form 983. This joint application should be filed together with the accompanying supporting information and drawings as requested in the joint application booklet. A copy of the booklet will be sent to TECO. Items that should be addressed in the joint application are: 1) The dredging at the Unit 4 discharge structure; 2) the dredging at the dilution pump; 3) the construction of both the discharge structure and the dilution pump; (4) the ash disposal site; (5) stormwater drainage from the plant site, the coal field and the ash disposal site.
18. The application should be considered insufficient as to Subsection 4.2.2.
19. Sections 5.1 and 5.2 are incomplete as noted in the transmittal letter.
20. The Department needs the dilution pump viability study, the Benthic Communal Thermal Impact Study and the Fine Mesh Screen Study identified on Page 5.1-1.

21. Subsection 5.3 is incomplete. The Department needs to know where the remainder of the fresh water needs for Unit 4 will be satisfied. The applicant should identify other possible sources for the FGD System water needs and should substantiate the conclusion that consumption is not expected to have adverse effects on the Hillsborough County water supply.

22. Similarly, Page 5.5-5 states that impacts are not expected to be significant. The applicant should identify possible impacts and support its conclusion.

23. Sections 5.8.3.1, 5.8.3.2, and 5.9 will not be completed until submission of the mid 1980 amendment. These sections refer to Aquatic Resources affected by the one-through-cooling (OTC) system, and also thermal variances that would be required for further OTC use.

24. Page 5.7-3 states this increase in station water use is not expected to have significant effect on local water supplies. The applicant should discuss availability and support its conclusion. On that same page, land use fails to identify the area to the South.

25. On Page 5.8-1 the applicant should discuss effects other than from consumptive use, on water and should be required to substantiate through estimates of availability and source information why it concludes that there will not be a serious depletion of groundwater resources.

26. The Department should receive the water quality and hydrographic studies mentioned in Page 6.2-1.

27. The Department should receive the reports of the subsurface investigation program identified in Page 6.2-32, the sound level environmental surveys noted in Page 6.2--32, and the terrestrial ecological investigations on Page 6.2-34.

28. Section 6.2.3 "Groundwater"; Fails to provide a monitoring program for impacts of temporary dewatering during site preparation and construction.

29. Section 7.2.2.1 "External Costs"; Assumptions concerning temporary dewatering impacts need substantiation.

30. With regard to the construction impact control and monitoring program, the Department would like to know whether the program appears in the individual contract and how it is enforceable.

Chris H. Bentley
Page five
October 12, 1979

31. The applicant should substantiate its conclusion on Page 7.2-2 that local groundwater elevation lowering will not affect area wells.
32. The application should be considered insufficient until the Department has received the results of the investigation into additional alternative water supplies.
33. Section 5.4. Disposal site for clean-out residuals from ash ponds and slag ponds is not clearly shown.
34. RCRA restrictions for construction of solid waste disposal sites in flood plains are finalized and must be considered; see 44 FR, 43561, September 13, 1979 "Criteria for Classification of Solid Waste Disposal Facilities and Practices."
35. Leachate effect studies as regards coal and ash storage areas should be conducted with a view towards satisfying the requirements of Chapter 17-7, FAC and the federal criteria contained in 44 FR September 13, 1979.
36. There is no mention of the potential hazards from radionuclides associated with the ash piles from coal-fired boilers. Radiation levels from these ash piles have been shown in some cases to exceed that which is emitted from waste gypsum piles, currently thought to be hazardous under 44 FR December 18, 1978, Hazardous Waste. (AH)

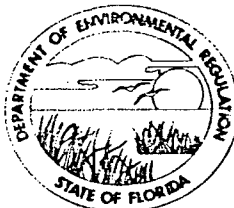
Sincerely,

Hamilton S. Owen, Jr., P.E.
Administrator
Power Plant Siting

HSO/jb

cc: W. J. Johnson, TECO
Sheri Smallwood
Secretary Jacob O. Varn

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32307



Bob Graham

BOB GRAHAM
GOVERNOR
JACOB D. VARN
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

October 2, 1979

D.E.R.

OCT 4 1979

SOUTHWEST DISTRICT
TAMPA

Dr. William J. Johnson, Manager
Environmental Planning
Tampa Electric Company
Post Office Box 111
Tampa, Florida 33601

Dear Dr. Johnson:

Your application to construct an air pollution source for Big Bend Unit No. 4 dated September 21, 1979, has been received by the Florida Department of Environmental Regulation. Big Bend Unit No. 4 is a new source governed by the provisions of Sections 403.501 to 403.517, Florida Statutes and by Chapter 17-17, Florida Administrative Code.

Your application is not in conformance with Chapter 17-17, Florida Administrative Code, nor is it in conformance with the Department of Environmental Regulation Form 17-1.122(72) the Application for Certification of Proposed Electrical Power Generating Plant Site. Your application is found to be incomplete, insufficient and improper. The application fee submitted is not in accordance with the fee schedule established in Section 17-17.04, Florida Administrative Code. Your check for \$20.00 is hereby returned.

The Florida Electrical Power Plant Siting Act supersedes all state permits or licenses. Therefore, your application for a permit from Hillsborough County is also inappropriate.

If you have any questions on this matter, please contact me.

Sincerely,

Hamilton S. Oven, Jr.
Hamilton S. Oven, Jr. P.E.
Administrator
Power Plant Siting

HSOjr/jb

cc: EPA
Sheri Smallwood
Dave Puchaty ✓
Roger Stewart
J. P. Subramani

Enclosure

original typed on 100% recycled paper

BEST AVAILABLE COPY

TECO
TAMPA ELECTRIC COMPANY

POST OFFICE BOX 111 TAMPA, FLORIDA 33601 TELEPHONE (813) 879-4111

October 4, 1979

D. E. R.

OCT 5 1979

**SOUTHWEST DISTRICT
TAMPA**

Mr. P.D. Puchaty
Florida Department of
Environmental Regulation
7601 Highway 301 North
Tampa, Florida 33610

Dear Mr. Puchaty:

Enclosed for your information, please find a copy of the Tampa Electric Company Big Bend Station Unit 4 Site Certification Application. This application has been submitted to the Florida Department of Environmental Regulation office in Tallahassee. To aid us in our document control procedure we request that you sign and return the receipt provided within Volume I of the document. This will enable us to keep your copy of the document up to date.

If you have any questions concerning the application, please do not hesitate to contact us.

Very truly yours,

John B. Ramil

John B. Ramil
Engineer
Environmental Planning

JBR:mo
enclosure

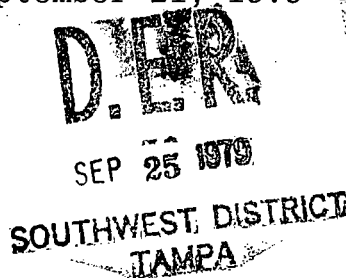
cc: A. Kaiser
T.L. Jones
D.E. Pless
W.J. Johnson
File R2.1.2
File G4.2P1



POST OFFICE BOX 111 TAMPA, FLORIDA 33601 TELEPHONE (813) 879-4111

September 21, 1979

Mr. Roger P. Stewart, Director
Hillsborough County Environmental
Protection Commission
1900 9th Avenue
Tampa, Florida 33605



Dear Mr. Stewart:

Enclosed please find the original and four copies of a construction permit application for Big Bend 4. Also, enclosed are checks in the amounts of \$20.00 and \$50.00 payable to the Florida Department of Environmental Regulation and the Hillsborough County Board of County Commissioners, respectively.

Under separate cover we are submitting five copies of the Prevention of Significant Deterioration application which is being submitted to EPA Region IV currently.

Please contact us if you have any questions.

Yours truly,

W.J. Johnson, Ph.D.
Manager
Environmental Planning

enclosures

cc: Mr. Jacob D. Varn-DER
Mr. P. David Puchaty-DER ✓

DER
SEP 25 1979
SOUTHWEST DISTRICT
TAMPA

September 21, 1979

Mr. John C. White
Regional Administrator
Region IV
U.S. Environmental Protection Agency
345 Courtland Street
Atlanta, Georgia 30308

RE: Big Bend Unit 4
PSD Application
Tampa Electric Company

Dear Mr. White:

In accordance with requirements of the Clean Air Act Amendments (August 7, 1977), Prevention of Significant Deterioration (June 19, 1978), and New Source Performance Standards (June 11, 1979), Tampa Electric Company is submitting two (2) copies of a Prevention of Significant Deterioration (PSD) Application for the proposed Big Bend Unit 4.

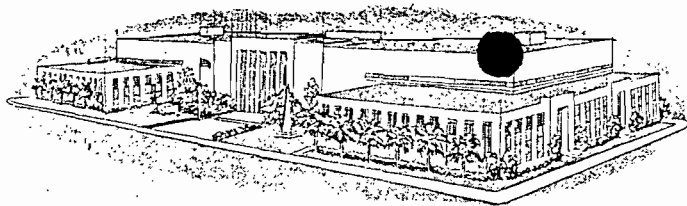
We have been interfacing with Mr. Roger Pfaff of your staff. He and Mr. Lew Nagler have provided us valuable guidance as we have prepared our application.

We look forward to working with you toward final approval of this application. If you have any questions or comments, please contact us.

Very truly yours,

J.D. Hicks
Vice President-Operations

cc: Mr. J.D. Varn
Mr. R.P. Stewart
Mr. Dan Williams ✓



COUNTY OF HILLSBOROUGH

MEMORANDUM

DER

SEP 28 1979

9-26-79

SOUTHWEST DISTRICT
TAMPA

To Dan Williams - DER

From Joe Griffiths - Env. Prot. Comm.

JG

Subject: Air Permit Applications

Transmitted this date the following:

1 copy of TECO's Big Bend No. 4, application to construct. Have sent check + 3 copies to DER in Tall.

File TECO
Big Bend 4

Brown,

Take our
copy and
forward ^{to} Sally.

D.E.R.

Have
done

APR 9 1980

SOUTHWEST DISTRICT
TAMPA

To: Dan Williams
From: Joe Griffiths
Subj: TECO Big Bend 4 Appl.

Please complete the attached forms and
return to TECO.
Thanks.

Completed
and mailed
4/30/80
WJH

TECO
TAMPA ELECTRIC COMPANY

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

POST OFFICE BOX 111 TAMPA, FLORIDA 33601 TELEPHONE (813) 879-4111

March 20, 1980

Mr. R.P. Stewart
Hillsborough County Environmental
Protection Commission
1900 9th Avenue
Tampa, Florida 33605



Dear Mr. Stewart:

Tampa Electric Company places great importance in ensuring that all Big Bend 4 PSD Application recipients have received and are holding both the original application and the three subsequent amendments to the application. For this reason we are requesting the attached form be completed and returned as soon as possible.

Thank you for your cooperation.

Sincerely,

William J. Johnson
W.J. Johnson, Ph.D., P.E.
Manager, Environmental Planning

WJJ:mo
attachment

TAMPA ELECTRIC COMPANY

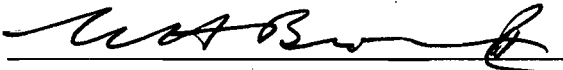
BIG BEND UNIT 4

Please mark as appropriate the documents your organization has received.

PSD Application (in binder)
Amendment No. 1
Amendment No. 2
Amendment No. 3 (in binder)

| |
|-------------------------------------|
| <input checked="" type="checkbox"/> |
| <input checked="" type="checkbox"/> |
| <input checked="" type="checkbox"/> |
| <input checked="" type="checkbox"/> |

Name W. H BROWN II
Position ENGINEER
Organization T DER


Signature

4/30/80
Date

Return To: Melissa Overstreet
Environmental Planning
Tampa Electric Company
P.O. Box 111
Tampa, Florida 33601

Copy

March 2, 1979

| | | |
|---------------|------------------|----------------|
| Bill Cantrell | TECO | 879-4111 |
| Bill Johnson | " | " |
| Larry Curtis | Holland & Knight | 682-1161 |
| David Guff | FSE | (909) 372-3318 |
| KENNARD Kosky | ESG | " " " |
| DAN WILLIAMS | DER | (813) 985-7402 |
| BILL BROWN | " | " " " |

OUTLINE FOR PSD/BACT PERMIT APPLICATION
VOLUME I - PSD AIR QUALITY ANALYSIS

| Section/Subsection | Responsibility | Topics to be Presented | Federal Requirement (40 CFR) | State of Florida Requirement (Ch. 17-2, 17-4 FAC) |
|------------------------------|---------------------|--|-----------------------------------|---|
| 1.0 Introduction | ESE | General regulatory requirements, increments and AAQS, orientation to scope of project | 50.4 -.11 52.21(c) 52.21(d) | 17-2.06 17-2.04(1)(b) 17-4.05, 17-4.21 |
| 2.0 Source Description | ESE/FPL-A&E | Source emissions and stack parameters, stack height, reference to Vol. II BACT analysis. | 52.21(h) 52.21(o) | 17-2.03 17-4.05 17-4.21 |
| 3.0 Methodology | | | | |
| 3.1 Ambient Monitoring | ESE | General ambient monitoring methods; appendices and reports will be referenced. | 52.21(n) | 17-4.05, 17-4.21 |
| 3.1.1 TSP | | | | |
| 3.1.2 SO ₂ | | | | |
| 3.1.3 NO ₂ | | | | |
| 3.2 Dispersion Modeling | ESE | Methods of determining baseline, compliance with AAQS and increment consumption. | 52.21(m) | 17-2.04(6)(b) |
| 3.2.1 Meteorological Data | | | | |
| 3.2.2 Increment Consumption | | | | |
| 3.2.3 AAQS | | | | |
| 3.2.4 Class I Areas | | | | |
| 4.0 Baseline Air Quality | | | | |
| 4.1 Ambient Air Quality Data | ESE | Ambient air quality data for TSP, SO ₂ , and NO ₂ | 52.21(n) | 17-4.05, 17-4.21 |
| 4.2 Baseline-Federal | ESE | Annual, 24-hour and 3-hour baseline concentration (1977). | 52.21(b)(11) | N.A. |
| 4.3 Baseline-State | ESE | Annual, 24-hour and 3-hour baseline concentration (1974). | N.A. | 17-2.02(6) |
| 5.0 Air Quality Review | | | | |
| 5.1 Increment Consumption | ESE | Compliance with PSD increments, isopleths, and tables. | 52.21(1)(2), 52.21(c) | 17-2.04(6)(a), 17-4.05, 17-4.21 |
| 5.2 AAQS's | ESE | Compliance with AAQS's, isopleths, and tables. | 52.21(1)(1), 52.21(d) | 17-2.04(6)(a), 17-4.05, 17-4.21 |
| 5.3 Incremental Impact | ESE | Impact of source only. | N.A. | N.A. |
| 6.0 Additional Impacts | ESE/Applied Biology | Analysis of impairment to visibility, soil & vegetation. | 52.21(p) | N.A. |
| 7.0 Appendices | ESE | Computer printouts and other relevant information. | N.A. | N.A. |

Big Bear unit 4

1- PSD ESE

2- BAET

3-2-79
Clark
Incident saving
PSP
SCA user document

changes since tax line 3:10.

October 20, 1978

Brown
D.E.R.

OCT 30 1978

SOUTHWEST DISTRICT
TAMPA

Mr. Bill Cloward
NPDES Permits Section
Environmental Protection Agency
345 Courtland Street
Atlanta, Georgia 30308

RE: Initiation of Permitting
Big Bend Unit No. 4
Tampa Electric Company

Dear Mr. Cloward:

During our meeting with you, Mr. Bob Howard, Mr. Joe Franzmathes, and other EPA representatives, we discussed TECO's intent to construct a new generating unit at our existing Big Bend plant near Tampa, Florida. We call this unit at Big Bend Unit No. 4.

Since we intend to initiate construction on the unit in November, 1981, we are anxious to pursue appropriate environmental permitting inasmuch as we have been advised that already time is of the essence. In that regard and in accordance with your instructions, we have reviewed the applicable laws and regulations as well as guidelines promulgated under the Clean Water Act as amended for electric generating facilities with respect to determining whether the unit should be considered "new" or "existing". It is our view that the source should be deemed "new" under Section 306 of the Clean Water Act. We reach this conclusion because, as of the date of the publication or promulgation of applicable guidelines, there had not been any significant site preparation work, or any placement, assembly or installation of unique facilities or equipment at the premises where such facilities or equipment will be used. In addition, TECO had not entered into contractual obligations to purchase any such unique facilities or equipment.

We have made this determination in an expeditious manner as agreed in our meeting in order that we may pursue vigorously environmental permitting including compliance with applicable requirements of the National Environmental Policy Act, subject to the benefit of any changes in applicable laws or regulations at a later date.

Please make file
for Big Bend #4

TECO

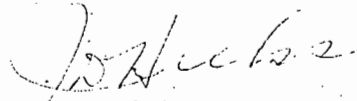
Mr. Bill Cloward
October 20, 1978
Page 2

We have also reviewed the available approaches for compliance with NEPA and have elected to pursue the "third-party" approach for the preparation of the environmental impact statement.

We have asked our attorneys to begin reviewing the proposed Memorandum of Understanding which you provided us. Any proposed rewording shall be forwarded to Mr. Bob Howard shortly. We have also begun our review of candidate consultants and are planning to provide you with the name of the tentative contractor the first week of November, 1978.

We appreciated the assistance and guidance provided us during the meeting and look forward to working closely with you and the EPA staff on this project.

Very truly yours,



J. D. Hicks
Vice President-Operations

cc: Mr. John C. White, EPA
Mr. Robert B. Howard, EPA
Mr. Joseph R. Franzmathes, EPA
Mr. Harold Wahlquist, U.S.F&WLS
Mr. Jay Landers, FDER
Mr. Roger Stewart, HCEPC
Mr. Bert Heimer, U.S. C of E
Mr. W. D. Stephens, Holland & Knight

bcc: Mr. H. S. Oven, FDER
Mr. D. Puchaty, FDER
Mr. D. McAteer, SWFWMD
Mr. D. Feaster, SWFWMD
Mr. S. D. Wilson, TBRPC
Mr. J. Crislip, HCPC

THIS COPY FOR

RECEIVED

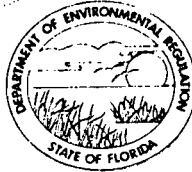
SEP 23 1979

H.C.E.P.C.

D.E.R.

SEP 28 1979

SOUTHWEST DISTRICT TAMPA



0039
04

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
APPLICATION TO OPERATE/CONSTRUCT
AIR POLLUTION SOURCES

SOURCE TYPE: _____ New¹ Existing¹

APPLICATION TYPE: Construction Operation Modification

COMPANY NAME: Tampa Electric Company COUNTY: Hillsborough

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) stack emissions from combustion of coal, Unit No. 4, Big Bend Station

SOURCE LOCATION: Street Big Bend Road City Ruskin
UTM: East 361,900 North 3,075,000
Latitude 27 ° 47 , 42 "N Longitude 82 ° 24 , 16 "W

APPLICANT NAME AND TITLE: Tampa Electric Company

APPLICANT ADDRESS: P. O. Box 111 Tampa, FL 33601

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Tampa Electric Company

construction

I certify that the statements made in this application for a construction permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: William J. Johnson
W. J. Johnson, Manager-Environmental Planning
Name and Title (Please Type)

Date: _____ Telephone No. (813)879-4111

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and applicable pollution sources.

Signed: William N. Cantrell
William N. Cantrell
Name (Please Type)

Tampa Electric Company
Company Name (Please Type)

P. O. Box 111, Tampa, FL 33601
Mailing Address (Please Type)

Florida Registration No. 23494 Date: 9/21/79 Telephone No. (813)879-4111

¹See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

This project will be that of constructing a coal-fired boiler and associated structures for the purpose of generating steam to drive a turbine to produce electricity.

B. Schedule of project covered in this application (Construction Permit Application-Only)

Start of Construction February 1982 Completion of Construction March 1985

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

| | | |
|----------------------------|----------------|----------------------|
| Electrostatic Precipitator | \$10.0 million | preliminary estimate |
| Flue Gas Desulfurization | 85.5 million | preliminary estimate |
| Waste Disposal System | 7.0 million | preliminary estimate |

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

N.A.

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? Yes No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 38 ; if power plant, hrs/yr 6400 ; if seasonal, describe: N.A.

G. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant?

yes, ozone only

a. If yes, has "offset" been applied?

Note 1

b. If yes, has "Lowest Achievable Emission Rate" been applied?

no

Note 1

c. If yes, list non-attainment pollutants.

no

ozone

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI.

yes

3. Does the State "Prevention of Significant Deterioration" (PSD) requirements apply to this source? If yes, see Sections VI and VII.

yes

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source?

yes

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source?

yes

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

| Description | Contaminants | | Utilization Rate - lbs/hr | Relate to Flow Diagram |
|-------------|--|------|---------------------------|------------------------|
| | Type | % Wt | | |
| Coal | See Section 111E - Fuels, for data on coal and its contaminants and its utilization rates. | | | |
| | | | | |
| | | | | |
| | | | | |

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): See Section 111E

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted: Calculations on Attachment B

| Name of Contaminant | Emission ¹ | | Allowed Emission ² Rate per Ch. 17-2, F.A.C. lbs per MMBTU | Allowable ³ Emission lbs/hr | Potential Emission ⁴ | | Relate to Flow Diagram |
|---------------------|-----------------------|----------------|--|--|---------------------------------|---------|------------------------|
| | Maximum lbs/hr | Actual T/yr | | | lbs/hr | T/yr | |
| | NOTE 2 | | NOTE 3 | NOTE 4 | NOTE 5 | | |
| Particulates | 433 | 997 | 0.1 / 0.03 | 130 | 50,364 | 115,966 | |
| Sulfur Dioxide | 5196 | 11,964 | 1.2 / 1.2 | 5196 | 51,960 | 119,641 | |
| Nitrogen Dioxide | 3031 | 6979 | 0.7 / 0.6 | 2598 | 2598 | 5982 | |

D. Control Devices: (See Section V, Item 4) calculation on Attachment C.

| Name and Type (Model & Serial No.) | Contaminant | Efficiency NOTE 6 | Range of Particles ⁵ Size Collected (in microns) | Basis for Efficiency (Sec. V, It ⁵) |
|------------------------------------|----------------|----------------------|---|--|
| Electrostatic Precipitator | Particulates | 99.74 | 0.3 - 5.0 | Design |
| Flue Gas Desulfurization | Sulfur Dioxide | 70-90% | N.A. | Design |
| | | | | |
| | | | | |

¹See Section V, Item 2.

²Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. - 0.1 pounds per million BTU heat input)

³Calculated from operating rate and applicable standard

⁴Emission, if source operated without control (See Section V, Item 3)

⁵If Applicable

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

| Description | Contaminants | | Utilization Rate - lbs/hr | Relate to Flow Diagram |
|-------------|--|------|---------------------------|------------------------|
| | Type | % Wt | | |
| Coal | See Section 111E - Fuels, for data on coal and its contaminants and its utilization rates. | | | |
| | | | | |
| | | | | |
| | | | | |

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): See Section 111E

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted: Calculations on Attachment B

| Name of Contaminant | Emission ¹ | | Allowed Emission ² Rate per Ch. 17-2, F.A.C. lbs per MMBTU | Allowable ³ Emission lbs/hr | Potential Emission ⁴ | | Relate to Flow Diagram |
|---------------------|-----------------------|----------------|--|--|---------------------------------|---------|------------------------|
| | Maximum lbs/hr | Actual T/yr | | | lbs/hr | T/yr | |
| | NOTE 2 | | NOTE 3 | NOTE 4 | NOTE 5 | | |
| Particulates | 433 | 997 | 0.1 / 0.03 | 130 | 50,364 | 115,966 | |
| Sulfur Dioxide | 5196 | 11,964 | 1.2 / 1.2 | 5196 | 51,960 | 119,641 | |
| Nitrogen Dioxide | 3031 | 6979 | 0.7 / 0.6 | 2598 | 2598 | 5982 | |
| | | | | | | | |

D. Control Devices: (See Section V, Item 4) calculation on Attachment C.

| Name and Type (Model & Serial No.) | Contaminant | Efficiency NOTE 6 | Range of Particles ⁵ Size Collected (in microns) | Basis for Efficiency (Sec. V, It ⁵) |
|---------------------------------------|----------------|----------------------|---|---|
| Electrostatic Precipitator | Particulates | 99.74 | 0.3 - 5.0 | Design |
| Flue Gas Desulfurization | Sulfur Dioxide | 70-90% | N.A. | Design |
| | | | | |
| | | | | |
| | | | | |

¹See Section V, Item 2.

²Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. - 0.1 pounds per million BTU heat input)

³Calculated from operating rate and applicable standard

⁴Emission, if source operated without control (See Section V, Item 3)

⁵If Applicable

| | Volume (ft) ³ | Heat Release (BTU/hr) | Fuel | | Temperature (°F) |
|-------------------|-----------------------------|--------------------------|------|--------|---------------------|
| | | | Type | BTU/hr | |
| Primary Chamber | | | | | |
| Secondary Chamber | | | | | |

Stack Height: _____ ft. Stack Diameter _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: Cyclone Wet Scrubber Afterburner Other (specify) _____

Brief description of operating characteristics of control devices: _____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.): _____

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

- Total process input rate and product weight – show derivation. Maximum heat input to boiler is 4330 MMBTU/hour. Operating range is from approximately 35% to 100%.
- To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made. 40 CFR 60, Subpart Da, June 11, 1979. See calculations on Attachment B for emission estimates. Please refer to attached PSD Application, Volume II - BACT:
- Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). Section 3 - Regulatory Requirements. Please see calculations on Attachment B.
- With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, etc.). Please refer to PSD Application, Volume II - BACT: Section 4 - Proposed Air Pollution
- With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3, and 5 should be consistent: actual emissions = potential (1-efficiency). Please refer to Attachment C.
- An 8½" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained. Please refer to Attachment D.
- An 8½" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map). Please refer to Attachment E.
- An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. Please refer to Attachment F.

Controls.

- 9. An application fee of \$20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.
- 10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
 Yes No

| Contaminant | Rate or Concentration |
|------------------|-------------------------------------|
| Particulate | 0.03 lbs per MMBTU (≥99% removal) |
| Sulfur Dioxide | 1.20 lbs per MMBTU (70-90% removal) |
| Nitrogen Dioxide | 0.60 lbs per MMBTU |

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) Yes No

| Contaminant | Rate or Concentration |
|-------------|-----------------------|
| | |
| | |
| | |

C. What emission levels do you propose as best available control technology?

| Contaminant | Rate or Concentration |
|------------------|-------------------------------------|
| Particulate | 0.03 lbs per MMBTU (≥ 99% removal) |
| Sulfur Dioxide | 1.20 lbs per MMBTU (70-90% removal) |
| Nitrogen Dioxide | 0.60 lbs per MMBTU |

D. Describe the existing control and treatment technology (if any). N.A.

- 1. Control Device/System:
- 2. Operating Principles:
- 3. Efficiency:*
- 4. Capital Costs:
- 5. Useful Life:
- 6. Operating Costs:
- 7. Energy:
- 8. Maintenance Cost:
- 9. Emissions:

| Contaminant | Rate or Concentration |
|-------------|-----------------------|
| | |
| | |
| | |

*Explain method of determining D 3 above.

10. Stack Parameters

- a. Height: _____ ft.
- b. Diameter: _____ ft.
- c. Flow Rate: _____ ACFM
- d. Temperature: _____ °F
- e. Velocity: _____ FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1. Please refer to attached PSD Application for thorough discussion of this question: Volume II - BACT, Section 5 - Alternative Air Pollution Controls; Section 6 - Evaluation of Alternative SO₂ Control Systems. Specific details will be supplied when selection of control systems vendor is made.

- a. Control Device:
- b. Operating Principles:
- c. Efficiency*:
- d. Capital Cost:
- e. Useful Life:
- f. Operating Cost:
- g. Energy*:
- h. Maintenance Cost:
- i. Availability of construction materials and process chemicals:
- j. Applicability to manufacturing processes:
- k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

- a. Control Device:
- b. Operating Principles:
- c. Efficiency*:
- d. Capital Cost:
- e. Useful Life:
- f. Operating Cost:
- g. Energy**:
- h. Maintenance Costs:
- i. Availability of construction materials and process chemicals:
- j. Applicability to manufacturing processes:
- k. Ability to construct with control device, install in available space, and operate within proposed levels:

*Explain method of determining efficiency.

**Energy to be reported in units of electrical power - KWH design rate.

3.

- a. Control Device:
- b. Operating Principles:
- c. Efficiency*:
- d. Capital Cost:
- e. Life:
- f. Operating Cost:
- g. Energy:
- h. Maintenance Cost:

*Explain method of determining efficiency above.

- i. Availability of construction materials and process chemicals:
- j. Applicability to manufacturing processes:
- k. Ability to construct with control device, install in available space and operate within proposed levels:

4.

- a. Control Device
- b. Operating Principles:
- c. Efficiency*:
- d. Capital Cost:
- e. Life:
- f. Operating Cost:
- g. Energy:
- h. Maintenance Cost:
- i. Availability of construction materials and process chemicals:
- j. Applicability to manufacturing processes:
- k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected: Please refer to attached PSD Application: Volume II -

- 1. Control Device: BACT, Section 4 - Proposed Air Pollution Controls. Final details will be supplied when selection of control equipment vendor is made.
- 2. Efficiency*:
- 3. Capital Cost:
- 4. Life:
- 5. Operating Cost:
- 6. Energy:
- 7. Maintenance Cost:
- 8. Manufacturer:
- 9. Other locations where employed on similar processes:

a.

- (1) Company:
- (2) Mailing Address:
- (3) City:
- (4) State:
- (5) Environmental Manager:
- (6) Telephone No.:

*Explain method of determining efficiency above.

(7) Emissions*:

| Contaminant | Rate or Concentration |
|-------------|-----------------------|
| | |
| | |
| | |

(8) Process Rate*:

b.

- (1) Company:
- (2) Mailing Address:
- (3) City:
- (4) State:

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

| Contaminant | Rate or Concentration |
|-------------|-----------------------|
| <hr/> | <hr/> |
| <hr/> | <hr/> |

(8) Process Rate*:

10. Reason for selection and description of systems:

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data Please refer to attached PSD Application, Volume I – PSD:
 1. _____ no sites _____ TSP _____ () SO₂* _____ Wind spd/dir Section 3.1 and 4.1.

Period of monitoring _____ / _____ / _____ to _____ / _____ / _____
 month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? _____ Yes _____ No

b) Was instrumentation calibrated in accordance with Department procedures? _____ Yes _____ No _____ Unknown

B. Meteorological Data Used for Air Quality Modeling Please refer to PSD Application, Volume I – PSD:

1. _____ Year(s) of data from _____ / _____ / _____ to _____ / _____ / _____ Section 3.2.
 month day year month day year

2. Surface data obtained from (location) _____

3. Upper air (mixing height) data obtained from (location) _____

4. Stability wind rose (STAR) data obtained from (location) _____

C. Computer Models Used Please refer to PSD Application, Volume I – PSD: Sections 3.2, 4.3;

1. _____ Section 5. Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

| Pollutant | Emission Rate |
|-----------------|--|
| TSP | _____ 17.73 _____ grams/sec (0.03 lbs/MMBTU) |
| SO ₂ | _____ 709.43 _____ grams/sec (1.2 lbs/MMBTU) |

E. Emission Data Used in Modeling Please refer to attached PSD Application: Appendix G.

Attach list of emission sources. Emission data required is source name, description on point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review. Please refer to attached PSD Application.

*Specify bubbler (B) or continuous (C).

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

Please refer to attached PSD Application: Volume II – BACT: Sections 5,6,7

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology. Please refer to attached PSD Application, Volume II – BACT.

NOTES

1. Calculations (Attachment A) show that emissions of volatile organic compounds from the proposed source are below the exemption cutoff level found in 17-2.17(3)(a)1.a.
2. Calculation based on current FDER allowable emission rates.
3. Slash divides FDER allowable emission rate on the left from EPA (NSPS) emission rate on the right.
4. Calculation based on EPA (NSPS) allowable emission rate effective June 11, 1979.
5. Potential particulate emissions are calculated using a design coal at standard operating conditions.

Potential sulfur dioxide emissions are calculated using highest sulfur coal reasonably considered.

Potential nitrogen oxides emissions are calculated using the allowable rates since the control is the design of the boiler which cannot be changed or "turned off."

6. Efficiency for particulate is calculated using design coal at standard operating conditions (Attachment C).

Efficiency for sulfur dioxide is based on the NSPS and on a range of sulfur content.

7. This fuel analysis is for a precipitator specification design coal. The actual coal composition may vary considerably from this analysis.
8. Gas Flow Rate, Exit Temperature, Water Vapor Content, and Velocity are given for Unit 4 only. The flue gas will enter the existing stack that also serves Unit 3.

CALCULATIONS

$$\frac{.01 \text{ lbs VOC}}{\text{ton coal}} \times \frac{206.5 \text{ tons}}{\text{hour}} = 2.065 \frac{\text{lbs VOC}}{\text{hour}}$$

$$\frac{.01 \text{ lbs VOC}}{\text{ton coal}} \times \frac{1,000,000 \text{ tons}}{\text{year}} \times \frac{1 \text{ ton}}{2,000 \text{ lbs}} \times \frac{5 \text{ ton VOC}}{\text{year}}$$

The factor $\left(\frac{.01 \text{ lbs VOC}}{\text{ton coal}}\right)$ is taken from a January 23, 1978 EPA memorandum recommending the use of this factor until AP-42 can be revised.

CALCULATIONS

IIIC. Airborne Contaminants Emitted

Emissions

Particulates

$$\frac{4330 \text{ MMBTU}}{\text{hour}} \times \frac{0.1 \text{ lbs}}{\text{MMBTU}} = \frac{433 \text{ lbs}}{\text{hour}}$$

$$\frac{433 \text{ lbs}}{\text{hour}} \times \frac{1 \text{ ton}}{2000 \text{ lbs}} \times \left(\frac{8760 \text{ hrs}}{\text{yr}} \times .5257 \right) = \frac{977 \text{ tons}}{\text{year}}$$

Sulfur Dioxide

$$\frac{4330 \text{ MMBTU}}{\text{hour}} \times \frac{1.2 \text{ lbs}}{\text{MMBTU}} = \frac{5196 \text{ lbs}}{\text{hour}}$$

$$\frac{5196 \text{ lbs}}{\text{hour}} \times \frac{1 \text{ ton}}{2000 \text{ lbs}} \times \left(\frac{8760 \text{ hrs}}{\text{year}} \times .5257 \right) = \frac{11,964 \text{ tons}}{\text{year}}$$

Nitrogen Dioxide

$$\frac{4330 \text{ MMBTU}}{\text{hour}} \times \frac{0.7 \text{ lbs}}{\text{MMBTU}} = \frac{3031 \text{ lbs}}{\text{hour}}$$

$$\frac{3031 \text{ lbs}}{\text{hour}} \times \frac{1 \text{ ton}}{2000 \text{ lbs}} \times \left(\frac{8760 \text{ hrs}}{\text{year}} \times .5257 \right) = \frac{6979 \text{ tons}}{\text{year}}$$

Allowable Emissions

Particulates

$$\frac{4330 \text{ MMBTU}}{\text{hour}} \times \frac{0.03 \text{ lbs}}{\text{MMBTU}} = \frac{130 \text{ lbs}}{\text{hour}}$$

Sulfur Dioxide

$$\frac{4330 \text{ MMBTU}}{\text{hour}} \times \frac{1.2 \text{ lbs}}{\text{MMBTU}} = \frac{5196 \text{ tons}}{\text{year}}$$

CALCULATIONS

Nitrogen Dioxide

$$\frac{4330 \text{ MMBTU}}{\text{hour}} \times \frac{0.6 \text{ lbs}}{\text{MMBTU}} = 2598 \frac{\text{tons}}{\text{year}}$$

Potential Emissions

Particulate

$$\frac{2.67 \text{ gr}}{\text{acfm}} \times \frac{1.429 \times 10^{-4} \text{ lbs}}{\text{grain}} \times 2,200,000 \text{ acfm} \times \frac{60 \text{ min}}{1 \text{ hour}} = 50,364 \frac{\text{lbs}}{\text{hour}}$$

$$\frac{50,364 \text{ lbs}}{\text{hour}} \times \frac{1 \text{ ton}}{2000 \text{ lbs}} \times \left(\frac{8760 \text{ hrs}}{\text{year}} \times .5257 \right) = 115,966 \frac{\text{tons}}{\text{year}}$$

Sulfur Dioxide

$$\frac{4330 \text{ MMBTU}}{\text{hour}} \times \frac{1.2 \text{ lbs}}{\text{MMBTU}} = \frac{51,960 \text{ lbs}}{\text{hour}}$$

$$\frac{51,960 \text{ lbs}}{\text{hour}} \times \frac{1 \text{ ton}}{2000 \text{ lbs}} \times \left(\frac{8760 \text{ hrs}}{\text{year}} \times .5257 \right) = 119,641 \frac{\text{tons}}{\text{year}}$$

Nitrogen Dioxide

$$\frac{4330 \text{ MMBTU}}{\text{hour}} \times \frac{0.6 \text{ lbs}}{\text{MMBTU}} = \frac{2598 \text{ lbs}}{\text{hour}}$$

$$\frac{2598 \text{ lbs}}{\text{hour}} \times \frac{1 \text{ ton}}{2000 \text{ lbs}} \times \left(\frac{8760 \text{ hrs}}{\text{year}} \times .5257 \right) = 5982 \frac{\text{tons}}{\text{year}}$$

NOTE: These particulate emissions are calculated using design inlet grain loading from the precipitator specification in order to facilitate efficiency calculations. Elsewhere in the application, a slightly different particulate emission rate has been calculated using ash content of the design coal in order to facilitate fly ash and bottom ash calculations.

CALCULATIONS

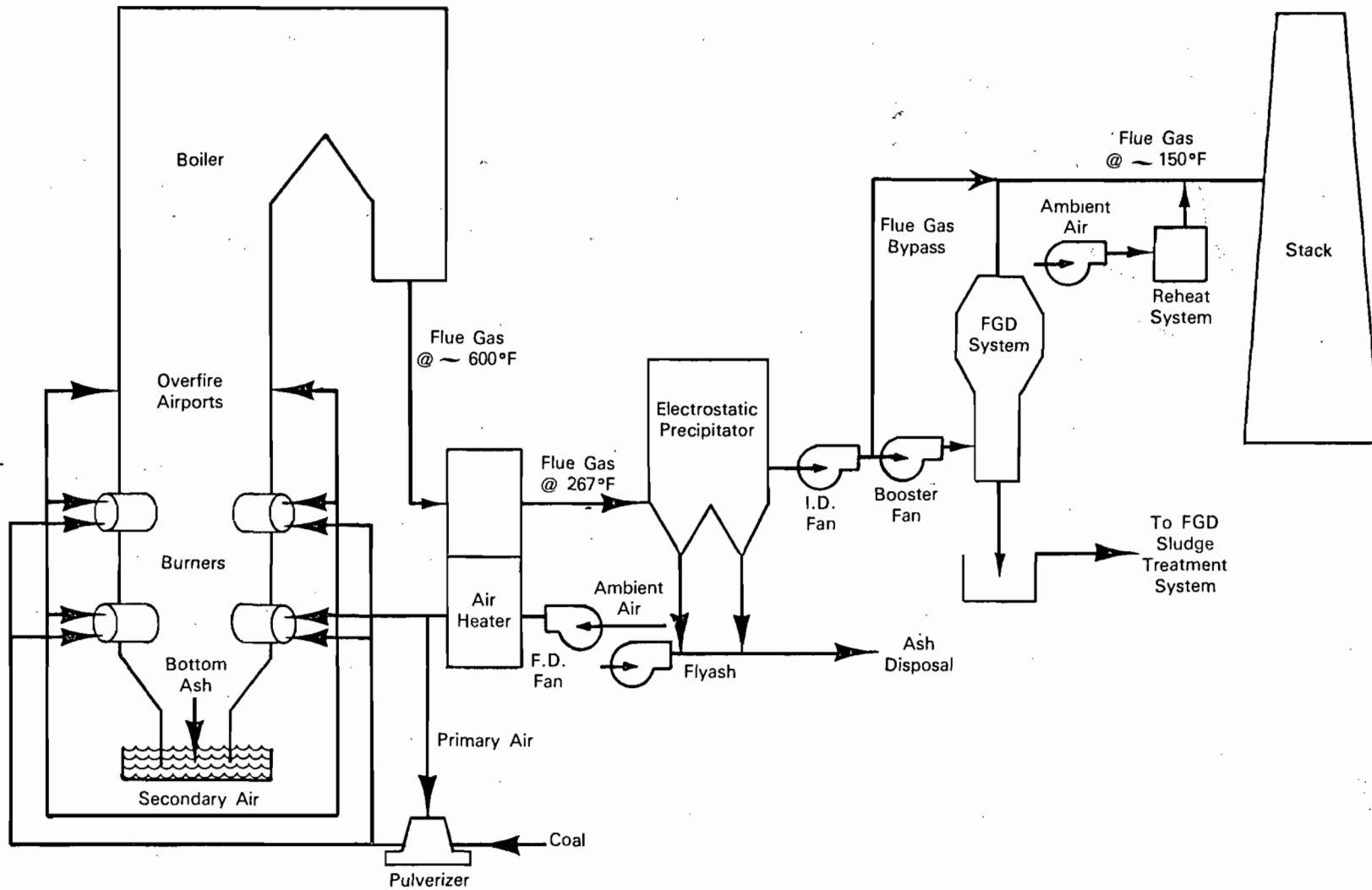
Inlet Grain Loading

$$\frac{2.67 \text{ gr}}{\text{acfm}} \times \frac{1.429 \times 10^{-4} \text{ lbs}}{\text{grain}} \times \frac{60 \text{ min.}}{\text{hour}} \times 2,200,000 \text{ acfm} = \frac{50,364 \text{ lbs}}{\text{hour}}$$

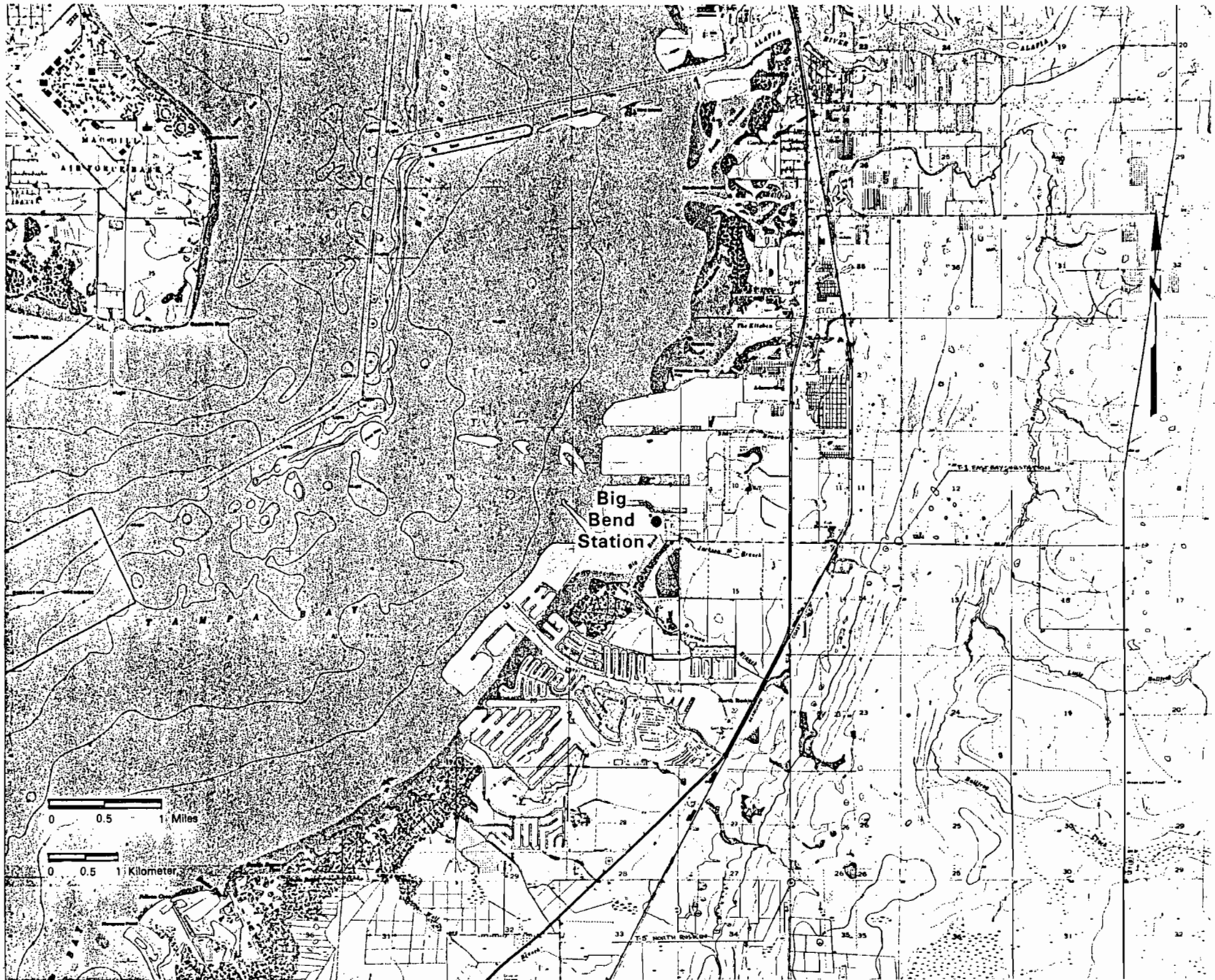
Outlet Grain Loading

$$\frac{0.007 \text{ gr}}{\text{acfm}} \times \frac{1.429 \times 10^{-4} \text{ lbs}}{\text{grain}} \times \frac{60 \text{ min.}}{\text{hour}} \times 2,200,000 \text{ acfm} = \frac{130 \text{ lbs}}{\text{hour}}$$

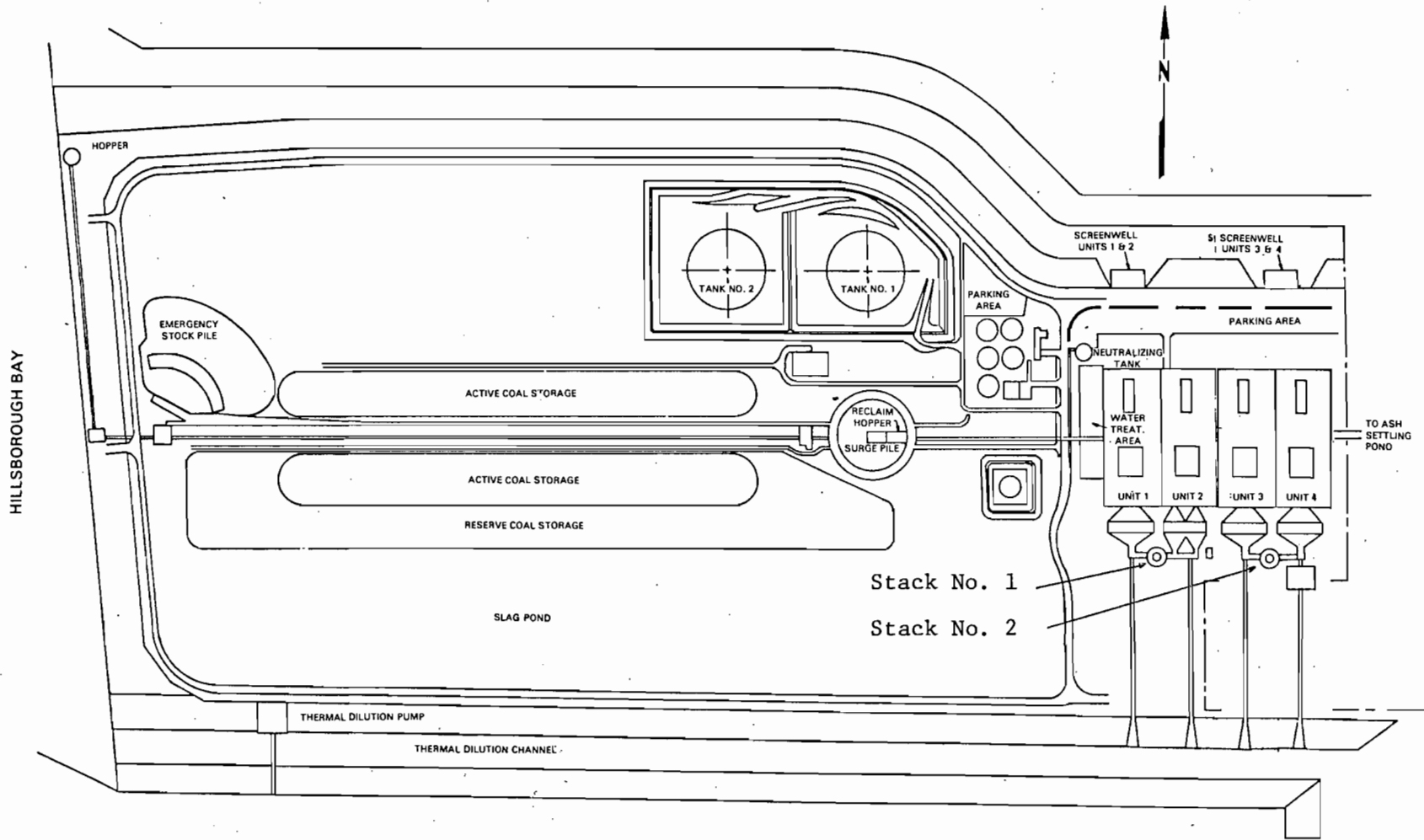
$$\text{Efficiency} = \frac{50,364 - 130}{50,364} \times 100 = 99.74\%$$



Proposed Air Pollution Control Systems for Big Bend Station Unit 4



Site Location Map



Plant Layout

A PLAN OF STUDY
APPLICATION FOR
PREVENTION OF SIGNIFICANT DETERIORATION PERMIT

TAMPA ELECTRIC COMPANY
BIG BEND STATION
UNIT 4

Submitted to:

U.S. ENVIRONMENTAL PROTECTION AGENCY
STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

Submitted by:

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
Gainesville, Florida

78-128-001

February 1979

OUTLINE FOR PSD/BACT PERMIT APPLICATION
VOLUME II - BEST AVAILABLE CONTROL TECHNOLOGY REVIEW

| Section/Subsection | Responsibility | Topics to be Presented | Federal Requirement (40 CFR) | State of Florida Requirement (Chs 17-2, 17-4 FAC) |
|---|-----------------------------|---|--|---|
| 1.0 Introduction | ERT | General regulatory requirements, orientation for reviewer of scope of project. | 52.21(j), 60 61, 52.21(b)(10) | 17-4.05, .21, 17-2.03 17-2.04(6)(a), (v) 17-2.05(6), Table 11E |
| 2.0 General Source Description | ERT | Information on nature, location, design capacity, operating schedule of source. | 52.21(o)(1)(i) | 17-2.03, 17-4.05, 17-4.21 |
| 3.0 Control Technology/Review | Stone & Webster/ ERT/ESE | Description and evaluation of continuous emission, reduction systems, emission estimates. Description of alternative control technology. Energy, economic and environmental impact analysis of BACT and alternatives. | 52.21(o)(1)(iii) 52.21(j) Guidelines for BACT | 17-2.05(6), Table 11E 17-2.03(1)(b) 17-2.02(7) 17-2.04(6)(a) |
| 3.1 Evaluation of Best Available Control Technology | | | | |
| 3.2 Description of Alternative Control Technology | | | | |
| 3.3 Defense of Control Technology Selection | | | | |
| 4.0 Schedule | Stone & Webster/ ERT | Schedule of construction activities. | 52.21(o)(1)(iii) 52.21(j)(5) | 17-4.05, 17-4.21 |
| 5.0 Appendices | Stone & Webster/ ERT | Application forms and other information | EPA air pollutant emis. report OMB No. 158-R75 | DER Form Perm 12-2 |

A PLAN OF STUDY
APPLICATION FOR
PREVENTION OF SIGNIFICANT DETERIORATION PERMIT

TAMPA ELECTRIC COMPANY
BIG BEND STATION
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February 1979

EXECUTIVE SUMMARY

Tampa Electric Company is planning to construct a new unit at the existing Big Bend generating station. Prior to construction of the facility, approval must be granted under Federal and State of Florida Prevention of Significant Deterioration (PSD) regulations. As a prerequisite for obtaining approval, TECO must supply certain information as specified in the regulations and guidelines.

This document is a Plan of Study relating the quantity and type of information that is proposed for submittal by TECO to meet the promulgated regulations and guidelines. Information is presented in this POS on the equipment, length of sampling, location of monitors, procedures, and other factors important to the PSD permit application.

It is the intent of this POS to establish the initial dialogue between TECO and appropriate regulatory agencies on the PSD requirements. Through this dialogue, agreement on sufficient information can be obtained.

SUMMARY OF POS ACTIVITIES

| <u>Requirement</u> | <u>Planned Information for PSD Permit Application</u> |
|--------------------------------|---|
| Monitoring | Existing data for total suspended particulates (TSP), sulfur dioxide (SO ₂), nitrogen dioxide (NO ₂). |
| Baseline/Impacts Determination | Approved EPA models and procedures will be used to determine baseline air quality and impacts. PSD increment consumption will be determined. |
| BACT Review | The Best Available Control Technology (BACT) will be proposed for the facility in terms of appropriate emission levels. Appropriate information on the selected and alternative emission control systems will be presented, as described in recent BACT guidelines. |

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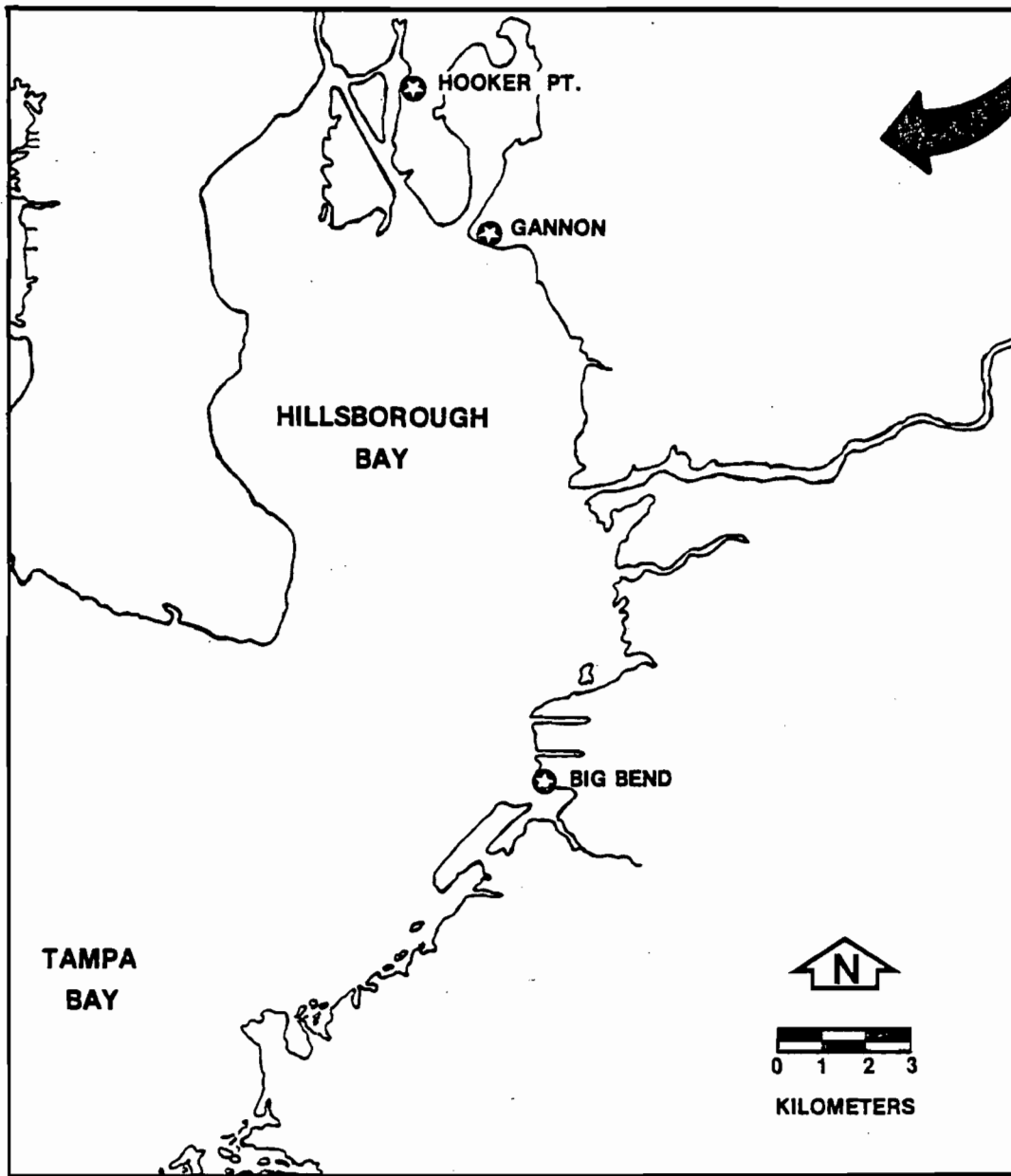


FIGURE 1-1 PLANT SITE LOCATION MAP

1.0 INTRODUCTION

Tampa Electric Company (TECO) is planning the construction of a coal-fired generating unit to be located at the site of the Company's existing Big Bend Station near Tampa, Florida, where currently three coal-fired generating units are in operation (see Figure 1-1). The new unit is scheduled for commercial operation in the mid-1980's.

Prior to construction of the new unit, government approvals, including permits related to air quality impacts resulting from the facility, must be obtained. This document presents a Plan of Study (POS) which is designed to provide information necessary to satisfy all government review requirements related to air quality laws and regulations.

All major new sources of air pollutants regulated under the Clean Air Act must be approved by the Environmental Protection Agency (EPA) under Federal Prevention of Significant Deterioration (PSD) review requirements. This review is used to determine if significant air quality deterioration will result from the new source. The Plan of Study addresses PSD requirements contained in 40 CFR 52.21 (June 19, 1978), as well as the requirements of the Clean Air Act Amendments of 1977.

As outlined in Figure 1-2, major sources are required to undergo the following reviews related to PSD: 1) control technology review; 2) air quality review; 3) monitoring; 4) source information; and 5) additional impact analyses. The control technology review includes determination of Best Available Control Technology (BACT) for each applicable pollutant, as well as compliance with emission standards and standards of performance (i.e., New Source Performance Standards) under 40 CFR 60. Air quality PSD review requires demonstration of compliance with Federal and State Ambient Air Quality Standards (AAQS) and PSD incremental impact limitations. In addition, an analysis is required to determine if certain significance of impact levels will be exceeded at nearby designated nonattainment areas. If these levels are exceeded, EPA's emissions offset policy would apply for applicable pollutants.

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In addition to review under Clean Air Act requirements, the planned power plant will also be subject to comprehensive reviews under the National Environmental Policy Act (NEPA) and Florida Electrical Power Plant Siting Act. Both of these laws also require environmental impact analysis, including consideration of air-related effects. The analyses and documentation described in the Plan of Study are intended to meet requirements associated with NEPA and Florida Siting Act approval processes.

2.0 MONITORING

2.1 REQUIREMENTS

The 1977 Amendments to the Clean Air Act state that ambient air monitoring for a period of up to one year can be required to complete the Prevention of Significant Deterioration requirements of the Act.

This monitoring requirement is derived from Sections 165 (a)(7) and 165 (e)(2) which state:

Section 165 (a)(7):

...the person who owns or operates, or proposes to own or operate, a major emitting facility for which a permit is required under this part agrees to conduct such monitoring as may be necessary to determine the effect which emissions from any such facility may have, or is having, on air quality in any area which may be affected by emissions from such source;...

Section 165 (e)(2):

Effective one year after date of enactment of this part, the analysis required by this subsection shall include continuous air quality monitoring data gathered for purposes of determining whether emissions from such facility will exceed the maximum allowable increases or the maximum allowable concentration permitted under this part. Such data shall be gathered over a period of one calendar year preceding the date of application for a permit under this part unless the State, in accordance with regulations promulgated by the Administrator, determines that a complete and adequate analysis for such purposes may be accomplished in a shorter period. The results of such analysis shall be available at the time of the public hearing on the application for such permit.

On June 19, 1978, EPA promulgated regulations (40 CFR 52.21) which, to a great degree, clarify the use of and rationale for preconstruction

monitoring, as well as the relative amount of monitoring required prior to submission of a PSD permit application. Although it was the intent of Congress to include monitoring requirements [Section 165 (e)(2)] as a means of checking the accuracy of dispersion models, increment consumption cannot be based on monitoring data. First, the year to year variability of air quality data is a limiting factor in using the data for comparison with future years. Second, increment consumption is generally based upon allowable emissions.

Ambient air quality monitoring measures actual air quality as reflected by actual emissions. A discrepancy will exist since air quality is not a sole function of emissions. In addition, certain emissions detectable may not consume part of the increment; e.g., a source commencing construction prior to January 6, 1975, but complete in 1980. Therefore, EPA evaluates increment consumption primarily on dispersion modeling.

Ambient air quality monitoring is, however, important in assessing compliance with Ambient Air Quality Standards (AAQS). For this reason, Congress [Section 165 (a)(7)] and EPA [40 CFR 52.21(n)(2)] promulgated requirements for air monitoring as necessary to evaluate compliance with AAQS. To give guidance in this area, EPA promulgated "Ambient Monitoring Guidelines for Prevention of Significant Deterioration" (OAQPS No. 1.2-096, May 1978). Information on the need, type, and procedures for preconstruction PSD air quality monitoring is discussed in this guideline. Table 3 in the guideline document indicates that for power plants from four months to one year of air monitoring at one to four sites is required.

Based on the ambient monitoring guideline document, it would appear that sufficient monitoring has been performed in the vicinity of the Big Bend Station. This monitoring program is based upon an existing ambient air network of continuous and non-continuous monitors. History of the existing network is presented in Section 2.2.

2.2 HISTORY OF MONITORING

2.2.1 Sulfur Dioxide

2.2.1.1 Continuous Monitoring

Continuous monitoring of sulfur dioxide concentrations in the Big Bend area began late in 1976 as a special study funded by the Tampa Electric Company. Six continuous analyzers were originally located in the vicinity, with an additional two analyzers placed in operation during 1977. The locations of the analyzers are shown in Figure 2.1. Table 2.1 lists the station numbers and the dates of valid data collection.

A systems audit of the network was performed by the Air Surveillance Branch of EPA Region IV. Quarterly performance audits were conducted by an independent EPA contractor during the special study.

The network was set up and maintained by Environmental Science and Engineering, Inc. (ESE) of Gainesville, Florida, until July 30, 1978. At that time, Tampa Electric Company's Central Testing Laboratory began and is currently maintaining the network. ESE is currently performing quarterly performance audits of the network.

The analyzers at seven of the stations were operated on the 0-1 ppm range. This range was not an equivalent range at the time of the special study. However, the manufacturer of the analyzer has recently submitted to EPA the necessary documentation for equivalency approval on the 0-1 ppm range. No modifications were made to the analyzer for this submittal; therefore, the data collected prior to approval should be considered valid under the equivalent method requirement for PSD.

The Hillsborough County Environmental Protection Commission (HCEPC) currently has one continuous monitor in the Big Bend area and has data available from two previous monitoring sites in the area.

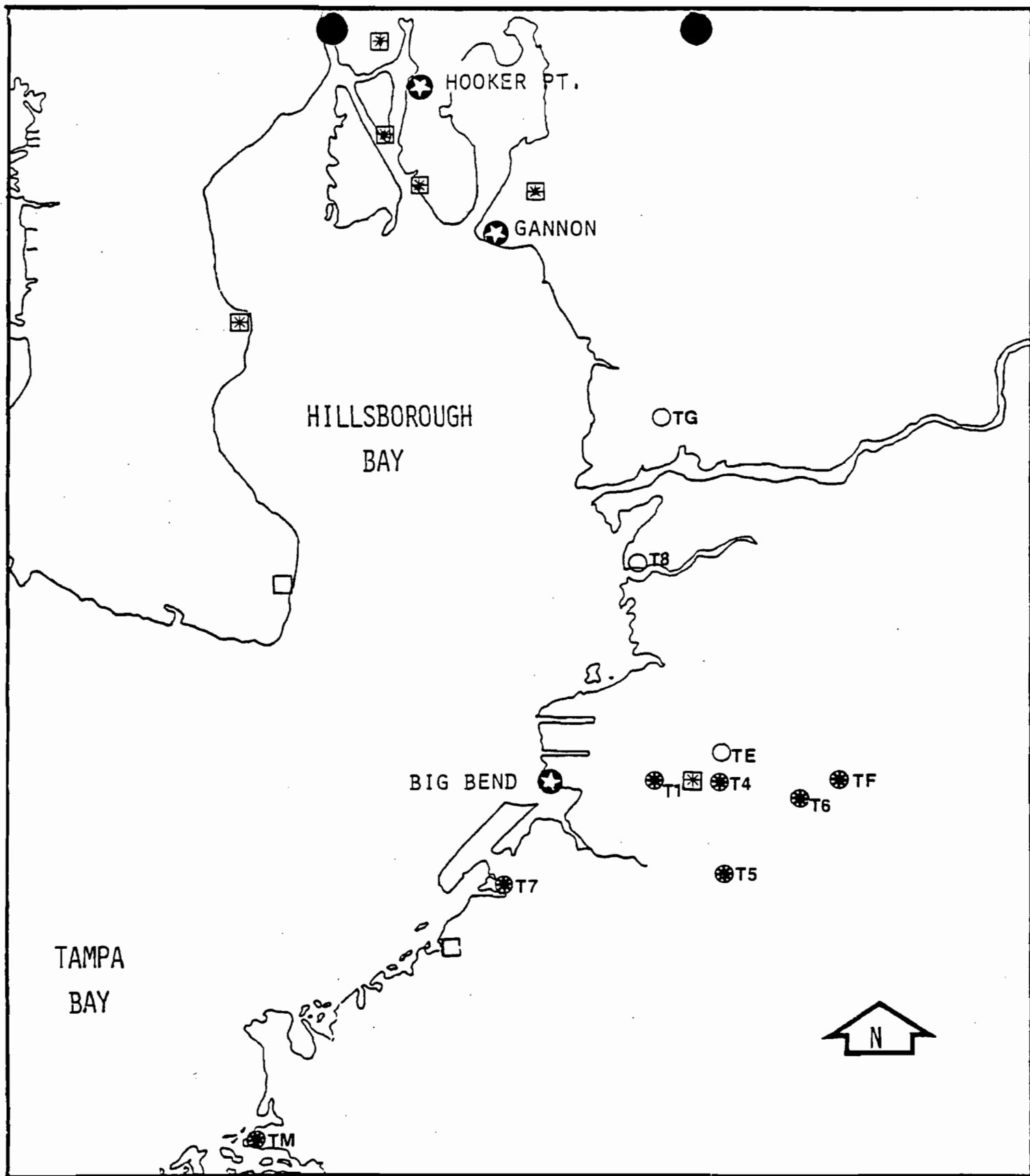


FIGURE 2.1.
SITE LOCATIONS OF TECO AND HCEPC CONTINUOUS SO₂ MONITORS

- PREVIOUS TECO SITE
- CURRENT TECO SITE
- PREVIOUS HCEPC SITE
- ⊠ CURRENT HCEPC SITE

Table 2.1. List of TECO Continuous Sulfur Dioxide Monitoring Stations
and Inclusive Dates of Data

| Station Location | Monitoring Began | Monitoring Ended |
|-----------------------------|-----------------------|--------------------------------------|
| T1 East Bay Substation | 12/76 | Currently Monitoring |
| T4 Bullfrog Creek Park | 5/77 | Currently Monitoring |
| T5 North Ruskin | 12/76 | Currently Monitoring |
| T6 Simmons Farm | 3/78 | Currently Monitoring |
| TF Highway 301 Site | 4/15/78 | Currently Monitoring |
| T7 Apollo Beach Golf Course | 12/76 9/77 6/78 | 5/77 3/78 Currently Monitoring |
| TM McInnes Site | 10/77 | Currently Monitoring |
| TG Gardinier | 5/77 | 4/78 |
| T8 Gibsonton | 2/77 | 3/78 |
| TE North Bull Frog Creek | 4/3/78 | 6/22/78 |

2.2.1.2 Twenty-Four Hour SO₂ Bubbler Data

Temperature controlled SO₂ bubbler data are available from both TECO and HCEPC networks in the Big Bend area. These data are available from approximately mid-1976 to the present. Non-temperature controlled data are available from as early as 1971 from both the TECO and HCEPC networks. Figure 2.2 shows the locations of both networks' monitoring stations with emphasis placed on the stations within a 10-mile radius of the Big Bend plant site.

2.2.2 Twenty-Four Hour NO₂ Bubbler Data

Nitrogen dioxide bubbler data collected by using the EPA equivalent method (EPA E.M. #EQN-1272-026) are available from both TECO and HCEPC networks from approximately mid-1973 (see Figure 2.3 for locations of monitoring stations). This method was not designated equivalent until 1977, but it has been in use as a candidate method since mid-1973. No modifications were made to the method between its promulgation as a candidate method and its designation as an equivalent method. Therefore, the data collected prior to designation should be acceptable for a PSD analysis.

2.2.3 Twenty-Four Hour TSP Data

Total suspended particulate matter data are available from the TECO monitoring network from late 1971 and from the HCEPC network as early as 1969 (see Figure 2.4 for locations of monitoring stations). All data were collected by utilizing the Federal Reference Method.

2.3 USE OF RESULTS

The existing ambient air quality data (TSP, SO₂, and NO₂) will be incorporated into the following applications and documents:

1. PSD permit application--Part I of the PSD application will contain the ambient air quality baseline information and atmospheric dispersion modeling results for evaluation of PSD increment consumption and compliance with AAQS. The analysis performed in this section will meet the requirements of 40 CFR 52.21(n) and 17-2.04(6) F.A.C.

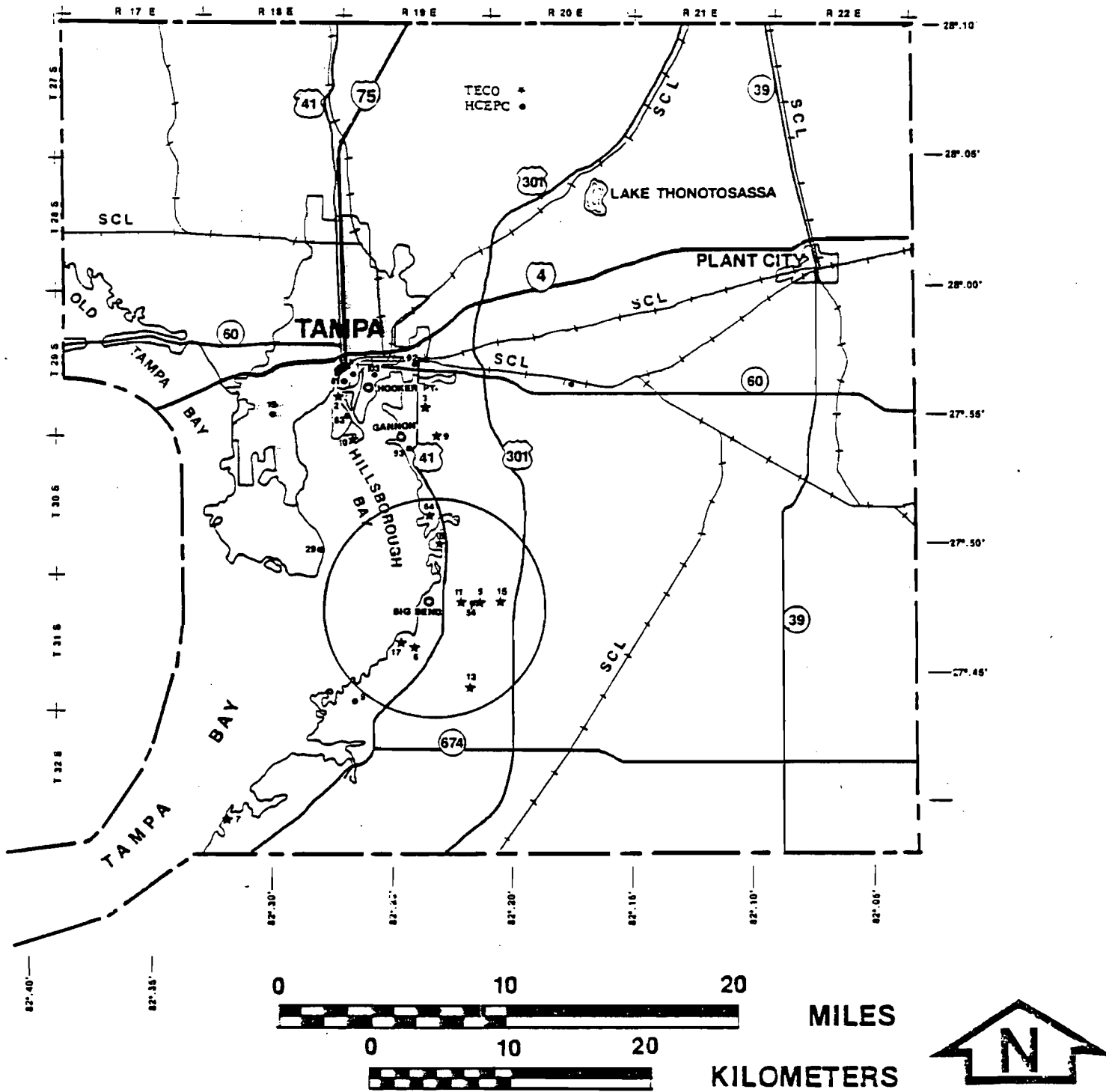


FIGURE 2.2.
LOCATIONS OF TECO AND HCEPC 24-HOUR SO₂ BUBBLER STATIONS WITHIN A 10-MILE RADIUS OF BIG BEND

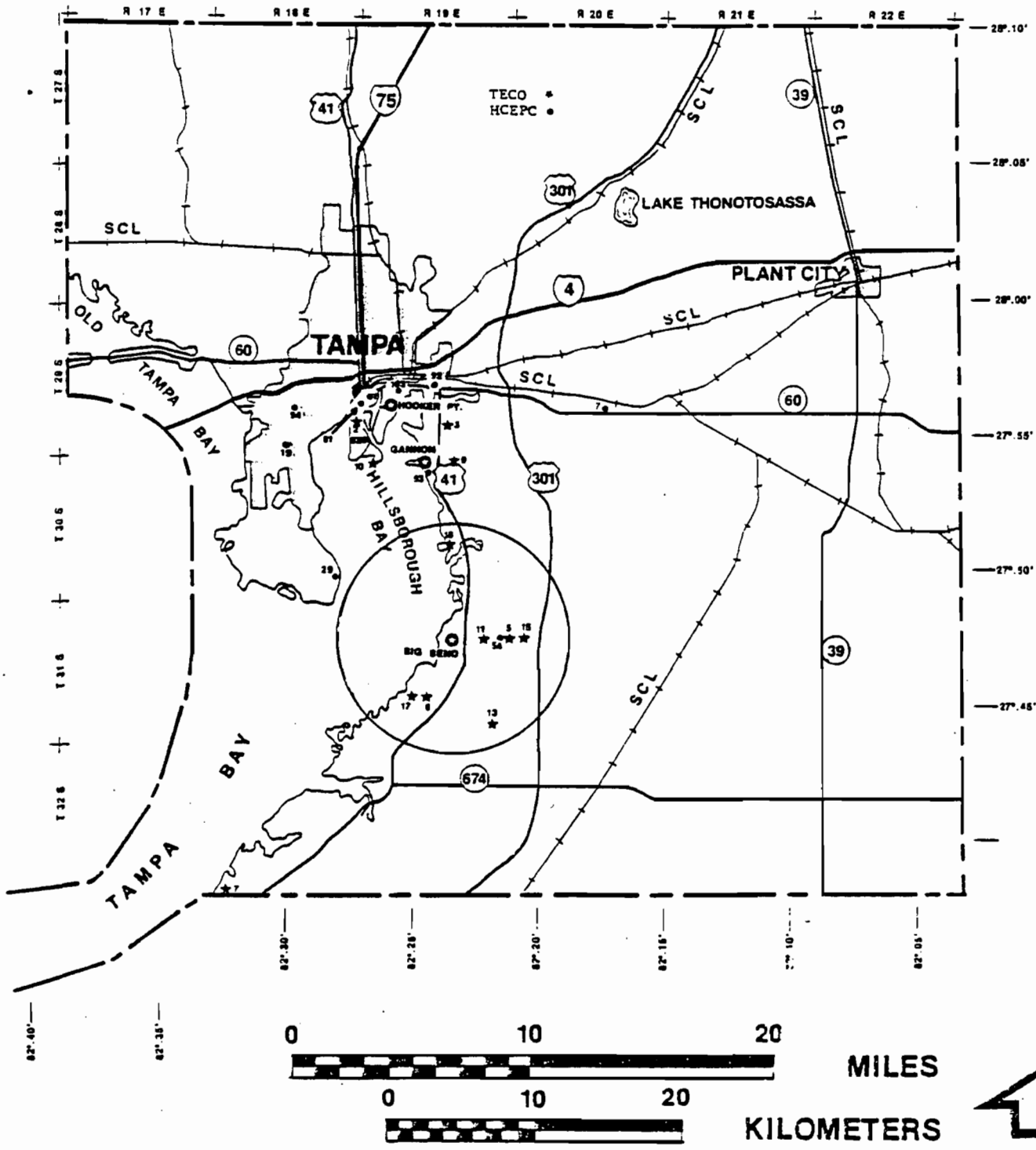


FIGURE 2.3.
LOCATIONS OF TECO AND HCEPC 24-HOUR NO₂ BUBBLER STATIONS WITHIN A 10-MILE RADIUS OF BIG BEND

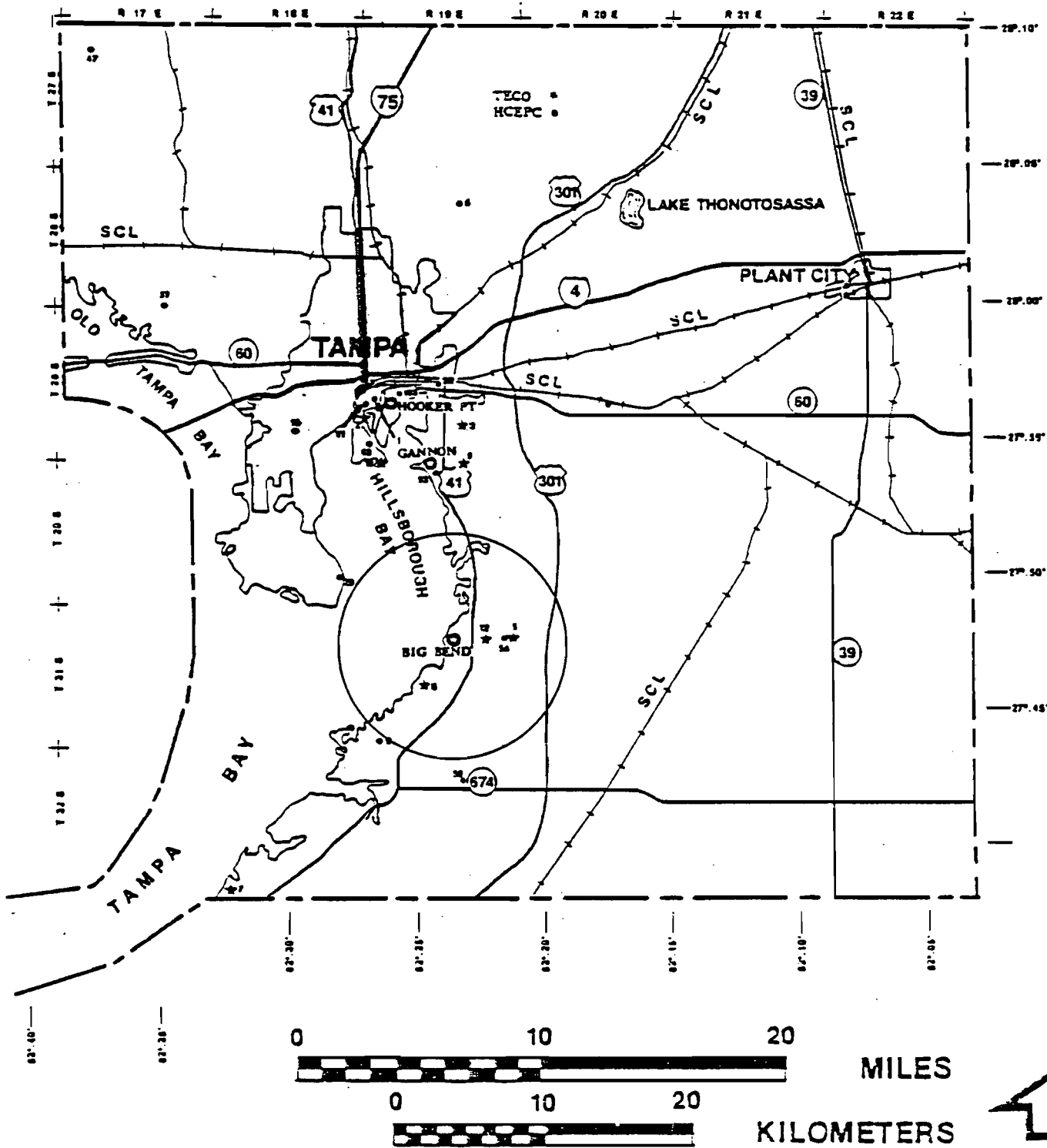


FIGURE 2.4.
LOCATIONS OF TECO AND HCEPC 24-HOUR TSP STATIONS WITHIN A 10-MILE
RADIUS OF BIG BEND

2. Application for Site Certification--The presentation of air quality data will meet the requirements of the Application for Site Certification [DER Form 17-1.122(73)] for Sections 2.6, 2.8, and 6.2.6.

3.0 DETERMINATION OF BASELINE

3.1 REQUIREMENTS

Baseline air quality at present in Florida has two distinct definitions. The EPA defines baseline air quality as "the ambient concentration level reflecting actual air quality as of August 7, 1977," minus the effects of major sources commencing construction after January 6, 1975 and operating as of August 7, 1977, plus the additional effects of the allowable emissions of major sources which commenced construction prior to January 6, 1975, but were not operating as of August 7, 1977 [40 CFR Part 52.21 (b)(11)]. The FDER utilizes 1974 as the baseline year instead of August 7, 1977, [17-2.02 (6) F.A.C.]. Both requirements will have to be met in the determination of baseline air quality.

3.2 PROPOSED BASELINE ANALYSIS

Requirements in the regulations outlined above necessitate that atmospheric dispersion modeling be utilized to determine baseline air quality. The regulations specifically require the use of atmospheric dispersion models in performing impact analysis, estimating baseline and future air quality levels, and in compliance determination with the AAQS and the allowable PSD increments. Approved EPA models or modifications to the approved models will be utilized. Specific applications for other than approved EPA models will be used with EPA's consultation. Guidance for the use and application of dispersion models are presented in the EPA publication "Guideline on Air Quality Models," (U.S. EPA, 1978). This guideline will be closely followed in this study where applicable. Any exceptions to the suggested models or methodologies will be documented.

Several widely recognized techniques for estimating or predicting ground-level pollutant concentrations will be utilized. Three EPA-approved models that will be used are: the Air Quality Display Model (AQDM-Briggs), the Point Multiple Model with wind shear effects (PTMTPW), and the CRSTER Single Source Model. The EPA approved RAM dispersion model may also be used to supplement the other prime air quality models.

The AQDM with Briggs plume rise equation determines annual average levels of atmospheric pollution from annual emissions and meteorological data and will be used to conduct the long-term impact evaluation. The short-term impact assessment will be conducted by using the PTMTPW and CRSTER, which calculate hourly pollutant concentrations from hourly emissions and meteorological parameters. These hourly levels can be averaged over any longer time period to facilitate comparisons of estimated air quality with air quality standards.

The remainder of this section discusses the general application of the models that will be used in this task as well as in the impact determination (see Section 5.0).

3.2.1 Application of the Dispersion Models

The methodology for applying the atmospheric dispersion models to the project analysis will follow EPA's "Guideline on Air Quality Models" (U.S. Environmental Protection Agency, 1978). This guideline report recommends the use of specific models for analysis of significant deterioration and compliance with AAQS and presents requirements for emission inventories, meteorological data, and other model inputs.

Long-Term Modeling

The long-term model AQDM (with Briggs plume rise) requires annual average emissions, stack parameters, and meteorological data in order to calculate annual average concentrations. Annual average emissions and stack parameters for all sulfur dioxide and particulate matter sources will be developed as described previously. The AQDM will be used to estimate annual average groundlevel concentrations due to all sources and due to the proposed plant only (incremental impact).

Meteorological data for input to the AQDM will be obtained primarily through the National Climatic Center, Asheville, North Carolina, as described in the meteorology section of this plan of study. This data is provided in the "STAR" format, which is the proper format for input to the AQDM, and contains the frequency of occurrence of wind direction and wind speed as a function of atmospheric stability class.

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A 1.0 kilometer grid spacing will be utilized in the AQDM to estimate the spatial distribution of ground-level concentrations and to determine maximum annual-average concentrations. AQDM predicted concentrations will not be calibrated (i.e., no adjustments to model values for either sulfur dioxide or TSP).

Short-Term Modeling

The CRSTER short-term dispersion model (EPA, 1977b) will be used to identify worst-case 24-hour meteorological conditions for both sulfur dioxide emissions and particulate matter emissions from the proposed plant. The model will also be applied to Big Bend and other major emission sources within 20 kilometers (12 miles) of the plant site and will utilize their annual average emissions and stack parameters. Area sources will not be considered in the short-term modeling; however, an appropriate short-term background level will be added to all point source concentration estimates to account for area source emissions.

Because the CRSTER model is a single source model, it is necessary to determine which source will have the primary impact upon maximum short-term concentrations. Evaluating the total emissions from each source in the area will ordinarily indicate the source of primary concern. For less obvious cases, it may also be necessary to examine stack heights or make multiple runs of CRSTER to determine which source is most critical for the meteorology of the region.

Once the critical sources have been determined, the critical meteorological conditions are determined from execution of the CRSTER. Since a five-year meteorological data base will be utilized in the models, actual worst-case conditions and wind directions will be utilized. Using the critical meteorology, maximum concentrations for the area are determined by the PTMTPW model. The PTMTPW allows for much greater flexibility than the CRSTER in that multiple sources and up to 30 receptor distances can be specified. The RAM model may be used to supplement these models. The evaluation of short-term maximum concentrations for future conditions with the proposed plant in operation

focuses on the following two factors: (1) the maximum concentration in the area due to all sources, and (2) the maximum concentration at the point of maximum impact of the proposed new source.

Short-term concentration estimates as provided by the models will not be adjusted (i.e., a calibration factor of 1.0 will be employed) for either sulfur dioxide or TSP. A minimum receptor grid spacing of 0.1 kilometer will be used in the PTMTPW to estimate maximum short-term concentrations.

3.2.2 Emission Inventories

The emission inventory will have to be updated with all source additions and modifications. The following inventories for sulfur dioxide and particulate matter for plants within 50 kilometers (31 miles) of the site location will be required for baseline determination:

1. Existing source emissions;
2. PSD--Baseline emissions FDER 1974;
3. PSD--Baseline EPA August 7, 1977.

3.3 USE OF RESULTS

The results of the baseline analysis will be incorporated into the following documents:

1. PSD Permit Application--Part I of the PSD application will contain the information obtained in the baseline analysis. The activities performed in this section will meet the requirements of 40 CFR 52.21 (b)(11), 17-2.02 (6) F.A.C, and 17-2.04 (6) F.A.C.
2. Application for Site Certification--The presentation of the baseline analysis results will meet the requirements of the Application for Site Certification [DER Form 17-1.122(73)] for Section 2.8.

4.0 CONTROL TECHNOLOGY REVIEW INFORMATION

4.1 REQUIREMENTS

A Best Available Control Technology (BACT) determination is required for all new major sources of any air pollutant by both the EPA and the FDER pursuant to PSD regulations [Code of Federal Regulations, Title 40, Part 52, Section 52.21 (j)(2) and Chapter 17-2, Section 2.04 (6)(c) Florida Administrative Code]. DER requires that the source owner or representative for each different point emission source prepare a form which evaluates the environmental, energy, and economic impacts of selected and alternative control techniques.

4.2 INFORMATION FOR BACT REVIEW

The data for PSD review will be submitted in a separate volume of the PSD application, Part II, which will include information on aspects of air emissions from the proposed plant, including emission rates, control systems, process equipment, and methods. Generic design information will be submitted. Source information will include such items as location, stack parameters used in modeling, and other information deemed important.

The air pollutant control device information will consist of a description of emission reduction systems available for BACT as it applies to the facility (it is anticipated that BACT will be established in terms of permissible emission levels). Basics of operation, efficiency, environmental impacts, operating conditions, energy requirements, and economics will be included.

4.3 USE OF RESULTS

The information developed for this activity will be incorporated into the following documents:

1. PSD Permit Application--Part II of the PSD application will contain the control technology information for the evaluation of BACT. The activities performed in this section will meet the requirements of 40 CFR 52.21(d), 40 CFR 52.21(o), and 17-2.03 F.A.C.

2. Application for Site Certification--The BACT evaluation will meet the requirements of the Application for Site Certification [DER Form 17-1.122(73)] for Section 3.7.

5.0 DETERMINATION OF IMPACTS

5.1 REQUIREMENTS

An atmospheric dispersion modeling analysis of the proposed coal-fired plant's impact on ambient air quality levels is required under Federal PSD regulations [Code of Federal Regulations, Title 40, Part 52, Section 52.21 (1)] and State of Florida PSD regulations [Florida Administrative Code, Chapter 17-2, Section 2.04 (6)(b)]. The air quality impact analysis must demonstrate that the proposed source will not cause or contribute to a violation of either the maximum allowable PSD increments or the Ambient Air Quality Standards (AAQS). Tables 5-1 and 5-2 present Federal and State AAQS. Table 5-3 presents PSD increments. In addition, impacts upon nearby nonattainment areas (areas exceeding a Federal AAQS) will be addressed. Hillsborough County, or portions thereof, are presently classified as nonattainment for TSP. As a result, if the impact of a new source exceeds certain significance levels for TSP, then the new source is required to comply with EPA's emission offset policy (Federal Register, Vol. 44, No. 11, January 16, 1979). Table 5-4 shows EPA's significance of impact levels for nonattainment areas.

PSD regulations specifically allow or require the use of atmospheric dispersion models [40 CFR Part 52.21 (m)] in performing the air quality impact analysis. Approved EPA dispersion models should be utilized. Modified dispersion models can be used for air quality impact analysis, provided EPA has given prior consultation. Guidance for the use and application of dispersion models related to impact analysis are presented in "Guideline on Air Quality Models," (U.S. Environmental Protection Agency, 1978).

In addition to air quality impact analyses, the Federal PSD regulations [40 CFR Part 52.21 (p)] require additional impact analyses of the impairment to visibility, soils, and vegetation that would occur as a result of the source and general commercial, residential, industrial,

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Table 5-1 National Ambient Air Quality Standards ($\mu\text{g}/\text{m}^3$)

| Pollutant | Averaging Time | Primary Standard | Secondary Standard |
|------------------------------|---------------------------------|------------------|--------------------|
| Suspended Particulate Matter | Annual Geometric Mean | 75 | 60 |
| | 24-Hour Maximum | 260* | 150* |
| Sulfur Dioxide | Annual Arithmetic Mean | 80 | N/A |
| | 24-Hour Maximum | 365* | N/A |
| | 3-Hour Maximum | N/A | 1,300* |
| Carbon Monoxide | 8-Hour Maximum | 10,000* | 10,000* |
| | 1-Hour Maximum | 40,000* | 40,000* |
| Hydrocarbons | 3-Hour Maximum (6 to 9 A.M.) | 160* | 160* |
| Nitrogen Dioxide | Annual Arithmetic Mean | 100 | 100 |
| Photochemical Oxidants | 1-Hour Maximum | 160* | 160* |

* Maximum concentration not to be exceeded more than once per year.

Source: Code of Federal Regulations, Title 40, Part 50.

Table 5-2 State of Florida Ambient Air Quality Standards ($\mu\text{g}/\text{m}^3$)

| Pollutant | Averaging Time | Standard |
|------------------------------|---------------------------------|----------|
| Suspended Particulate Matter | Annual Geometric Mean | 60 |
| | 24-Hour Maximum | 150* |
| Sulfur Dioxide | Annual Arithmetic Mean | 60 |
| | 24-Hour Maximum | 260* |
| | 3-Hour Maximum | 1,300* |
| Carbon Monoxide | 8-Hour Maximum | 10,000* |
| | 1-Hour Maximum | 40,000* |
| Hydrocarbons | 3-Hour Maximum (6 to 9 A.M.) | 160* |
| Nitrogen Dioxide | Annual Arithmetic Mean | 100 |
| Photochemical Oxidants | 1-Hour Maximum | 160* |

* Maximum concentration not to be exceeded more than once per year.

Source: Chapter 17-2, Florida Administrative Code.

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Table 5-3 Prevention of Significant Deterioration Increments ($\mu\text{g}/\text{m}^3$)

| Pollutant/Averaging Time | Class | | |
|--------------------------|-------|-----|-----|
| | I | II | III |
| Particulate Matter | | | |
| Annual Geometric Mean | 5 | 19 | 37 |
| 24-Hour Maximum* | 10 | 37 | 75 |
| Sulfur Dioxide | | | |
| Annual Arithmetic Mean | 2 | 20 | 40 |
| 24-Hour Maximum* | 5 | 91 | 182 |
| 3-Hour Maximum* | 25 | 512 | 700 |

* Increment can be exceeded once per year.

Source: Clean Air Act Amendments of 1977.

Table 5-4. Significant Levels of Priority Pollutants ($\mu\text{g}/\text{m}^3$)

| Pollutant | Averaging Time | | |
|--------------------|----------------|---------|--------|
| | Annual | 24-Hour | 3-Hour |
| Particulate Matter | 1 | 5 | — |
| Sulfur Dioxide | 1 | 5 | 25 |

Source: Federal Register, Volume 43, No. 118, June 19, 1978.

and other growth associated with the source. Generally, the impacts on soils, vegetation, and visibility will be presented qualitatively.

5.2 ANALYSIS OF IMPACTS--PSD/AAQS

Four EPA approved dispersion models will be used in the air quality impact analysis: the Air Quality Display Model (AQDM); the Single Source Model (CRSTER); the Point Multiple Model (PTMTP-W) with wind shear effects; and the Multi-Source RAM Model, where appropriate. The AQDM will be used to evaluate annual average air quality levels, considering all significant sources within 50 kilometers (31 miles) of the site. Short-term averaging times will be evaluated with the CRSTER, PTMTP-W, and RAM models.

The following emission scenarios will be modeled in order to comply with the impact assessment requirements for both EPA and FDER:

1. The incremental impact of the proposed facility;
2. Compliance with allowable PSD increments:
 - a. EPA baseline (August 7, 1977);
 - b. FDER baseline (calendar year 1974);
 - c. Projected levels (mid 1980's) with the proposed facilities operating;
3. Compliance with Ambient Air Quality Standards:
 - a. EPA AAQS; and
 - b. FDER AAQS.
4. Compliance with significance levels at TSP nonattainment area boundary (Hillsborough County) and nearest SO₂ nonattainment area (northwest corner of Pinellas County).

Emissions data for use in the dispersion models will be based upon data received from TECO, consideration of applicable emission regulations, and data currently on file with FDER. Meteorological data to be used in the dispersion models is described in Section 2.3. A five-year meteorological data base will allow the comparison of highest; second-highest short-term air quality concentrations to PSD increments and AAQS.

5.3 ADDITIONAL ANALYSIS OF IMPACTS

Impact analyses will address the requirements of 40 CFR Part 52.21(p), i.e., impacts on visibility, soils, vegetation, and associated growth.

5.4 USE OF RESULTS

The results of the air quality and additional impact analyses will be incorporated into the following documents:

1. PSD Permit Application--Volume I of the PSD application will contain the air quality impact information and atmospheric dispersion modeling results for evaluation of PSD increment consumption and compliance with AAQS. The activities performed in this section will meet the requirements of 40 CFR Part 52.21 (1), 40 CFR Part 52.21 (m), and 17-2.04 (6) F.A.C.
2. Application for Site Certification--The impact analysis will meet the requirements of the Application for Site Certification [DER Form 17-1.122(73)] for Section 5.5.